

APPENDIX E
First Quarter 2023 Analytical Laboratory
Reports, Chain of Custody Forms, and
Validation Reports

APPENDIX E
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Number	Outfall/Location	Eurofins Calscience Laboratory Report Number	Sampling Date
1	Arroyo Simi	570-122377-1	January 1, 2023
2	Arroyo Simi	570-122377-2	January 1, 2023
3	Arroyo Simi	570-122377-3	January 1, 2023
4	Arroyo Simi	570-122377-4	January 1, 2023
5	Arroyo Simi	570-122377-5	January 1, 2023
6	Arroyo Simi	570-122423-1	January 3, 2023
7	Arroyo Simi	570-123237-1	January 9, 2023
8	Arroyo Simi	570-123258-1	January 9, 2023
9	Arroyo Simi	570-123258-2	January 9, 2023
10	Arroyo Simi	570-124079-1	January 13, 2023
11	Arroyo Simi	570-124388-1	January 17, 2023
12	Arroyo Simi	570-124899-1	January 21, 2023
13	Arroyo Simi	570-129004-1	February 24, 2023
14	Outfall 001	570-122682-1	January 5, 2023
15	Outfall 001	570-122682-2	January 5, 2023
16	Outfall 001	570-122682-3	January 5, 2023
17	Outfall 001	570-123016-1	January 6, 2023
18	Outfall 001	570-123016-2	January 6, 2023
19	Outfall 001	570-123016-3	January 6, 2023
20	Outfall 001	570-123016-4	January 6, 2023
21	Outfall 001	570-123016-5	January 6, 2023
22	Outfall 001	570-123016-6	January 6, 2023
23	Outfall 001	570-123265-1	January 9, 2023
24	Outfall 001	570-123650-1	January 11, 2023
25	Outfall 001	570-123650-2	January 11, 2023
26	Outfall 001	570-123650-3	January 11, 2023
27	Outfall 001	570-123650-4	January 11, 2023
28	Outfall 001	570-124243-1	January 15, 2023
29	Outfall 001	570-124243-2	January 15, 2023
30	Outfall 001	570-124243-3	January 15, 2023
31	Outfall 001	570-124244-1	January 14, 2023
32	Outfall 001	570-124865-1	January 20, 2023
33	Outfall 001	570-124868-1	January 20, 2023
34	Outfall 001	570-124868-2	January 20, 2023
35	Outfall 001	570-124868-3	January 20, 2023
36	Outfall 001	570-129006-1	February 25, 2023
37	Outfall 001	570-129083-1	February 26, 2023
38	Outfall 001	570-129083-2	February 26, 2023

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39	Outfall 001	570-129083-3	February 26, 2023
40	Outfall 001	570-129853-1	March 4, 2023
41	Outfall 001	570-129907-1	March 5, 2023
42	Outfall 001	570-129907-2	March 5, 2023
43	Outfall 001	570-129907-3	March 5, 2023
44	Outfall 001	570-129989-1	March 6, 2023
45	Outfall 001	570-130078-1	March 7, 2023
46	Outfall 001	570-130078-2	March 7, 2023
47	Outfall 001	570-130078-3	March 7, 2023
48	Outfall 001	570-130857-1	March 10, 2023
49	Outfall 001	570-130859-1	March 11, 2023
50	Outfall 001	570-130859-2	March 11, 2023
51	Outfall 001	570-130859-3	March 11, 2023
52	Outfall 001	570-131818-1	March 20, 2023
53	Outfall 001	570-131945-1	March 21, 2023
54	Outfall 001	570-131945-2	March 21, 2023
55	Outfall 001	570-131945-3	March 21, 2023
56	Outfall 001	570-133102-1	March 30, 2023
57	Outfall 001	570-133102-2	March 30, 2023
58	Outfall 001	570-133102-3	March 30, 2023
59	Outfall 001	570-133103-1	March 29, 2023
60	Outfall 002	570-122386-1	January 1, 2023
61	Outfall 002	570-122386-2	January 1, 2023
62	Outfall 002	570-122386-3	January 1, 2023
63	Outfall 002	570-122390-1	January 2, 2023
64	Outfall 002	570-122390-2	January 2, 2023
65	Outfall 002	570-122390-3	January 2, 2023
66	Outfall 002	570-122390-4	January 2, 2023
67	Outfall 002	570-122390-5	January 2, 2023
68	Outfall 002	570-122390-6	January 2, 2023
69	Outfall 002	570-122425-1	January 3, 2023
70	Outfall 002	570-122503-1	January 4, 2023
71	Outfall 002	570-122671-1	January 5, 2023
72	Outfall 002	570-122949-1	January 5, 2023
73	Outfall 002	570-122959-1	January 6, 2023
74	Outfall 002	570-122959-2	January 6, 2023
75	Outfall 002	570-122959-3	January 6, 2023
76	Outfall 002	570-122986-1	January 6, 2023
77	Outfall 002	570-123264-1	January 9, 2023
78	Outfall 002	570-123414-1	January 10, 2023

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79	Outfall 002	570-123414-2	January 10, 2023
80	Outfall 002	570-123414-3	January 10, 2023
81	Outfall 002	570-123414-4	January 10, 2023
82	Outfall 002	570-124245-1	January 14, 2023
83	Outfall 002	570-124247-1	January 15, 2023
84	Outfall 002	570-124247-2	January 15, 2023
85	Outfall 002	570-124247-3	January 15, 2023
86	Outfall 002	570-124869-1	January 20, 2023
87	Outfall 002	570-124887-1	January 21, 2023
88	Outfall 002	570-124887-2	January 21, 2023
89	Outfall 002	570-124887-3	January 21, 2023
90	Outfall 002	570-125743-1	January 30, 2023
91	Outfall 002	570-125840-1	January 31, 2023
92	Outfall 002	570-125840-2	January 31, 2023
93	Outfall 002	570-125840-3	January 31, 2023
94	Outfall 002	570-128840-1	February 24, 2023
95	Outfall 002	570-128840-2	February 24, 2023
96	Outfall 002	570-128840-3	February 24, 2023
97	Outfall 002	570-128844-1	February 23, 2023
98	Outfall 002	570-129813-1	March 3, 2023
99	Outfall 002	570-129852-1	March 4, 2023
100	Outfall 002	570-129852-2	March 4, 2023
101	Outfall 002	570-129852-3	March 4, 2023
102	Outfall 002	570-129988-1	March 6, 2023
103	Outfall 002	570-130108-1	March 7, 2023
104	Outfall 002	570-130108-2	March 7, 2023
105	Outfall 002	570-130108-3	March 7, 2023
106	Outfall 002	570-130858-1	March 10, 2023
107	Outfall 002	570-130860-1	March 11, 2023
108	Outfall 002	570-130860-2	March 11, 2023
109	Outfall 002	570-130860-3	March 11, 2023
110	Outfall 002	570-130860-4	March 11, 2023
111	Outfall 002	570-131815-1	March 20, 2023
112	Outfall 002	570-131940-1	March 21, 2023
113	Outfall 002	570-131940-2	March 21, 2023
114	Outfall 002	570-131940-3	March 21, 2023
115	Outfall 002	570-132956-1	March 29, 2023
116	Outfall 002	570-133036-1	March 30, 2023
117	Outfall 002	570-133036-2	March 30, 2023
118	Outfall 002	570-133036-3	March 30, 2023

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119	Outfall 008	570-122678-1	January 5, 2023
120	Outfall 008	570-122678-2	January 5, 2023
121	Outfall 008	570-122678-3	January 5, 2023
122	Outfall 008	570-122945-1	January 6, 2023
123	Outfall 008	570-122945-2	January 6, 2023
124	Outfall 008	570-122945-3	January 6, 2023
125	Outfall 008	570-122945-4	January 6, 2023
126	Outfall 008	570-122945-5	January 6, 2023
127	Outfall 008	570-122945-6	January 6, 2023
128	Outfall 008	570-122945-7	January 6, 2023
129	Outfall 008	570-123267-1	January 9, 2023
130	Outfall 008	570-123670-1	January 11, 2023
131	Outfall 008	570-123670-2	January 11, 2023
132	Outfall 008	570-123670-3	January 11, 2023
133	Outfall 008	570-123670-4	January 11, 2023
134	Outfall 008	570-124233-1	January 15, 2023
135	Outfall 008	570-124233-2	January 15, 2023
136	Outfall 008	570-124233-4	January 15, 2023
137	Outfall 008	570-124236-1	January 14, 2023
138	Outfall 008	570-124870-1	January 20, 2023
139	Outfall 008	570-124890-1	January 21, 2023
140	Outfall 008	570-124890-2	January 21, 2023
141	Outfall 008	570-124890-3	January 21, 2023
142	Outfall 008	570-129008-1	February 25, 2023
143	Outfall 008	570-129009-1	February 25, 2023
144	Outfall 008	570-129009-2	February 25, 2023
145	Outfall 008	570-129009-3	February 25, 2023
146	Outfall 008	570-129926-1	March 5, 2023
147	Outfall 008	570-129991-1	March 6, 2023
148	Outfall 008	570-129992-1	March 6, 2023
149	Outfall 008	570-129992-2	March 6, 2023
150	Outfall 008	570-129992-3	March 6, 2023
151	Outfall 008	570-130109-1	March 7, 2023
152	Outfall 008	570-130109-2	March 7, 2023
153	Outfall 008	570-130109-3	March 7, 2023
154	Outfall 008	570-130855-1	March 10, 2023
155	Outfall 008	570-130861-1	March 11, 2023
156	Outfall 008	570-130861-2	March 11, 2023
157	Outfall 008	570-130861-3	March 11, 2023
158	Outfall 008	570-131811-1	March 20, 2023
159	Outfall 008	570-131948-1	March 21, 2023

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160	Outfall 008	570-131948-2	March 21, 2023
161	Outfall 008	570-131948-3	March 21, 2023
162	Outfall 008	570-133054-1	March 30, 2023
163	Outfall 008	570-133054-2	March 30, 2023
164	Outfall 008	570-133054-3	March 30, 2023
165	Outfall 008	570-133104-1	March 29, 2023
166	Outfall 009	570-122379-1	January 1, 2023
167	Outfall 009	570-122379-2	January 1, 2023
168	Outfall 009	570-122379-3	January 1, 2023
169	Outfall 009	570-122381-1	January 2, 2023
170	Outfall 009	570-122381-2	January 2, 2023
171	Outfall 009	570-122381-3	January 2, 2023
172	Outfall 009	570-122381-4	January 2, 2023
173	Outfall 009	570-122381-5	January 2, 2023
174	Outfall 009	570-122381-6	January 2, 2023
175	Outfall 009	570-122381-7	January 2, 2023
176	Outfall 009	570-123266-1	January 9, 2023
177	Outfall 009	570-123393-1	January 10, 2023
178	Outfall 009	570-123393-2	January 10, 2023
179	Outfall 009	570-123393-3	January 10, 2023
180	Outfall 009	570-123393-4	January 10, 2023
181	Outfall 009	570-123393-5	January 10, 2023
182	Outfall 009	570-124239-1	January 15, 2023
183	Outfall 009	570-124239-2	January 15, 2023
184	Outfall 009	570-124239-4	January 15, 2023
185	Outfall 009	570-124241-1	January 14, 2023
186	Outfall 009	570-124871-1	January 20, 2023
187	Outfall 009	570-124891-1	January 21, 2023
188	Outfall 009	570-124891-2	January 21, 2023
189	Outfall 009	570-124891-3	January 21, 2023
190	Outfall 009	570-125741-1	January 30, 2023
191	Outfall 009	570-125839-1	January 31, 2023
192	Outfall 009	570-125839-2	January 31, 2023
193	Outfall 009	570-125839-3	January 31, 2023
194	Outfall 009	570-128846-1	February 24, 2023
195	Outfall 009	570-129010-1	February 25, 2023
196	Outfall 009	570-129010-2	February 25, 2023
197	Outfall 009	570-129010-3	February 25, 2023
198	Outfall 009	570-129851-1	March 4, 2023
199	Outfall 009	570-129959-1	March 5, 2023

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201	Outfall 009	570-129959-3	March 5, 2023
202	Outfall 009	570-129990-1	March 6, 2023
203	Outfall 009	570-130127-1	March 7, 2023
204	Outfall 009	570-130127-2	March 7, 2023
205	Outfall 009	570-130127-3	March 7, 2023
206	Outfall 009	570-130856-1	March 10, 2023
207	Outfall 009	570-130862-1	March 11, 2023
208	Outfall 009	570-130862-2	March 11, 2023
209	Outfall 009	570-130862-3	March 11, 2023
210	Outfall 009	570-131814-1	March 20, 2023
211	Outfall 009	570-131938-1	March 21, 2023
212	Outfall 009	570-131938-2	March 21, 2023
213	Outfall 009	570-131938-3	March 21, 2023
214	Outfall 009	570-132955-1	March 29, 2023
215	Outfall 009	570-133059-1	March 30, 2023
216	Outfall 009	570-133059-2	March 30, 2023
217	Outfall 009	570-133059-3	March 30, 2023
218	Outfall 010	570-123417-1	January 10, 2023
219	Outfall 010	570-123417-2	January 10, 2023
220	Outfall 010	570-123417-3	January 10, 2023
221	Outfall 010	570-123653-1	January 11, 2023
222	Outfall 010	570-123653-2	January 11, 2023
223	Outfall 010	570-123653-3	January 11, 2023
224	Outfall 010	570-123653-4	January 11, 2023
225	Outfall 010	570-123653-5	January 11, 2023
226	Outfall 010	570-123653-6	January 11, 2023
227	Outfall 010	570-123653-7	January 11, 2023
228	Outfall 011	570-123256-1	January 8, 2023
229	Outfall 011	570-123256-2	January 8, 2023
230	Outfall 011	570-123256-3	January 8, 2023
231	Outfall 011	570-123391-1	January 10, 2023
232	Outfall 011	570-123391-2	January 10, 2023
233	Outfall 011	570-123391-3	January 10, 2023
234	Outfall 011	570-123391-4	January 10, 2023
235	Outfall 011	570-123391-5	January 10, 2023
236	Outfall 011	570-123391-6	January 10, 2023
237	Outfall 011	570-124229-1	January 15, 2023
238	Outfall 011	570-124392-1	January 17, 2023

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240	Outfall 011	570-124392-3	January 17, 2023
241	Outfall 011	570-124392-4	January 17, 2023
242	Outfall 011	570-124872-1	January 20, 2023
243	Outfall 011	570-124873-1	January 20, 2023
244	Outfall 011	570-124873-2	January 20, 2023
245	Outfall 011	570-124873-3	January 20, 2023
246	Outfall 011	570-129007-1	February 25, 2023
247	Outfall 011	570-129011-1	February 25, 2023
248	Outfall 011	570-129011-2	February 25, 2023
249	Outfall 011	570-129011-3	February 25, 2023
250	Outfall 011	570-129011-4	February 25, 2023
251	Outfall 011	570-131178-1	March 14, 2023
252	Outfall 011	570-131456-1	March 16, 2023
253	Outfall 011	570-131456-2	March 16, 2023
254	Outfall 011	570-131456-3	March 16, 2023
255	Outfall 011	570-131947-1	March 21, 2023
256	Outfall 011	570-132136-1	March 21, 2023
257	Outfall 011	570-132136-2	March 21, 2023
258	Outfall 011	570-132136-3	March 21, 2023
259	Outfall 018	570-122522-1	January 4, 2023
260	Outfall 018	570-122522-2	January 4, 2023
261	Outfall 018	570-122522-3	January 4, 2023
262	Outfall 018	570-123038-1	January 6, 2023
263	Outfall 018	570-123038-2	January 6, 2023
264	Outfall 018	570-123038-3	January 6, 2023
265	Outfall 018	570-123038-4	January 6, 2023
266	Outfall 018	570-123038-5	January 6, 2023
267	Outfall 018	570-123038-6	January 6, 2023
268	Outfall 018	570-123261-1	January 9, 2023
269	Outfall 018	570-123665-1	January 11, 2023
270	Outfall 018	570-123665-2	January 11, 2023
271	Outfall 018	570-123665-3	January 11, 2023
272	Outfall 018	570-123665-4	January 11, 2023
273	Outfall 018	570-124230-1	January 15, 2023
274	Outfall 018	570-124230-2	January 15, 2023
275	Outfall 018	570-124230-3	January 15, 2023
276	Outfall 018	570-124231-1	January 14, 2023
277	Outfall 018	570-124874-1	January 20, 2023
278	Outfall 018	570-124898-1	January 21, 2023

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279	Outfall 018	570-124898-2	January 21, 2023
280	Outfall 018	570-124898-3	January 21, 2023
281	Outfall 018	570-128843-1	February 24, 2023
282	Outfall 018	570-129084-1	February 26, 2023
283	Outfall 018	570-129084-2	February 26, 2023
284	Outfall 018	570-129084-3	February 26, 2023
285	Outfall 018	570-129850-1	March 4, 2023
286	Outfall 018	570-129968-1	March 5, 2023
287	Outfall 018	570-129968-2	March 5, 2023
288	Outfall 018	570-129968-3	March 5, 2023
289	Outfall 018	570-129985-1	March 6, 2023
290	Outfall 018	570-130128-1	March 7, 2023
291	Outfall 018	570-130128-2	March 7, 2023
292	Outfall 018	570-130128-3	March 7, 2023
293	Outfall 018	570-130920-1	March 13, 2023
294	Outfall 018	570-131459-1	March 16, 2023
295	Outfall 018	570-131459-2	March 16, 2023
296	Outfall 018	570-131459-3	March 16, 2023
297	Outfall 018	570-131817-1	March 20, 2023
298	Outfall 018	570-131952-1	March 21, 2023
299	Outfall 018	570-131952-2	March 21, 2023
300	Outfall 018	570-131952-3	March 21, 2023
301	Outfall 018	570-132958-1	March 29, 2023
302	Outfall 018	570-133047-1	March 30, 2023
303	Outfall 018	570-133047-2	March 30, 2023
304	Outfall 018	570-133047-3	March 30, 2023

Number	Outfall/Location	LuminUltra Laboratory Report Number	Sampling Date
305	Outfall 002	SM23A04007	January 1, 2023
	Outfall 009	SM23A04008	January 1, 2023
	Outfall 018	SM23A09005	January 4, 2023
306	Outfall 001	SM23A09006	January 5, 2023
	Outfall 008	SM23A09007	January 5, 2023
	Outfall 001	SM23A10025	January 9, 2023
307	Outfall 008	SM23A10026	January 9, 2023
	Outfall 011	SM23A10027	January 8, 2023
	Outfall 018	SM23A10028	January 9, 2023
308	Outfall 010	SM23A11054	January 10, 2023

Number	Outfall/Location	Data Usability Summary Reports (Validation Reports)	Sampling Date
309	Various	01_2023_NPDES_Q1_Rad_DUSR	2 through 31 January 2023
310	Various	02_2023_NPDES_Q1_Feb_Mar_Met_DUSR	25 February through 16 March 2023
311	Various	03_2023_NPDES_Q1_Feb_Mar_Diox_DUSR	24 February through 30 March 2023
312	Various	04_2023_NPDES_Q1_Feb_Mar_Diox_Tox_E.coli_DUSR	24 February through 30 March 2023
313	Various	05_2023_NPDES_Q1_Jan_Feb_Mar_DUSR	January through March 2023



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
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Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - GRAB

JOB NUMBER

570-122386-1

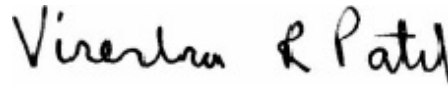
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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Job ID: 570-122386-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122386-1

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.4° C and 1.6° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 570-293391.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

Method 8015B: The following sample(s) were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: Outfall002_20230101_Grab (570-122386-1). The sample(s) were analyzed within 7 days per EPA recommendation.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Method SM 2540F: The following sample was received outside of holding time: Outfall002_20230101_Grab (570-122386-1).

Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 570-293681.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-293637.

Method: 1664.

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-293939. 8015B_DRO. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-122386-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Client Sample ID: Outfall002_20230101_Grab

Lab Sample ID: 570-122386-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C13-C28	0.060		0.050	0.036	mg/L	1		8015B	Total/NA
Specific Conductance	410		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Settleable Solids	0.10	BU BV	0.10	0.10	mL/L	1		SM 2540F	Total/NA

Client Sample ID: TB-20230101

Lab Sample ID: 570-122386-3

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230101_Grab

Lab Sample ID: 570-122386-1

Date Collected: 01/01/23 09:30

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/04/23 01:58	1
1,1,1,2-Tetrachloroethane	ND		0.50	0.20	ug/L			01/04/23 01:58	1
1,1,2-Trichloroethane	ND		0.50	0.17	ug/L			01/04/23 01:58	1
1,1-Dichloroethane	ND		0.50	0.39	ug/L			01/04/23 01:58	1
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/04/23 01:58	1
1,2-Dichlorobenzene	ND		0.50	0.16	ug/L			01/04/23 01:58	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/04/23 01:58	1
1,2-Dichloropropane	ND		0.50	0.17	ug/L			01/04/23 01:58	1
1,3-Dichlorobenzene	ND		0.50	0.16	ug/L			01/04/23 01:58	1
1,4-Dichlorobenzene	ND		0.50	0.11	ug/L			01/04/23 01:58	1
2-Chloroethyl vinyl ether	ND		2.0	1.1	ug/L			01/04/23 01:58	1
Acrolein	ND		5.0	4.6	ug/L			01/04/23 01:58	1
Acrylonitrile	ND		2.0	1.4	ug/L			01/04/23 01:58	1
Benzene	ND		0.50	0.28	ug/L			01/04/23 01:58	1
Bromoform	ND		1.0	0.25	ug/L			01/04/23 01:58	1
Bromomethane	ND		0.50	0.22	ug/L			01/04/23 01:58	1
Carbon tetrachloride	ND		0.50	0.28	ug/L			01/04/23 01:58	1
Chlorobenzene	ND		0.50	0.19	ug/L			01/04/23 01:58	1
Dibromochloromethane	ND		0.50	0.15	ug/L			01/04/23 01:58	1
Chloroethane	ND		1.0	0.29	ug/L			01/04/23 01:58	1
Chloroform	ND		0.50	0.19	ug/L			01/04/23 01:58	1
Chloromethane	ND		0.50	0.30	ug/L			01/04/23 01:58	1
cis-1,2-Dichloroethene	ND		0.50	0.21	ug/L			01/04/23 01:58	1
cis-1,3-Dichloropropene	ND		0.50	0.30	ug/L			01/04/23 01:58	1
Bromodichloromethane	ND		0.50	0.19	ug/L			01/04/23 01:58	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/04/23 01:58	1
Methylene Chloride	ND		2.0	0.57	ug/L			01/04/23 01:58	1
m,p-Xylene	ND		1.0	0.17	ug/L			01/04/23 01:58	1
Naphthalene	ND		1.0	0.33	ug/L			01/04/23 01:58	1
o-Xylene	ND		0.50	0.15	ug/L			01/04/23 01:58	1
Tetrachloroethene	ND		0.50	0.21	ug/L			01/04/23 01:58	1
Toluene	ND		0.50	0.23	ug/L			01/04/23 01:58	1
trans-1,2-Dichloroethene	ND		0.50	0.24	ug/L			01/04/23 01:58	1
trans-1,3-Dichloropropene	ND		0.50	0.18	ug/L			01/04/23 01:58	1
Trichloroethene	ND		0.50	0.17	ug/L			01/04/23 01:58	1
Trichlorofluoromethane	ND		0.50	0.29	ug/L			01/04/23 01:58	1
Vinyl chloride	ND		0.50	0.47	ug/L			01/04/23 01:58	1
Xylenes, Total	ND		1.0	0.17	ug/L			01/04/23 01:58	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.33	ug/L			01/04/23 01:58	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	0.58	ug/L			01/04/23 01:58	1
Cyclohexane	ND		2.0	0.79	ug/L			01/04/23 01:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		60 - 140		01/04/23 01:58	1
Toluene-d8 (Surr)	100		60 - 140		01/04/23 01:58	1
Dibromofluoromethane (Surr)	97		60 - 140		01/04/23 01:58	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-20230101
Date Collected: 01/01/23 09:30
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122386-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/04/23 01:35	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.20	ug/L			01/04/23 01:35	1
1,1,2-Trichloroethane	ND		0.50	0.17	ug/L			01/04/23 01:35	1
1,1-Dichloroethane	ND		0.50	0.39	ug/L			01/04/23 01:35	1
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/04/23 01:35	1
1,2-Dichlorobenzene	ND		0.50	0.16	ug/L			01/04/23 01:35	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/04/23 01:35	1
1,2-Dichloropropane	ND		0.50	0.17	ug/L			01/04/23 01:35	1
1,3-Dichlorobenzene	ND		0.50	0.16	ug/L			01/04/23 01:35	1
1,4-Dichlorobenzene	ND		0.50	0.11	ug/L			01/04/23 01:35	1
2-Chloroethyl vinyl ether	ND		2.0	1.1	ug/L			01/04/23 01:35	1
Acrolein	ND		5.0	4.6	ug/L			01/04/23 01:35	1
Acrylonitrile	ND		2.0	1.4	ug/L			01/04/23 01:35	1
Benzene	ND		0.50	0.28	ug/L			01/04/23 01:35	1
Bromoform	ND		1.0	0.25	ug/L			01/04/23 01:35	1
Bromomethane	ND		0.50	0.22	ug/L			01/04/23 01:35	1
Carbon tetrachloride	ND		0.50	0.28	ug/L			01/04/23 01:35	1
Chlorobenzene	ND		0.50	0.19	ug/L			01/04/23 01:35	1
Dibromochloromethane	ND		0.50	0.15	ug/L			01/04/23 01:35	1
Chloroethane	ND		1.0	0.29	ug/L			01/04/23 01:35	1
Chloroform	ND		0.50	0.19	ug/L			01/04/23 01:35	1
Chloromethane	ND		0.50	0.30	ug/L			01/04/23 01:35	1
cis-1,2-Dichloroethene	ND		0.50	0.21	ug/L			01/04/23 01:35	1
cis-1,3-Dichloropropene	ND		0.50	0.30	ug/L			01/04/23 01:35	1
Bromodichloromethane	ND		0.50	0.19	ug/L			01/04/23 01:35	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/04/23 01:35	1
Methylene Chloride	ND		2.0	0.57	ug/L			01/04/23 01:35	1
m,p-Xylene	ND		1.0	0.17	ug/L			01/04/23 01:35	1
Naphthalene	ND		1.0	0.33	ug/L			01/04/23 01:35	1
o-Xylene	ND		0.50	0.15	ug/L			01/04/23 01:35	1
Tetrachloroethene	ND		0.50	0.21	ug/L			01/04/23 01:35	1
Toluene	ND		0.50	0.23	ug/L			01/04/23 01:35	1
trans-1,2-Dichloroethene	ND		0.50	0.24	ug/L			01/04/23 01:35	1
trans-1,3-Dichloropropene	ND		0.50	0.18	ug/L			01/04/23 01:35	1
Trichloroethene	ND		0.50	0.17	ug/L			01/04/23 01:35	1
Trichlorofluoromethane	ND		0.50	0.29	ug/L			01/04/23 01:35	1
Vinyl chloride	ND		0.50	0.47	ug/L			01/04/23 01:35	1
Xylenes, Total	ND		1.0	0.17	ug/L			01/04/23 01:35	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.33	ug/L			01/04/23 01:35	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	0.58	ug/L			01/04/23 01:35	1
Cyclohexane	ND		2.0	0.79	ug/L			01/04/23 01:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		60 - 140					01/04/23 01:35	1
Toluene-d8 (Surr)	99		60 - 140					01/04/23 01:35	1
Dibromofluoromethane (Surr)	95		60 - 140					01/04/23 01:35	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: SW846 8015B - Gasoline Range Organics - (GC)

Client Sample ID: Outfall002_20230101_Grab
Date Collected: 01/01/23 09:30
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122386-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	30	ug/L			01/05/23 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		20 - 144		01/05/23 15:18	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: SW846 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: Outfall002_20230101_Grab
Date Collected: 01/01/23 09:30
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122386-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	0.060		0.050	0.036	mg/L	-	01/05/23 13:33	01/06/23 22:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>n</i> -Octacosane (Surr)	81		53 - 151				01/05/23 13:33	01/06/23 22:57	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

General Chemistry

Client Sample ID: Outfall002_20230101_Grab
Date Collected: 01/01/23 09:30
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122386-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	ND		1.1	0.54	mg/L		01/04/23 12:54	01/07/23 11:58	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance (SM 2510B)	410		1.0	1.0	umhos/cm			01/10/23 16:02	1
Settleable Solids (SM 2540F)	0.10	BU BV	0.10	0.10	mL/L			01/04/23 14:41	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL	DBFM
		(60-140)	(60-140)	(60-140)
570-122386-1	Outfall002_20230101_Grab	100	100	97
570-122386-3	TB-20230101	94	99	95
LCS 570-293391/1018	Lab Control Sample	97	100	100
LCS 570-293391/19	Lab Control Sample Dup	101	102	103
MB 570-293391/21	Method Blank	101	100	101

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB1
		(20-144)
570-122386-1	Outfall002_20230101_Grab	73
570-122504-D-3 MS	Matrix Spike	100
570-122504-D-3 MSD	Matrix Spike Duplicate	88
LCS 570-293882/3	Lab Control Sample	114
LCS 570-293882/4	Lab Control Sample Dup	114
MB 570-293882/5	Method Blank	75

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTCSN1
		(53-151)
570-122386-1	Outfall002_20230101_Grab	81
LCS 570-293939/2-A	Lab Control Sample	102
LCS 570-293939/3-A	Lab Control Sample Dup	96
MB 570-293939/1-A	Method Blank	99

Surrogate Legend

OTCSN = n-Octacosane (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-293391/21
Matrix: Water
Analysis Batch: 293391

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/03/23 23:43	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.20	ug/L			01/03/23 23:43	1
1,1,2-Trichloroethane	ND		0.50	0.17	ug/L			01/03/23 23:43	1
1,1-Dichloroethane	ND		0.50	0.39	ug/L			01/03/23 23:43	1
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/03/23 23:43	1
1,2-Dichlorobenzene	ND		0.50	0.16	ug/L			01/03/23 23:43	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/03/23 23:43	1
1,2-Dichloropropane	ND		0.50	0.17	ug/L			01/03/23 23:43	1
1,3-Dichlorobenzene	ND		0.50	0.16	ug/L			01/03/23 23:43	1
1,4-Dichlorobenzene	ND		0.50	0.11	ug/L			01/03/23 23:43	1
2-Chloroethyl vinyl ether	ND		2.0	1.1	ug/L			01/03/23 23:43	1
Acrolein	ND		5.0	4.6	ug/L			01/03/23 23:43	1
Acrylonitrile	ND		2.0	1.4	ug/L			01/03/23 23:43	1
Benzene	ND		0.50	0.28	ug/L			01/03/23 23:43	1
Bromoform	ND		1.0	0.25	ug/L			01/03/23 23:43	1
Bromomethane	ND		0.50	0.22	ug/L			01/03/23 23:43	1
Carbon tetrachloride	ND		0.50	0.28	ug/L			01/03/23 23:43	1
Chlorobenzene	ND		0.50	0.19	ug/L			01/03/23 23:43	1
Dibromochloromethane	ND		0.50	0.15	ug/L			01/03/23 23:43	1
Chloroethane	ND		1.0	0.29	ug/L			01/03/23 23:43	1
Chloroform	ND		0.50	0.19	ug/L			01/03/23 23:43	1
Chloromethane	ND		0.50	0.30	ug/L			01/03/23 23:43	1
cis-1,2-Dichloroethene	ND		0.50	0.21	ug/L			01/03/23 23:43	1
cis-1,3-Dichloropropene	ND		0.50	0.30	ug/L			01/03/23 23:43	1
Bromodichloromethane	ND		0.50	0.19	ug/L			01/03/23 23:43	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/03/23 23:43	1
Methylene Chloride	ND		2.0	0.57	ug/L			01/03/23 23:43	1
m,p-Xylene	ND		1.0	0.17	ug/L			01/03/23 23:43	1
Naphthalene	ND		1.0	0.33	ug/L			01/03/23 23:43	1
o-Xylene	ND		0.50	0.15	ug/L			01/03/23 23:43	1
Tetrachloroethene	ND		0.50	0.21	ug/L			01/03/23 23:43	1
Toluene	ND		0.50	0.23	ug/L			01/03/23 23:43	1
trans-1,2-Dichloroethene	ND		0.50	0.24	ug/L			01/03/23 23:43	1
trans-1,3-Dichloropropene	ND		0.50	0.18	ug/L			01/03/23 23:43	1
Trichloroethene	ND		0.50	0.17	ug/L			01/03/23 23:43	1
Trichlorofluoromethane	ND		0.50	0.29	ug/L			01/03/23 23:43	1
Vinyl chloride	ND		0.50	0.47	ug/L			01/03/23 23:43	1
Xylenes, Total	ND		1.0	0.17	ug/L			01/03/23 23:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.33	ug/L			01/03/23 23:43	1
1,2-Dichloro-1,1,2-trifluoroethane	ND		2.0	0.58	ug/L			01/03/23 23:43	1
Cyclohexane	ND		2.0	0.79	ug/L			01/03/23 23:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		60 - 140		01/03/23 23:43	1
Toluene-d8 (Surr)	100		60 - 140		01/03/23 23:43	1
Dibromofluoromethane (Surr)	101		60 - 140		01/03/23 23:43	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-293391/1018
Matrix: Water
Analysis Batch: 293391

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	10.0	9.04		ug/L		90	70 - 130
1,1,2,2-Tetrachloroethane	10.0	9.00		ug/L		90	60 - 140
1,1,2-Trichloroethane	10.0	8.93		ug/L		89	70 - 130
1,1-Dichloroethane	10.0	9.59		ug/L		96	70 - 130
1,1-Dichloroethene	10.0	8.43		ug/L		84	50 - 150
1,2-Dichlorobenzene	10.0	9.63		ug/L		96	65 - 135
1,2-Dichloroethane	10.0	9.09		ug/L		91	70 - 130
1,2-Dichloropropane	10.0	8.99		ug/L		90	35 - 165
1,3-Dichlorobenzene	10.0	9.97		ug/L		100	70 - 130
1,4-Dichlorobenzene	10.0	9.24		ug/L		92	65 - 135
2-Chloroethyl vinyl ether	10.0	8.55		ug/L		85	1 - 225
Acrolein	20.0	14.4		ug/L		72	60 - 140
Acrylonitrile	100	89.4		ug/L		89	60 - 140
Benzene	10.0	9.43		ug/L		94	65 - 135
Bromoform	10.0	9.20		ug/L		92	70 - 130
Bromomethane	10.0	11.2		ug/L		112	15 - 185
Carbon tetrachloride	10.0	8.99		ug/L		90	70 - 130
Chlorobenzene	10.0	9.33		ug/L		93	65 - 135
Dibromochloromethane	10.0	9.05		ug/L		90	70 - 135
Chloroethane	10.0	10.4		ug/L		104	40 - 160
Chloroform	10.0	8.90		ug/L		89	70 - 135
Chloromethane	10.0	11.4		ug/L		114	1 - 205
cis-1,2-Dichloroethene	10.0	9.34		ug/L		93	60 - 140
cis-1,3-Dichloropropene	10.0	9.60		ug/L		96	25 - 175
Bromodichloromethane	10.0	9.37		ug/L		94	65 - 135
Ethylbenzene	10.0	9.72		ug/L		97	60 - 140
Methylene Chloride	10.0	8.45		ug/L		85	60 - 140
m,p-Xylene	10.0	9.72		ug/L		97	60 - 140
Naphthalene	10.0	9.57		ug/L		96	60 - 140
o-Xylene	10.0	9.69		ug/L		97	60 - 140
Tetrachloroethene	10.0	9.61		ug/L		96	70 - 130
Toluene	10.0	9.53		ug/L		95	70 - 130
trans-1,2-Dichloroethene	10.0	8.98		ug/L		90	70 - 130
trans-1,3-Dichloropropene	10.0	9.66		ug/L		97	50 - 150
Trichloroethene	10.0	9.25		ug/L		92	65 - 135
Trichlorofluoromethane	10.0	10.6		ug/L		106	50 - 150
Vinyl chloride	10.0	10.5		ug/L		105	5 - 195
Xylenes, Total	20.0	19.4		ug/L		97	60 - 140
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	8.95		ug/L		90	60 - 140
1,2-Dichloro-1,1,2-trifluoroethane	20.0	18.4		ug/L		92	60 - 140
Cyclohexane	10.0	8.57		ug/L		86	60 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		60 - 140
Toluene-d8 (Surr)	100		60 - 140
Dibromofluoromethane (Surr)	100		60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-293391/19
Matrix: Water
Analysis Batch: 293391

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10.0	9.60		ug/L		96	70 - 130	6	36
1,1,2,2-Tetrachloroethane	10.0	9.35		ug/L		93	60 - 140	4	61
1,1,2-Trichloroethane	10.0	9.40		ug/L		94	70 - 130	5	45
1,1-Dichloroethane	10.0	10.1		ug/L		101	70 - 130	5	40
1,1-Dichloroethene	10.0	9.11		ug/L		91	50 - 150	8	32
1,2-Dichlorobenzene	10.0	9.96		ug/L		100	65 - 135	3	57
1,2-Dichloroethane	10.0	9.39		ug/L		94	70 - 130	3	49
1,2-Dichloropropane	10.0	9.20		ug/L		92	35 - 165	2	55
1,3-Dichlorobenzene	10.0	9.78		ug/L		98	70 - 130	2	43
1,4-Dichlorobenzene	10.0	9.50		ug/L		95	65 - 135	3	57
2-Chloroethyl vinyl ether	10.0	9.34		ug/L		93	1 - 225	9	71
Acrolein	20.0	17.8		ug/L		89	60 - 140	21	60
Acrylonitrile	100	97.9		ug/L		98	60 - 140	9	60
Benzene	10.0	9.48		ug/L		95	65 - 135	1	61
Bromoform	10.0	9.41		ug/L		94	70 - 130	2	42
Bromomethane	10.0	11.3		ug/L		113	15 - 185	0	61
Carbon tetrachloride	10.0	9.32		ug/L		93	70 - 130	4	41
Chlorobenzene	10.0	9.63		ug/L		96	65 - 135	3	53
Dibromochloromethane	10.0	9.40		ug/L		94	70 - 135	4	50
Chloroethane	10.0	11.0		ug/L		110	40 - 160	5	78
Chloroform	10.0	9.57		ug/L		96	70 - 135	7	30
Chloromethane	10.0	12.4		ug/L		124	1 - 205	8	60
cis-1,2-Dichloroethene	10.0	9.99		ug/L		100	60 - 140	7	30
cis-1,3-Dichloropropene	10.0	9.94		ug/L		99	25 - 175	3	58
Bromodichloromethane	10.0	9.70		ug/L		97	65 - 135	3	56
Ethylbenzene	10.0	9.99		ug/L		100	60 - 140	3	63
Methylene Chloride	10.0	9.09		ug/L		91	60 - 140	7	28
m,p-Xylene	10.0	9.64		ug/L		96	60 - 140	1	30
Naphthalene	10.0	10.7		ug/L		107	60 - 140	11	30
o-Xylene	10.0	10.0		ug/L		100	60 - 140	3	30
Tetrachloroethene	10.0	9.45		ug/L		94	70 - 130	2	39
Toluene	10.0	9.93		ug/L		99	70 - 130	4	41
trans-1,2-Dichloroethene	10.0	9.85		ug/L		98	70 - 130	9	45
trans-1,3-Dichloropropene	10.0	9.66		ug/L		97	50 - 150	0	86
Trichloroethene	10.0	9.41		ug/L		94	65 - 135	2	48
Trichlorofluoromethane	10.0	11.3		ug/L		113	50 - 150	6	84
Vinyl chloride	10.0	11.2		ug/L		112	5 - 195	6	66
Xylenes, Total	20.0	19.6		ug/L		98	60 - 140	1	30
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	9.45		ug/L		95	60 - 140	5	30
1,2-Dichloro-1,1,2-trifluoroethane	20.0	19.6		ug/L		98	60 - 140	6	30
Cyclohexane	10.0	9.16		ug/L		92	60 - 140	7	30

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
4-Bromofluorobenzene (Surr)	101		60 - 140
Toluene-d8 (Surr)	102		60 - 140
Dibromofluoromethane (Surr)	103		60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 570-293882/5
Matrix: Water
Analysis Batch: 293882

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	30	ug/L			01/05/23 14:15	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		20 - 144					01/05/23 14:15	1

Lab Sample ID: LCS 570-293882/3
Matrix: Water
Analysis Batch: 293882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	1920	2000		ug/L		104	71 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	114		20 - 144				

Lab Sample ID: LCSD 570-293882/4
Matrix: Water
Analysis Batch: 293882

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)	1920	2000		ug/L		104	71 - 120	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	114		20 - 144						

Lab Sample ID: 570-122504-D-3 MS
Matrix: Water
Analysis Batch: 293882

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	ND		1920	1720		ug/L		90	54 - 125
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	100		20 - 144						

Lab Sample ID: 570-122504-D-3 MSD
Matrix: Water
Analysis Batch: 293882

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)	ND		1920	1690		ug/L		88	54 - 125	2	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	88		20 - 144								

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-293939/1-A
Matrix: Water
Analysis Batch: 293943

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293939

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C13-C28	ND		0.050	0.036	mg/L		01/05/23 13:33	01/05/23 16:36	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	99		53 - 151				01/05/23 13:33	01/05/23 16:36	1

Lab Sample ID: LCS 570-293939/2-A
Matrix: Water
Analysis Batch: 293943

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293939

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C10-C28	4.00	4.14		mg/L		103	65 - 129
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
n-Octacosane (Surr)	102		53 - 151				

Lab Sample ID: LCSD 570-293939/3-A
Matrix: Water
Analysis Batch: 293943

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293939

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C10-C28	4.00	3.84		mg/L		96	65 - 129	7	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
n-Octacosane (Surr)	96		53 - 151						

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-293637/1-A
Matrix: Water
Analysis Batch: 294329

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293637

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		1.0	0.51	mg/L		01/04/23 12:54	01/07/23 11:58	1

Lab Sample ID: LCS 570-293637/2-A
Matrix: Water
Analysis Batch: 294329

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293637

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	38.0		mg/L		95	78 - 114

Lab Sample ID: LCSD 570-293637/3-A
Matrix: Water
Analysis Batch: 294329

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293637

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	38.6		mg/L		97	78 - 114	2	18

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-294917/8
 Matrix: Water
 Analysis Batch: 294917

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			01/10/23 14:44	1

Lab Sample ID: 570-122378-A-1 DU
 Matrix: Water
 Analysis Batch: 294917

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	160		162		umhos/cm		2	25

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

GC/MS VOA

Analysis Batch: 293391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122386-1	Outfall002_20230101_Grab	Total/NA	Water	624.1	
570-122386-3	TB-20230101	Total/NA	Water	624.1	
MB 570-293391/21	Method Blank	Total/NA	Water	624.1	
LCS 570-293391/1018	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-293391/19	Lab Control Sample Dup	Total/NA	Water	624.1	

GC VOA

Analysis Batch: 293882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122386-1	Outfall002_20230101_Grab	Total/NA	Water	8015B	
MB 570-293882/5	Method Blank	Total/NA	Water	8015B	
LCS 570-293882/3	Lab Control Sample	Total/NA	Water	8015B	
LCSD 570-293882/4	Lab Control Sample Dup	Total/NA	Water	8015B	
570-122504-D-3 MS	Matrix Spike	Total/NA	Water	8015B	
570-122504-D-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	

GC Semi VOA

Prep Batch: 293939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122386-1	Outfall002_20230101_Grab	Total/NA	Water	3510C	
MB 570-293939/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-293939/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-293939/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 293943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-293939/1-A	Method Blank	Total/NA	Water	8015B	293939
LCS 570-293939/2-A	Lab Control Sample	Total/NA	Water	8015B	293939
LCSD 570-293939/3-A	Lab Control Sample Dup	Total/NA	Water	8015B	293939

Analysis Batch: 294222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122386-1	Outfall002_20230101_Grab	Total/NA	Water	8015B	293939

General Chemistry

Prep Batch: 293637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122386-1	Outfall002_20230101_Grab	Total/NA	Water	1664A	
MB 570-293637/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-293637/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-293637/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 293681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122386-1	Outfall002_20230101_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 294329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122386-1	Outfall002_20230101_Grab	Total/NA	Water	1664A	293637

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

General Chemistry (Continued)

Analysis Batch: 294329 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-293637/1-A	Method Blank	Total/NA	Water	1664A	293637
LCS 570-293637/2-A	Lab Control Sample	Total/NA	Water	1664A	293637
LCSD 570-293637/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	293637

Analysis Batch: 294917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122386-1	Outfall002_20230101_Grab	Total/NA	Water	SM 2510B	
MB 570-294917/8	Method Blank	Total/NA	Water	SM 2510B	
570-122378-A-1 DU	Duplicate	Total/NA	Water	SM 2510B	

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- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Client Sample ID: Outfall002_20230101_Grab

Lab Sample ID: 570-122386-1

Date Collected: 01/01/23 09:30

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	293391	01/04/23 01:58	UX77	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Analysis	8015B		1	5 mL	5 mL	293882	01/05/23 15:18	A1W	EET CAL 4
Instrument ID: GC1										
Total/NA	Prep	3510C			251.2 mL	2.5 mL	293939	01/05/23 13:33	UFLU	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	294222	01/06/23 22:57	A1W	EET CAL 4
Instrument ID: GC50										
Total/NA	Prep	1664A			951 mL	1000 mL	293637	01/04/23 12:54	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			294329	01/07/23 11:58	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			294917	01/10/23 16:02	UAPD	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	293681	01/04/23 14:41	TXA8	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230101

Lab Sample ID: 570-122386-3

Date Collected: 01/01/23 09:30

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	293391	01/04/23 01:35	UX77	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-12-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
8015B	Gasoline Range Organics - (GC)	SW846	EET CAL 4
8015B	Diesel Range Organics (DRO) (GC)	SW846	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAL 4
5030C	Purge and Trap	SW846	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122386-1	Outfall002_20230101_Grab	Water	01/01/23 09:30	01/03/23 17:05
570-122386-3	TB-20230101	Water	01/01/23 09:30	01/03/23 17:05

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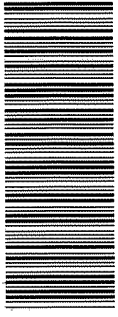
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122386



570-122386 Chain of Custody

CHAIN OF CUSTODY FORM

Test America

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Denian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSL NPDES Permit 2023 Annual Outfall 001 002, 011, 018 Outfall 002 Grab		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Meter serial # VL5V0UKT	
Test America's services under this CoC shall be performed in accordance with the T6Cs within Blanket Service Agreement# 2019-221-terminated by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.									
Sampler: Adrien Mobeka									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED
Outfall 002	Outfall002_20230101_Grab	1/12/2023 10:30	WM	125mL Sterile Poly	1	None	5	No	MST-Bactericides, Human (SAM348-357) Source Molecular in Miami Lakes FL
			WM	125mL Sterile Poly	3	Na ₂ S ₂ O ₅	10	No	E, coli (SM4221)
			WM	1 L Glass Amber	2	HCl	15	No	Sulfable Solids (E160.5 (SM2540F))
			WM	40 mL VOA	45	HCl	45	Yes	Conductivity (SM2510B / E120 1)
			WM	40 mL VOA	9	None	55	Yes	Oil & Grease (E1684A-HEM)
			WM	40 mL VOA	9	HCl	60	Yes	VOCs + VOCs PP + xylenes, Freon 11 Freon 113 Freon 123A, Cyclohexene, cis-1,2-DCE (E624)
			WM	1 L Glass Amber	6	None	65	Yes	VOCs only A+A+2OVE (E624)
			WM	1 L Poly	1	None	70	No	TPH gas (GRO(C4-C12)) (SW8016B)
			WM	500 mL Poly	1	None	75	No	TPH, diesel/jet fuel (DRO (C13-C28)) (SW8016B)
			WM	1 L Glass Amber	2	HCl	15	No	
			WM	40 mL VOA	3	HCl	45	No	
			WM	40 mL VOA	3	None	55	No	
			WM	500 mL Poly	1	None	75	No	
			WQ	40 mL VOA	2	HCl	45	No	
			WQ	40 mL VOA	2	None	55	No	
Trip Blanks	TB-20230101	1/12/2023 10:30							



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s): 570-203157.1
Client Contact: Virendra.Patel@eurofins.com		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California
Shipping/Receiving		Accreditations Required (See note): State Program - California	Page: Page 1 of 1
Enthalpy Analytical LLC		Job #: 570-122386-2	COC No: 570-203157.1
Address: 931 W Barkley Ave, Orange, CA, 92868		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AshNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify) Other:	
Due Date Requested: 1/17/2023	TAT Requested (days):	Analysis Requested	
PO #:	WO #:	Total Number of Containers: 3	
Project #: 44024446	SSOW#:	Special Instructions/Note: See Attached Instructions	
Boeing SSFL NPDES - Outfall 002 - GRAB	Site:	<input checked="" type="checkbox"/> Sub (Quant-Tray - E. Coll - level 4 required - E. Coll - level 4 required) <input checked="" type="checkbox"/> Perform (MS/MSD (Yes or No)) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No)	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)
Outfall002_20230101_Grab (570-122386-1)	1/1/23	09:30 Pacific	Water
Matrix (W=water, S=solid, O=organic, BT=biota, AA=air)	Preservation Code:		
	Water		

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification	
Unconfirmed	Special Instructions/QC Requirements:
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2
Empty Kit Relinquished by:	Date:
Relinquished by: <i>[Signature]</i>	Date/Time: 01/03/23 1615
Relinquished by:	Date/Time:
Relinquished by:	Date/Time:
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Received by: *[Signature]* Date/Time: 1/3/23 Company: EC
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Cooler Temperature(s) °C and Other Remarks:



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122386-1

Login Number: 122386

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 1/19/2023 2:59:07 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - GRAB

JOB NUMBER

570-122386-2

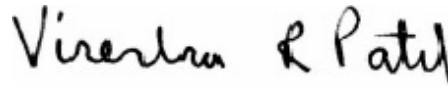
Job Notes

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender and destroy this report immediately. This report shall not be reproduced except in full, without prior express written approval by the laboratory.

The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
1/19/2023 2:59:07 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-122386-2

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-2

Job ID: 570-122386-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122386-2

Comments

No additional comments.

Receipt

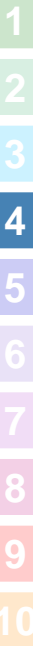
The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.4° C and 1.6° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.



Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-2

Client Sample ID: Outfall002_20230101_Grab

Lab Sample ID: 570-122386-1

No Detections.

1

2

3

4

5

6

7

8

9

10

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-2

Method	Method Description	Protocol	Laboratory
1103.1	E. Coli	EPA	Enthalpy

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122386-1	Outfall002_20230101_Grab	Water	01/01/23 09:30	01/03/23 17:05

1

2

3

4

5

6

7

8

9

10



Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 476424
Report Level: IV
Report Date: 01/18/2023

Microbiology Tests

Analytical Report prepared for:

Virendra Patel
Eurofins Calscience Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Project: BOEING NPDES SSFL - BOEING SSFL NPDES - OUTFALL 002 - GRAB

Authorized for release by:

Quynhgiao Le, Project Manager
714-7716900
quynhgiao.le@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105



Sample Summary

Virendra Patel	Lab Job #:	476424
Eurofins	Project No:	BOEING NPDES SSFL
Calscience Tustin	Location:	BOEING SSFL NPDES - OUTFALL 002 - GRAB
2841 Dow Avenue,	Date Received:	01/03/23
Suite 100		
Tustin, CA 92780		

Sample ID	Lab ID	Collected	Matrix
OUTFALL002_202320101_GRAB (570-122386-1)	476424-001	01/01/23 09:30	Water

Case Narrative

MICROBIOLOGY TESTS (SM 9223BB)

Eurofins Calscience Tustin	Lab Job Number: 476424
2841 Dow Avenue, Suite 100	Project No: BOEING NPDES SSFL
Tustin, CA 92780	Location: BOEING SSFL NPDES - OUTFALL 002 - GRAB
Virendra Patel	Date Received: 01/03/23

This data package contains sample and QC results for one water sample, requested for the above referenced project on 01/03/23. See attached cooler receipt form for any sample receipt problems or discrepancies.



Chain of Custody



ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1
 Client: Eurofins Calscience Project: Boeing SSFC NPDES
 Date Received: 1/3/23 Sampler's Name Present: Yes ^{AS} No

Section 2
 Sample(s) received in a cooler? Yes, How many? 1 No (skip section 2) Sample Temp (°C) (No Cooler): _____
 Sample Temp (°C), One from each cooler: #1: 2.8 #2: _____ #3: _____ #4: _____
(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)
 Shipping Information: _____

Section 3
 Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam
 Paper None Other _____
 Cooler Temp (°C): #1: 1.8 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	X		
Are sample IDs present?	X		
Are sampling dates & times present?	X		
Is a relinquished signature present?	X		
Are the tests required clearly indicated on the COC?	X		
Are custody seals present?		X	
If custody seals are present, were they intact?			X
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	X		
Did all samples arrive intact? If no, indicate in Section 4 below.	X		
Did all bottle labels agree with COC? (ID, dates and times)	X		
Were the samples collected in the correct containers for the required tests?	X		
Are the containers labeled with the correct preservatives?	X		X
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			X
Was a sufficient amount of sample submitted for the requested tests?	X		

Section 5 Explanations/Comments

Section 6
 For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time _____
 Email (email sent to/on): _____ / _____
 Project Manager's response:

Completed By: [Signature] Date: 1/3/23



ICOC No:
570-203157

Containers

Count
3

Container Type
Plastic 120 mL - Sterile/Na2S2O3

Preservative
Sodium Thiosulfate

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required)	E Coli (1x, 10x, 100x Dilutions) - 8 hour hold time - level 4

1.8/2.0





Results & QC Summary

Total Coliform / E. coli by Quanti-Tray

Lab #: 476424	Project#: BOEING NPDES SSFL	
Client: Eurofins Calscience Tustin	Location: BOEING SSFL NPDES - OUTFALL 002 - ...	
Field ID: OUTFALL002_202320101_GRAB (570-122386-1)	Batch#: 304527	Analyzed: 01/04/23 13:30
Lab ID: 476424-001	Sampled: 01/01/23 09:30	Prep:
Matrix: Water	Received: 01/03/23	Analysis: SM 9223Bb
Diln Fac: 1.000	Prepared: 01/03/23 16:51	Analyst: JAA

476424-001 Analyte	Result	RL	Units	Qual
Coliform, E. Coli	490	1.0	MPN/100ml	H

Legend
H: Holding time was exceeded
RL: Reporting Limit



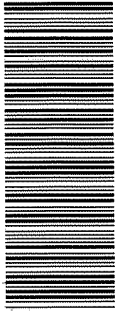
SM 9223 B-b, Quanti-Tray

Prep Analyst: ST Prep Date/Time: 01/03/23 1051 QC Batch ID: 3045077 Batch Page 1 of 2
 Read Analyst: ST Read Date/Time: 01/04/23 1330 Media Lot #: EUB96 Pipette Lot #: A103842 & A10394 1 A104116
 Monthly Quantitative Sealer Check: Collisure Colliert 24 Colliert 18 Colliert 24 * Quanti-Tray Sealer Check must be performed monthly
 Total and E. coli: Incubator ID: M4 Incubator In, Temp/Time: 17-24 35.3 Incubator Out, Temp/Time: 1330 35.2
 Fecal Coliform: Water Bath ID: NA Water Bath In, Temp/Time: NA Water Bath Out, Temp/Time: NA

Client	Client Sample ID	Enthalpy Sample ID	Dilution Factor	Total Coliform Counts		MPN Table Value	Final Result, MPN	E. coli Counts		MPN Table Value	Final Result, MPN	Fecal Coliform Counts (Colliert 18 only)		MPN Table Value	Final Result, MPN	Comments
				Large Wells	Small Wells			Large Wells	Small Wells			Large Wells	Small Wells			
		476421-001	1X	49	48	>2419.6	72400	49	26	488.4	490					EM
		↓	10X	49	48	>2419.6	>24000	31	2	49.5	500					
		↓	100X	49	21	365.4	36,000	9	0	9.8	980					
		476421-001	1X	49	48	>2419.6	>2400	48	18	248.9	250					EA
		↓	10X	49	31	648.8	6500	21	1	27.9	280					
		↓	100X	35	1	58.6	5900	2	0	2.0	200					
		476419-001	1X	49	48	>2419.6	>2400	49	47	2419.6	2400					EC
		↓	10X	49	48	>2419.6	>24000	49	16	235.5	2800					
		↓	100X	49	28	547.5	55,000	18	2	24.3	2400					
		476417-001	1X	49	48	>2419.6	>2400	48	7	159.7	160					CA
		↓	10X	49	48	>2419.6	>24000	11	1	13.4	130					
		↓	100X	49	10	204.6	20,000	4	0	4.1	410					
		476426-001	1X	49	48	>2419.6	>2400	49	48	2419.6	22400		JA 01/4/23			AR
		↓	10X	49	48	>2419.6	>24000	49	48	>2419.6	>2400					
		↓	100X	49	48	>2419.6	>24000	0	0	<1	<1					

Data Entered By: JA 1/4/23 Data Reviewed By: _____
 63 of 100 SM 9223B-b, Quanti-Tray, Rev 3, 1/15/2019

122386



570-122386 Chain of Custody

CHAIN OF CUSTODY FORM

Test America

Client Name/Address:
 Haley & Aldrich
 5333 Mission Center Rd Suite 300
 San Diego, CA 92108

Project:
 Boeing-SSFL NPDES
 Permit 2023
 Annual Outfall 001 002, 011, 018
 Outfall 002
 Grab

Project Manager: Katherine Miller
 520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
 978.234.5033, 818.599.0702 (cell)

Test America Contact: Christian Bondoc
 17461 Denian Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Test America's services under this CoC shall be performed in accordance with the T6Cs within Blanket Service Agreement# 2019-221-terminated by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Adrien Mobeka

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD
Outfall 002	Outfall002_20230101_Grab	1/11/2023/ 16430	WM	125mL Sterile Poly	1	None	5	No
			WM	125mL Sterile Poly	3	Na ₂ S ₂ O ₅	10	No
			WM	1 L Glass Amber	2	HCl	15	No
			WM	40 mL VOA	45	HCl	45	Yes
			WM	40 mL VOA	9	None	55	Yes
			WM	40 mL VOA	9	HCl	60	Yes
			WM	1 L Glass Amber	6	None	65	Yes
Trip Blanks	TB-20230101	1/11/2023/ 16430	WM	1 L Poly	1	None	70	No
			WM	500 mL Poly	1	None	75	No
			WM	1 L Glass Amber	2	HCl	15	No
			WM	40 mL VOA	3	HCl	45	No
			WM	40 mL VOA	3	None	55	No
Trip Blanks	TB-20230101	1/11/2023/ 16430	WM	500 mL Poly	1	None	75	No
			WQ	40 mL VOA	2	HCl	45	No
			WQ	40 mL VOA	2	None	55	No

Field Readings (Include units):
 Time of Readings: 0925
 DO: 9.19 mg/L
 pH: 8.33 pH unit
 Temp: 19.6 °C
 TRC: 0.0 mg/L
 Field readings QC
 Checked by: [Signature]
 Date/Time: 0925

Comments:
 Delivered to lab ASAP 8 hr hold time
 Delivered to lab ASAP 8 hr hold time, Need 10x, 00x
 duplicates

ANALYSIS REQUIRED:
 TPH, diesel/jet fuel (DRO C13-C28) (SW8016B)
 TPH gas (GRO C4-C12) (SW8016B)
 VOCs only A+A+2OVE (E624)
 Freon 123A, Cyclohexene, cis-1,2-DCE (E624)
 VOCs + VOCs PP + xylenes, Freon 11 Freon 113
 Oil & Grease (E164A-HEM)
 Conductivity (SM2510B / E120 1)
 Sulfide Solids (E160.5 (SM2540F))
 E. coli (SM9221)
 Source Molecular in Miami Lakes FL
 MST-Bacteroides, Human (SAM348-357)

Field Readings:
 Delivered to lab ASAP 8 hr hold time
 Delivered to lab ASAP 8 hr hold time, Need 10x, 00x
 duplicates

Turn-around time: (Check)
 24 Hour 72 Hour 10 Day
 48 Hour 5 Day Normal:

Sample Integrity: (Check)
 Intact: On Ice:
 Store samples for 6 months.
 Data Requirements: (Check)
 No Level IV: All Level IV:

Relinquished By: [Signature] Date/Time: 1-3-23/1245 HA Company: HA
Relinquished By: [Signature] Date/Time: 01/03/23 1705 EC Company: EC
Relinquished By: [Signature] Date/Time: 1.6/1.6 1.4/1.4 SC11 Company: SC11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122386-2

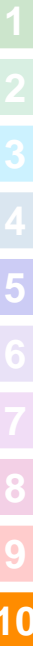
Login Number: 122386

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 2/24/2023 1:56:43 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - GRAB

JOB NUMBER

570-122386-3

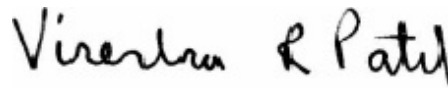
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

 Generated
2/24/2023 1:56:43 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-122386-3

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-3

Job ID: 570-122386-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122386-3

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.4° C and 1.6° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Weck 624.1 - 2-CEVE only (ug/L units) with MDLs (J): This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-3

Method	Method Description	Protocol	Laboratory
624	EPA 624 Purgeable Organic Compounds	EPA	Weck Lab

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Weck Lab = Weck Laboratories, Inc., 14859 East Clark Avenue, City of Industry, CA 917451396



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122386-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122386-2	Outfall002_20230101_Grab_Extra	Water	01/01/23 09:30	01/03/23 17:05

1

2

3

4

5

6

7

8

9

Work Orders: 3B02091

Project: 570-122386-3

Attn: Virendra Patel

Client: Eurofins Calscience - Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Report Date: 2/21/2023

Received Date: 2/2/2023

Turnaround Time: Normal

Phones: (949) 261-1022

Fax: (949) 260-3297

P.O. #:

Billing Code:

Dear Virendra Patel,

Enclosed are the results of analyses for samples received 2/02/23 with the Chain-of-Custody document. The samples were received in good condition, at 1.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Outfall002_20230101_Grab_Extra (570-122386-2)
3B02091-01 (Water)

Sampled: 01/01/23 9:30 by Client

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 624.1			Instr: GCMS21				
Batch ID: W3B0481		Preparation: EPA 5030B			Prepared: 02/07/23 06:54		Analyst: ADM
2-Chloroethyl vinyl ether	ND	0.19	1.0	ug/l	1	02/07/23	O-09
<i>Surrogate(s)</i>							
1,2-Dichloroethane-d4	118%		82-125	Conc: 59.1		02/07/23	
4-Bromofluorobenzene	97%		88-108	Conc: 48.4		02/07/23	
Toluene-d8	100%		92-112	Conc: 49.9		02/07/23	

Quality Control Results

Volatile Organic Compounds by P&T and GC/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limit	RPD	Limit	Qualifier
Blank (W3B0481-BLK1)					Prepared & Analyzed: 02/07/23						
2-Chloroethyl vinyl ether	ND	0.19	1.0	ug/l							
<i>Surrogate(s)</i>											
1,2-Dichloroethane-d4	51.1			ug/l	50.0		102	82-125			
4-Bromofluorobenzene	49.0			ug/l	50.0		98	88-108			
Toluene-d8	48.5			ug/l	50.0		97	92-112			
LCS (W3B0481-BS1)					Prepared & Analyzed: 02/07/23						
2-Chloroethyl vinyl ether	55.4	0.19	1.0	ug/l	50.0		111	0.1-305			
<i>Surrogate(s)</i>											
1,2-Dichloroethane-d4	50.1			ug/l	50.0		100	82-125			
4-Bromofluorobenzene	48.2			ug/l	50.0		96	88-108			
Toluene-d8	52.1			ug/l	50.0		104	92-112			
LCS Dup (W3B0481-BSD1)					Prepared & Analyzed: 02/07/23						
2-Chloroethyl vinyl ether	54.8	0.19	1.0	ug/l	50.0		110	0.1-305	1	25	
<i>Surrogate(s)</i>											
1,2-Dichloroethane-d4	50.3			ug/l	50.0		101	82-125			
4-Bromofluorobenzene	52.4			ug/l	50.0		105	88-108			
Toluene-d8	49.2			ug/l	50.0		98	92-112			

Notes and Definitions

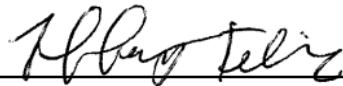
Item	Definition
O-09	This sample was received with the EPA recommended holding time expired.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:



Tiffany T. Felix For Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

ICOC No:
570-206007

Containers

Count 3 Container Type Voa Vial 40ml - unpreserved Preservative None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck 624.1 - 2-CEVE only (ug/L units) with MDLs (J))	Level IV, EQUIS 5C, MDL reporting w/J flag. Pe



COC	COC matches sample labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Receipt Information	Sample Temperature	1.9°C		
	Samples received on ice?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Ice Type (Blue/Wet)	WET		
	All samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Sufficient sample volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Preservation Verification?	Sample labels checked for correct preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	VOC Headspace: (No) none, If Yes (See comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	pH verified upon receipt?			
	Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 525.2<2; 6710B<2; 608.3 5-9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Free Chlorine Tested <0.1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	O&G pH <2 verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	pH adjusted for O&G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

08

PM Comments

Sample Receipt Checklist Prepared by:

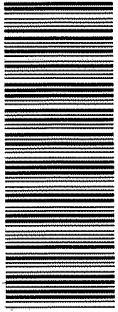
Signature: Lester Abad

Date: 02/02/23

QAF-006 V1.0 12/16/2021

F:\SC\ Resources\Forms\220509 Sample Receipt Checklist.docx [Type here]

122386



570-122386 Chain of Custody

CHAIN OF CUSTODY FORM

Client Name/Address: Hailey & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Denian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSL NPDES Permit 2023 Annual Outfall 001 002, 011, 018 Outfall 002 Grab		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		ANALYSIS REQUIRED TPH, diesel fuel (DRO C13-C28) (SW8016B) TPH gas (GRO C4-C12) (SW8016B) VOCs only A+A+2OVE (E624) Freon 123A, Cyclohexene, cis-1,2-DCE (E624) VOCs + VOCs PP + xylenes, Freon 11 Freon 113 Oil & Grease (E184A-HEM) Conductivity (SM2510B / E120 1) Sulfide Solids (E160.5 (SM2540F)) E. coli (SM4221) Source Molecular in Miami Lakes FL		Meter serial # VL5V0UKT Field Readings: (Include units) Time of Readings: 0925 DO: 9.19 mg/L pH: 8.33 pH unit Temp: 19.6 °C TRC: 0.0 mg/L Field readings QC Checked by: <i>[Signature]</i> Date/Time: 0925									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	MST-Bacteroides, Human (SAM348-357)	Oil & Grease (E184A-HEM)	VOCs + VOCs PP + xylenes, Freon 11 Freon 113	Freon 123A, Cyclohexene, cis-1,2-DCE (E624)	VOCs only A+A+2OVE (E624)	TPH gas (GRO C4-C12) (SW8016B)	TPH, diesel fuel (DRO C13-C28) (SW8016B)	Field Readings	Comments
Outfall 002	Outfall002_20230101_Grab	1/1/2023 / 10:30	WM	125mL Sterile Poly	1	None	5	No	X								Deliver to lab ASAP 8 hr hold time
			WM	125mL Sterile Poly	3	Na ₂ S ₂ O ₅	10	No									Deliver to lab ASAP 8 hr hold time
			WM	1 L Glass Amber	2	HCl	15	No		X							
			WM	40 mL VOA	45	HCl	45	Yes			X						
			WM	40 mL VOA	9	None	55	Yes			X						
			WM	40 mL VOA	9	HCl	60	Yes									
			WM	1 L Glass Amber	6	None	65	Yes									
			WM	1 L Poly	1	None	70	No	X								
			WM	500 mL Poly	1	None	75	No		X							
			WM	1 L Glass Amber	2	HCl	15	No			H						Hold
			WM	40 mL VOA	3	HCl	45	No			H						Hold
			WM	40 mL VOA	3	None	55	No					H				Hold
			WM	500 mL Poly	1	None	75	No									Hold
			WQ	40 mL VOA	2	HCl	45	No			X						Hold
Trip Blanks	TB-20230101	1/1/2023 / 10:30	WQ	40 mL VOA	2	None	55	No					X				Hold

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By <i>[Signature]</i>	Date/Time: 1-3-23 / 12:45	Company: HA	Received By <i>[Signature]</i>	Date/Time: 1-3-23 / 12:45	Company: EC	Turn-around time: (Check) 24 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 10 Day <input checked="" type="checkbox"/> 48 Hour <input type="checkbox"/> 5 Day <input type="checkbox"/> Normal: <input type="checkbox"/>
Relinquished By <i>[Signature]</i>	Date/Time: 01/03/23 17:05	Company: EC	Received By <i>[Signature]</i>	Date/Time: EC 1-3-23 17:05	Company:	Sample Integrity: (Check) Intact: <input type="checkbox"/> On Ice: <input type="checkbox"/> Store samples for 6 months. Data Requirements: (Check) No Level IV: <input type="checkbox"/> All Level IV: <input checked="" type="checkbox"/>

1.6/1.6 1.4/1.4 SC11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122386-3

Login Number: 122386

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 9:38:02 AM Revision 2

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - COMP

JOB NUMBER

570-122390-1

Job Notes

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Authorization



Generated
3/22/2023 9:38:02 AM
Revision 2

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

GC Semi VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LQ	LCS/LCSD recovery above method control limits
PI	Primary and confirm results varied by > than 40% RPD

HPLC/IC

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired
EY	Result exceeds normal dynamic range; reported as a min. est.
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)

Eurofins Calscience

Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-122390-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Glossary (Continued)

Abbreviation **These commonly used abbreviations may or may not be present in this report.**

RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

- 1
- 2
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- 9
- 10
- 11
- 12
- 13
- 14
- 15

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Job ID: 570-122390-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122390-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 1/17/2023. The report (revision 2) is being revised due to: The metals data between the L2 and L4 was not matching. Re-ran the L2 to correct the error..

Report revision history

Revision 1 - 2/3/2023 - Reason - The metals reporting was adjusted to report all elements by EPA 200.8..

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.2° C, 1.3° C, 2.1° C, 2.3° C and 2.6° C.

Receipt Exceptions

The reference method requires samples to be preserved to a pH of <2 SU. The following samples were received with insufficient preservation at a pH of >2 SU: Outfall002_20230102_Comp_F (570-122390-1), Outfall002_20230102_Comp (570-122390-2) and Outfall002_20230102_Comp_Extra (570-122390-3). 570-122390-BC-2 and BD-2. The samples were preserved to the appropriate pH in the laboratory.

570-122390-BC-2 was received cracked.

GC/MS VOA

Method 8260B SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-293702. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

Method 218.6: The following sample was received and analyzed outside of holding time: Outfall002_20230102_Comp (570-122390-2).

Method 300.0: Dilutions were performed for the following samples due to sample matrix properties: Outfall002_20230102_Comp (570-122390-2).

Method 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-293190 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method 300.0: Dilutions were performed for the following samples due to sample matrix properties: Outfall002_20230102_Comp (570-122390-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Job ID: 570-122390-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method 608.3: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-294075 and analytical batch 570-295061 recovered outside control limits for the following analytes: Aroclor-1016 and Aroclor-1260. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 608.3: The continuing calibration verification (CCV) associated with batch 570-294290 recovered above the upper control limit for Endrin. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (MB 570-294075/1-A).

Method 608.3: The continuing calibration verification (CCV) associated with 570-294290 recovered high and outside the control limits for Endrin on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: (LCS 570-294075/2-A) and (LCSD 570-294075/3-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 200.7 Rev 4.4: The matrix spike / matrix spike duplicate (MS/MSD) recoveries of Iron for preparation batch 570-293794 and analytical batch 570-294172 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.(570-122390-AA-2-B MS) and (570-122390-AA-2-C MSD)

Method 200.8: The method blank for preparation batch 570-293797 and analytical batch 570-294520 contained Antimony above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 200.8: The method blank for preparation batch 570-293797 and analytical batch 570-294520 contained Manganese above reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230102_Comp_F (570-122390-1), (570-122390-G-1 MS) and (570-122390-G-1 MSD). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230102_Comp_F (570-122390-1), (570-122390-G-1 MS) and (570-122390-G-1 MSD). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230102_Comp_F (570-122390-1). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-294075. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 608LL

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Job ID: 570-122390-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

preparation batch 570-294449. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 625 Sim

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Client Sample ID: Outfall002_20230102_Comp_F

Lab Sample ID: 570-122390-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	71	J,DX BU	500	3.5	ug/L	1		200.7 Rev 4.4	Dissolved
Antimony	0.76	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	2.0	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Selenium	0.88	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Barium	23	BU	1.0	0.17	ug/L	1		200.8	Dissolved
Iron	62	BU	20	3.7	ug/L	1		200.8	Dissolved
Nickel	0.99	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Vanadium	1.4	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Arsenic	1.2	BU	1.0	0.16	ug/L	1		200.8	Dissolved
Manganese	4.2	BU	1.0	0.41	ug/L	1		200.8	Dissolved
Chromium	0.24	J,DX BU	2.0	0.14	ug/L	1		200.8	Dissolved
Cobalt	0.19	J,DX BU	1.0	0.14	ug/L	1		200.8	Dissolved
Hardness as calcium carbonate	130		7.1	0.50	mg/L	1		SM 2340B	Dissolved

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[b]fluoranthene	0.15	J,DX	0.19	0.11	ug/L	1		625.1 SIM	Total/NA
Dimethyl phthalate	0.11	J,DX	1.9	0.093	ug/L	1		625.1 SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.14	J,DX	0.19	0.12	ug/L	1		625.1 SIM	Total/NA
Chromium, hexavalent	0.043	J,DX BU	0.20	0.019	ug/L	1		218.6	Total/NA
Chloride	12		5.0	1.8	mg/L	5		300.0	Total/NA
Nitrate as N	0.84		0.50	0.098	mg/L	5		300.0	Total/NA
Sulfate	74		5.0	1.2	mg/L	5		300.0	Total/NA
Nitrate Nitrite as N	0.84		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Boron	78	J,DX	500	3.5	ug/L	1		200.7 Rev 4.4	Total
Antimony	1.2	J,DX MB	2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	2.7		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.85	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Silver	0.28	J,DX	1.0	0.23	ug/L	1		200.8	Total Recoverable
Barium	31		1.0	0.17	ug/L	1		200.8	Total Recoverable
Iron	860		20	3.7	ug/L	1		200.8	Total Recoverable
Nickel	1.9	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Vanadium	3.9		2.0	0.17	ug/L	1		200.8	Total Recoverable
Arsenic	1.6		1.0	0.16	ug/L	1		200.8	Total Recoverable
Zinc	7.4	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Manganese	31	MB	1.0	0.41	ug/L	1		200.8	Total Recoverable
Chromium	1.5	J,DX	2.0	0.14	ug/L	1		200.8	Total Recoverable
Cobalt	0.65	J,DX	1.0	0.14	ug/L	1		200.8	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-122390-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Client Sample ID: Outfall002_20230102_Comp (Continued)

Lab Sample ID: 570-122390-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hardness as calcium carbonate	140		7.1	0.50	mg/L	1		SM 2340B	Total Recoverable
Turbidity	55		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	300		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	20		1.4	1.2	mg/L	1		SM 2540D	Total/NA
Carbon, Total Organic	15		5.0	2.6	mg/L	10		SM 5310D	Total/NA
MBAS	0.14	J,DX	0.30	0.054	mg/L	1		SM 5540C	Total/NA
Biochemical Oxygen Demand	2.2		2.0	1.0	mg/L	1		SM5210B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: SW846 8260B SIM - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230102_Comp

Date Collected: 01/02/23 09:15

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		1.0	0.55	ug/L			01/05/23 02:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Dichlorobutane (Surr)	119		67 - 133		01/05/23 02:31	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.19	0.12	ug/L		01/09/23 10:25	01/10/23 19:53	1
1,2-Dichlorobenzene	ND		0.19	0.11	ug/L		01/09/23 10:25	01/10/23 19:53	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		0.19	0.086	ug/L		01/09/23 10:25	01/10/23 19:53	1
1,3-Dichlorobenzene	ND		0.19	0.11	ug/L		01/09/23 10:25	01/10/23 19:53	1
1,4-Dichlorobenzene	ND		0.19	0.13	ug/L		01/09/23 10:25	01/10/23 19:53	1
2,4,6-Trichlorophenol	ND		0.95	0.13	ug/L		01/09/23 10:25	01/10/23 19:53	1
2,4-Dichlorophenol	ND		0.95	0.13	ug/L		01/09/23 10:25	01/10/23 19:53	1
2,4-Dimethylphenol	ND		0.19	0.12	ug/L		01/09/23 10:25	01/10/23 19:53	1
2,4-Dinitrophenol	ND		4.8	4.1	ug/L		01/09/23 10:25	01/10/23 19:53	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		01/09/23 10:25	01/10/23 19:53	1
2,6-Dinitrotoluene	ND		0.19	0.17	ug/L		01/09/23 10:25	01/10/23 19:53	1
2-Chloronaphthalene	ND		0.19	0.14	ug/L		01/09/23 10:25	01/10/23 19:53	1
2-Chlorophenol	ND		0.19	0.091	ug/L		01/09/23 10:25	01/10/23 19:53	1
2-Nitrophenol	ND		4.8	3.3	ug/L		01/09/23 10:25	01/10/23 19:53	1
3,3'-Dichlorobenzidine	ND		4.8	2.9	ug/L		01/09/23 10:25	01/10/23 19:53	1
4,6-Dinitro-2-methylphenol	ND		4.8	4.3	ug/L		01/09/23 10:25	01/10/23 19:53	1
4-Bromophenyl phenyl ether	ND		0.19	0.095	ug/L		01/09/23 10:25	01/10/23 19:53	1
4-Chloro-3-methylphenol	ND		0.95	0.13	ug/L		01/09/23 10:25	01/10/23 19:53	1
4-Chlorophenyl phenyl ether	ND		0.19	0.16	ug/L		01/09/23 10:25	01/10/23 19:53	1
4-Nitrophenol	ND		4.8	3.2	ug/L		01/09/23 10:25	01/10/23 19:53	1
Acenaphthene	ND		0.19	0.094	ug/L		01/09/23 10:25	01/10/23 19:53	1
Acenaphthylene	ND		0.19	0.12	ug/L		01/09/23 10:25	01/10/23 19:53	1
Anthracene	ND		0.19	0.080	ug/L		01/09/23 10:25	01/10/23 19:53	1
Benzidine	ND		4.8	2.6	ug/L		01/09/23 10:25	01/10/23 19:53	1
Benzo[a]anthracene	ND		0.19	0.12	ug/L		01/09/23 10:25	01/10/23 19:53	1
Benzo[a]pyrene	ND		0.19	0.15	ug/L		01/09/23 10:25	01/10/23 19:53	1
Benzo[b]fluoranthene	0.15	J,DX	0.19	0.11	ug/L		01/09/23 10:25	01/10/23 19:53	1
Benzo[g,h,i]perylene	ND		0.19	0.10	ug/L		01/09/23 10:25	01/10/23 19:53	1
Benzo[k]fluoranthene	ND		0.19	0.11	ug/L		01/09/23 10:25	01/10/23 19:53	1
bis (2-chloroisopropyl) ether	ND		0.19	0.12	ug/L		01/09/23 10:25	01/10/23 19:53	1
Bis(2-chloroethoxy)methane	ND		0.19	0.10	ug/L		01/09/23 10:25	01/10/23 19:53	1
Bis(2-chloroethyl)ether	ND		0.19	0.099	ug/L		01/09/23 10:25	01/10/23 19:53	1
Bis(2-ethylhexyl) phthalate	ND		4.8	3.4	ug/L		01/09/23 10:25	01/10/23 19:53	1
Butyl benzyl phthalate	ND		0.95	0.64	ug/L		01/09/23 10:25	01/10/23 19:53	1
Chrysene	ND		0.19	0.11	ug/L		01/09/23 10:25	01/10/23 19:53	1
Dibenz(a,h)anthracene	ND		0.19	0.15	ug/L		01/09/23 10:25	01/10/23 19:53	1
Diethyl phthalate	ND		1.9	0.17	ug/L		01/09/23 10:25	01/10/23 19:53	1
Dimethyl phthalate	0.11	J,DX	1.9	0.093	ug/L		01/09/23 10:25	01/10/23 19:53	1
Di-n-butyl phthalate	ND		1.9	1.8	ug/L		01/09/23 10:25	01/10/23 19:53	1
Di-n-octyl phthalate	ND		2.9	0.51	ug/L		01/09/23 10:25	01/10/23 19:53	1
Fluoranthene	ND		0.19	0.096	ug/L		01/09/23 10:25	01/10/23 19:53	1
Fluorene	ND		0.19	0.090	ug/L		01/09/23 10:25	01/10/23 19:53	1
Hexachlorobenzene	ND		0.19	0.13	ug/L		01/09/23 10:25	01/10/23 19:53	1
Hexachlorobutadiene	ND		0.19	0.14	ug/L		01/09/23 10:25	01/10/23 19:53	1
Hexachlorocyclopentadiene	ND		0.19	0.15	ug/L		01/09/23 10:25	01/10/23 19:53	1
Hexachloroethane	ND		0.19	0.12	ug/L		01/09/23 10:25	01/10/23 19:53	1
Indeno[1,2,3-cd]pyrene	0.14	J,DX	0.19	0.12	ug/L		01/09/23 10:25	01/10/23 19:53	1
Isophorone	ND		0.19	0.094	ug/L		01/09/23 10:25	01/10/23 19:53	1
Naphthalene	ND		0.19	0.10	ug/L		01/09/23 10:25	01/10/23 19:53	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrobenzene	ND		0.19	0.14	ug/L		01/09/23 10:25	01/10/23 19:53	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		01/09/23 10:25	01/10/23 19:53	1
N-Nitrosodi-n-propylamine	ND		0.19	0.14	ug/L		01/09/23 10:25	01/10/23 19:53	1
N-Nitrosodiphenylamine	ND		0.19	0.10	ug/L		01/09/23 10:25	01/10/23 19:53	1
Pentachlorophenol	ND		0.95	0.80	ug/L		01/09/23 10:25	01/10/23 19:53	1
Phenanthrene	ND		0.19	0.16	ug/L		01/09/23 10:25	01/10/23 19:53	1
Phenol	ND		0.95	0.50	ug/L		01/09/23 10:25	01/10/23 19:53	1
Pyrene	ND		0.19	0.082	ug/L		01/09/23 10:25	01/10/23 19:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>2,4,6-Tribromophenol</i>	81		28 - 127				01/09/23 10:25	01/10/23 19:53	1
<i>2-Fluorobiphenyl (Surr)</i>	66		31 - 120				01/09/23 10:25	01/10/23 19:53	1
<i>2-Fluorophenol</i>	33		17 - 120				01/09/23 10:25	01/10/23 19:53	1
<i>Nitrobenzene-d5</i>	71		27 - 120				01/09/23 10:25	01/10/23 19:53	1
<i>Phenol-d6 (Surr)</i>	24		10 - 120				01/09/23 10:25	01/10/23 19:53	1
<i>p-Terphenyl-d14 (Surr)</i>	73		45 - 120				01/09/23 10:25	01/10/23 19:53	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-122390-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Method: EPA 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0033	0.0031	ug/L		01/06/23 12:10	01/13/23 15:11	1
alpha-BHC	ND		0.0013	0.0012	ug/L		01/06/23 12:10	01/13/23 15:11	1
beta-BHC	ND		0.0050	0.0039	ug/L		01/06/23 12:10	01/13/23 15:11	1
delta-BHC	ND		0.0033	0.0020	ug/L		01/06/23 12:10	01/13/23 15:11	1
gamma-BHC (Lindane)	ND		0.0013	0.00066	ug/L		01/06/23 12:10	01/13/23 15:11	1
Chlordane (technical)	ND		0.033	0.026	ug/L		01/06/23 12:10	01/13/23 15:11	1
4,4'-DDD	ND		0.0067	0.0044	ug/L		01/06/23 12:10	01/13/23 15:11	1
4,4'-DDE	ND		0.0033	0.0019	ug/L		01/06/23 12:10	01/13/23 15:11	1
4,4'-DDT	ND		0.0033	0.0016	ug/L		01/06/23 12:10	01/13/23 15:11	1
Dieldrin	ND		0.0033	0.0013	ug/L		01/06/23 12:10	01/13/23 15:11	1
Endosulfan I	ND		0.0013	0.0013	ug/L		01/06/23 12:10	01/13/23 15:11	1
Endosulfan II	ND		0.0067	0.0041	ug/L		01/06/23 12:10	01/13/23 15:11	1
Endosulfan sulfate	ND		0.0033	0.0014	ug/L		01/06/23 12:10	01/13/23 15:11	1
Endrin	ND		0.0033	0.0023	ug/L		01/06/23 12:10	01/13/23 15:11	1
Endrin aldehyde	ND		0.033	0.024	ug/L		01/06/23 12:10	01/13/23 15:11	1
Heptachlor	ND		0.0013	0.0012	ug/L		01/06/23 12:10	01/13/23 15:11	1
Heptachlor epoxide	ND		0.0067	0.0039	ug/L		01/06/23 12:10	01/13/23 15:11	1
Toxaphene	ND		0.067	0.054	ug/L		01/06/23 12:10	01/13/23 15:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Tetrachloro-m-xylene</i>	67	PI	20 - 139				01/06/23 12:10	01/13/23 15:11	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: Outfall002_20230102_Comp
Date Collected: 01/02/23 09:15
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND	LQ	0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 23:09	1
Aroclor 1221	ND		0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 23:09	1
Aroclor 1232	ND		0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 23:09	1
Aroclor 1242	ND		0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 23:09	1
Aroclor 1248	ND		0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 23:09	1
Aroclor 1254	ND		0.10	0.052	ug/L	-	01/06/23 12:10	01/10/23 23:09	1
Aroclor 1260	ND	LQ	0.10	0.052	ug/L	-	01/06/23 12:10	01/10/23 23:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	48		20 - 154				01/06/23 12:10	01/10/23 23:09	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 218.6 - Chromium, Hexavalent (Ion Chromatography)

Client Sample ID: Outfall002_20230102_Comp

Date Collected: 01/02/23 09:15

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.043	J,DX BU BV	0.20	0.019	ug/L			01/04/23 03:11	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230102_Comp

Date Collected: 01/02/23 09:15

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		5.0	1.8	mg/L			01/03/23 23:55	5
Nitrite as N	ND		0.50	0.22	mg/L			01/03/23 23:55	5
Fluoride	ND		0.50	0.23	mg/L			01/03/23 23:55	5
Nitrate as N	0.84		0.50	0.098	mg/L			01/03/23 23:55	5
Sulfate	74		5.0	1.2	mg/L			01/03/23 23:55	5

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230102_Comp
Date Collected: 01/02/23 09:15
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/04/23 14:29	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230102_Comp
Date Collected: 01/02/23 09:15
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.84		0.10	0.020	mg/L			01/12/23 18:24	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: Outfall002_20230102_Comp

Date Collected: 01/02/23 09:15

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	78	J,DX	500	3.5	ug/L		01/05/23 06:25	01/06/23 16:20	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Client Sample ID: Outfall002_20230102_Comp_F
Date Collected: 01/02/23 09:15
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	71	J,DX BU	500	3.5	ug/L			01/04/23 17:43	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230102_Comp

Date Collected: 01/02/23 09:15

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.2	J,DX MB	2.0	0.36	ug/L		01/05/23 07:41	01/09/23 10:50	1
Cadmium	ND		1.0	0.13	ug/L		01/05/23 07:41	01/09/23 10:50	1
Copper	2.7		2.0	0.32	ug/L		01/05/23 07:41	01/09/23 10:50	1
Lead	0.85	J,DX	1.0	0.12	ug/L		01/05/23 07:41	01/09/23 10:50	1
Selenium	ND		2.0	0.52	ug/L		01/05/23 07:41	01/09/23 10:50	1
Silver	0.28	J,DX	1.0	0.23	ug/L		01/05/23 07:41	01/09/23 10:50	1
Thallium	ND		1.0	0.11	ug/L		01/05/23 07:41	01/09/23 10:50	1
Beryllium	ND		0.50	0.26	ug/L		01/05/23 07:41	01/09/23 10:50	1
Barium	31		1.0	0.17	ug/L		01/05/23 07:41	01/09/23 10:50	1
Iron	860		20	3.7	ug/L		02/06/23 11:30	02/06/23 14:04	1
Nickel	1.9	J,DX	2.0	0.17	ug/L		01/05/23 07:41	01/09/23 10:50	1
Vanadium	3.9		2.0	0.17	ug/L		01/05/23 07:41	01/09/23 10:50	1
Arsenic	1.6		1.0	0.16	ug/L		01/05/23 07:41	01/09/23 10:50	1
Zinc	7.4	J,DX	20	2.8	ug/L		01/05/23 07:41	01/09/23 10:50	1
Manganese	31	MB	1.0	0.41	ug/L		01/05/23 07:41	01/09/23 10:50	1
Chromium	1.5	J,DX	2.0	0.14	ug/L		01/05/23 07:41	01/09/23 10:50	1
Cobalt	0.65	J,DX	1.0	0.14	ug/L		01/05/23 07:41	01/09/23 10:50	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230102_Comp_F

Lab Sample ID: 570-122390-1

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.76	J,DX BU	2.0	0.36	ug/L			01/06/23 15:08	1
Cadmium	ND	BU	1.0	0.13	ug/L			01/06/23 15:08	1
Copper	2.0	BU	2.0	0.32	ug/L			01/06/23 15:08	1
Lead	ND	BU	1.0	0.12	ug/L			01/06/23 15:08	1
Selenium	0.88	J,DX BU MB	2.0	0.52	ug/L			01/06/23 15:08	1
Silver	ND	BU	1.0	0.23	ug/L			01/06/23 15:08	1
Thallium	ND	BU	1.0	0.11	ug/L			01/06/23 15:08	1
Beryllium	ND	BU	0.50	0.26	ug/L			01/06/23 15:08	1
Barium	23	BU	1.0	0.17	ug/L			01/06/23 15:08	1
Iron	62	BU	20	3.7	ug/L			01/06/23 15:08	1
Nickel	0.99	J,DX BU	2.0	0.17	ug/L			01/06/23 15:08	1
Vanadium	1.4	J,DX BU	2.0	0.17	ug/L			01/06/23 15:08	1
Arsenic	1.2	BU	1.0	0.16	ug/L			01/06/23 15:08	1
Zinc	ND	BU	20	2.8	ug/L			01/06/23 15:08	1
Manganese	4.2	BU	1.0	0.41	ug/L			01/06/23 15:08	1
Chromium	0.24	J,DX BU	2.0	0.14	ug/L			01/06/23 15:08	1
Cobalt	0.19	J,DX BU	1.0	0.14	ug/L			01/06/23 15:08	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230102_Comp
Date Collected: 01/02/23 09:15
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/05/23 10:41	01/05/23 18:44	1

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- 2
- 3
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230102_Comp_F
Date Collected: 01/02/23 09:15
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/05/23 11:56	01/05/23 19:43	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	140		7.1	0.50	mg/L			01/08/23 16:31	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Client Sample ID: Outfall002_20230102_Comp_F

Lab Sample ID: 570-122390-1

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	130		7.1	0.50	mg/L			01/08/23 16:31	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

General Chemistry

Client Sample ID: Outfall002_20230102_Comp

Date Collected: 01/02/23 09:15

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (III) (EPA 218.6 CR3)	ND		0.050	0.0030	mg/L			01/16/23 11:45	1
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		01/11/23 12:55	01/11/23 15:10	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/11/23 14:55	1
Turbidity (SM 2130B)	55		0.05	0.05	NTU			01/03/23 22:46	1
Total Dissolved Solids (SM 2540C)	300		10	8.7	mg/L			01/04/23 15:33	1
Total Suspended Solids (SM 2540D)	20		1.4	1.2	mg/L			01/06/23 17:51	1
Carbon, Total Organic (SM 5310D)	15		5.0	2.6	mg/L			01/10/23 18:01	10
MBAS (SM 5540C)	0.14	J,DX	0.30	0.054	mg/L		01/03/23 20:30	01/03/23 21:46	1
Biochemical Oxygen Demand (SM5210B)	2.2		2.0	1.0	mg/L			01/04/23 08:26	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	14DCBTN (67-133)
570-122390-2	Outfall002_20230102_Comp	119
LCS 570-293702/4	Lab Control Sample	99
LCSD 570-293702/5	Lab Control Sample Dup	101
MB 570-293702/7	Method Blank	106

Surrogate Legend

14DCBTN = 1,4-Dichlorobutane (Surr)

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (28-127)	FBP (31-120)	2FP (17-120)	NBZ (27-120)	PHL6 (10-120)	TPHd14 (45-120)
570-122390-2	Outfall002_20230102_Comp	81	66	33	71	24	73
LCS 570-294449/2-A	Lab Control Sample	102	97	61	75	43	110
LCSD 570-294449/3-A	Lab Control Sample Dup	105	99	67	79	46	113
MB 570-294449/1-A	Method Blank	51	68	37	60	24	77

Surrogate Legend

TBP = 2,4,6-Tribromophenol
 FBP = 2-Fluorobiphenyl (Surr)
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX1 (20-139)
570-122390-2	Outfall002_20230102_Comp	67 PI
LCS 570-294075/2-A	Lab Control Sample	69
LCSD 570-294075/3-A	Lab Control Sample Dup	56
MB 570-294075/1-A	Method Blank	60

Surrogate Legend

TCX = Tetrachloro-m-xylene

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB1 (20-154)
570-122390-2	Outfall002_20230102_Comp	48
LCS 570-294075/4-A	Lab Control Sample	67 PI
LCSD 570-294075/5-A	Lab Control Sample Dup	76
MB 570-294075/1-A	Method Blank	55

Surrogate Legend

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Surrogate Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

DCB = DCB Decachlorobiphenyl (Surr)

Job ID: 570-122390-1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-293702/7
Matrix: Water
Analysis Batch: 293702

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		1.0	0.55	ug/L			01/04/23 20:06	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dichlorobutane (Surr)	106		67 - 133					01/04/23 20:06	1

Lab Sample ID: LCS 570-293702/4
Matrix: Water
Analysis Batch: 293702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	20.0	18.7		ug/L		93	75 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,4-Dichlorobutane (Surr)	99		67 - 133				

Lab Sample ID: LCSD 570-293702/5
Matrix: Water
Analysis Batch: 293702

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	20.0	18.3		ug/L		91	75 - 120	2	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,4-Dichlorobutane (Surr)	101		67 - 133						

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-294449/1-A
Matrix: Water
Analysis Batch: 296147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294449

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
1,2-Dichlorobenzene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		0.20	0.091	ug/L		01/09/23 10:25	01/16/23 13:36	1
1,3-Dichlorobenzene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/16/23 13:36	1
1,4-Dichlorobenzene	ND		0.20	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4-Dichlorophenol	ND		1.0	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4-Dimethylphenol	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4-Dinitrophenol	ND		5.0	4.3	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,6-Dinitrotoluene	ND		0.20	0.18	ug/L		01/09/23 10:25	01/16/23 13:36	1
2-Chloronaphthalene	ND		0.20	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
2-Chlorophenol	ND		0.20	0.096	ug/L		01/09/23 10:25	01/16/23 13:36	1
2-Nitrophenol	ND		5.0	3.5	ug/L		01/09/23 10:25	01/16/23 13:36	1
3,3'-Dichlorobenzidine	ND		5.0	3.0	ug/L		01/09/23 10:25	01/16/23 13:36	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: MB 570-294449/1-A
Matrix: Water
Analysis Batch: 296147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294449

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,6-Dinitro-2-methylphenol	ND		5.0	4.5	ug/L		01/09/23 10:25	01/16/23 13:36	1
4-Bromophenyl phenyl ether	ND		0.20	0.10	ug/L		01/09/23 10:25	01/16/23 13:36	1
4-Chloro-3-methylphenol	ND		1.0	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
4-Chlorophenyl phenyl ether	ND		0.20	0.17	ug/L		01/09/23 10:25	01/16/23 13:36	1
4-Nitrophenol	ND		5.0	3.4	ug/L		01/09/23 10:25	01/16/23 13:36	1
Acenaphthene	ND		0.20	0.098	ug/L		01/09/23 10:25	01/16/23 13:36	1
Acenaphthylene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Anthracene	ND		0.20	0.084	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzidine	ND		5.0	2.7	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[a]anthracene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[a]pyrene	ND		0.20	0.15	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[b]fluoranthene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[g,h,i]perylene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[k]fluoranthene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
bis (2-chloroisopropyl) ether	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Bis(2-chloroethoxy)methane	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Bis(2-chloroethyl)ether	ND		0.20	0.10	ug/L		01/09/23 10:25	01/16/23 13:36	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		01/09/23 10:25	01/16/23 13:36	1
Butyl benzyl phthalate	ND		1.0	0.67	ug/L		01/09/23 10:25	01/16/23 13:36	1
Chrysene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Dibenz(a,h)anthracene	ND		0.20	0.16	ug/L		01/09/23 10:25	01/16/23 13:36	1
Diethyl phthalate	ND		2.0	0.18	ug/L		01/09/23 10:25	01/16/23 13:36	1
Dimethyl phthalate	ND		2.0	0.098	ug/L		01/09/23 10:25	01/16/23 13:36	1
Di-n-butyl phthalate	ND		2.0	1.8	ug/L		01/09/23 10:25	01/16/23 13:36	1
Di-n-octyl phthalate	ND		3.0	0.54	ug/L		01/09/23 10:25	01/16/23 13:36	1
Fluoranthene	ND		0.20	0.10	ug/L		01/09/23 10:25	01/16/23 13:36	1
Fluorene	ND		0.20	0.095	ug/L		01/09/23 10:25	01/16/23 13:36	1
Hexachlorobenzene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Hexachlorobutadiene	ND		0.20	0.15	ug/L		01/09/23 10:25	01/16/23 13:36	1
Hexachlorocyclopentadiene	ND		0.20	0.15	ug/L		01/09/23 10:25	01/16/23 13:36	1
Hexachloroethane	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Isophorone	ND		0.20	0.099	ug/L		01/09/23 10:25	01/16/23 13:36	1
Naphthalene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Nitrobenzene	ND		0.20	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		01/09/23 10:25	01/16/23 13:36	1
N-Nitrosodi-n-propylamine	ND		0.20	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
N-Nitrosodiphenylamine	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Pentachlorophenol	ND		1.0	0.84	ug/L		01/09/23 10:25	01/16/23 13:36	1
Phenanthrene	ND		0.20	0.16	ug/L		01/09/23 10:25	01/16/23 13:36	1
Phenol	ND		1.0	0.52	ug/L		01/09/23 10:25	01/16/23 13:36	1
Pyrene	ND		0.20	0.086	ug/L		01/09/23 10:25	01/16/23 13:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	51		28 - 127	01/09/23 10:25	01/16/23 13:36	1
2-Fluorobiphenyl (Surr)	68		31 - 120	01/09/23 10:25	01/16/23 13:36	1
2-Fluorophenol	37		17 - 120	01/09/23 10:25	01/16/23 13:36	1
Nitrobenzene-d5	60		27 - 120	01/09/23 10:25	01/16/23 13:36	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: MB 570-294449/1-A
Matrix: Water
Analysis Batch: 296147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294449

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Phenol-d6 (Surr)	24		10 - 120	01/09/23 10:25	01/16/23 13:36	1
p-Terphenyl-d14 (Surr)	77		45 - 120	01/09/23 10:25	01/16/23 13:36	1

Lab Sample ID: LCS 570-294449/2-A
Matrix: Water
Analysis Batch: 294913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dichlorobenzene	20.0	18.9		ug/L		95	40 - 120
1,2-Diphenylhydrazine(as Azobenzene)	20.0	20.3		ug/L		102	60 - 115
1,3-Dichlorobenzene	20.0	18.0		ug/L		90	37 - 120
1,4-Dichlorobenzene	20.0	18.9		ug/L		94	39 - 120
2,4,6-Trichlorophenol	20.0	22.0		ug/L		110	52 - 129
2,4-Dichlorophenol	20.0	17.2		ug/L		86	53 - 122
2,4-Dimethylphenol	20.0	17.3		ug/L		87	42 - 120
2,4-Dinitrophenol	20.0	26.7		ug/L		133	1 - 173
2,4-Dinitrotoluene	20.0	21.3		ug/L		106	48 - 127
2,6-Dinitrotoluene	20.0	22.9		ug/L		114	68 - 137
2-Chloronaphthalene	20.0	21.4		ug/L		107	65 - 120
2-Chlorophenol	20.0	20.2		ug/L		101	36 - 120
2-Nitrophenol	20.0	15.8		ug/L		79	45 - 167
3,3'-Dichlorobenzidine	20.0	20.0		ug/L		100	8 - 213
4,6-Dinitro-2-methylphenol	20.0	21.6		ug/L		108	53 - 130
4-Bromophenyl phenyl ether	20.0	22.4		ug/L		112	65 - 120
4-Chloro-3-methylphenol	20.0	16.4		ug/L		82	41 - 128
4-Chlorophenyl phenyl ether	20.0	22.2		ug/L		111	38 - 145
4-Nitrophenol	20.0	10.8		ug/L		54	13 - 129
Acenaphthene	20.0	21.3		ug/L		107	60 - 132
Acenaphthylene	20.0	24.8		ug/L		124	54 - 126
Anthracene	20.0	24.0		ug/L		120	43 - 120
Benzidine	20.0	26.1		ug/L		131	20 - 164
Benzo[a]anthracene	20.0	24.9		ug/L		125	42 - 133
Benzo[a]pyrene	20.0	22.8		ug/L		114	32 - 148
Benzo[b]fluoranthene	20.0	22.3		ug/L		111	42 - 140
Benzo[g,h,i]perylene	20.0	28.1		ug/L		140	1 - 195
Benzo[k]fluoranthene	20.0	26.7		ug/L		133	25 - 146
bis (2-chloroisopropyl) ether	20.0	23.0		ug/L		115	63 - 139
Bis(2-chloroethoxy)methane	20.0	19.2		ug/L		96	49 - 165
Bis(2-chloroethyl)ether	20.0	22.5		ug/L		112	43 - 126
Bis(2-ethylhexyl) phthalate	20.0	20.4		ug/L		102	29 - 137
Butyl benzyl phthalate	20.0	21.1		ug/L		106	1 - 140
Chrysene	20.0	24.9		ug/L		124	44 - 140
Dibenz(a,h)anthracene	20.0	24.9		ug/L		124	1 - 200
Diethyl phthalate	20.0	22.2		ug/L		111	1 - 120
Dimethyl phthalate	20.0	22.1		ug/L		110	1 - 120
Di-n-butyl phthalate	20.0	21.5		ug/L		107	8 - 120
Di-n-octyl phthalate	20.0	18.9		ug/L		95	19 - 132

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCS 570-294449/2-A
Matrix: Water
Analysis Batch: 294913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoranthene	20.0	23.1		ug/L		116	43 - 121
Fluorene	20.0	21.3		ug/L		107	70 - 120
Hexachlorobenzene	20.0	23.3		ug/L		116	8 - 142
Hexachlorobutadiene	20.0	15.5		ug/L		77	38 - 120
Hexachlorocyclopentadiene	20.0	21.8		ug/L		109	43 - 145
Hexachloroethane	20.0	17.1		ug/L		86	55 - 120
Indeno[1,2,3-cd]pyrene	20.0	22.1		ug/L		111	1 - 151
Isophorone	20.0	18.2		ug/L		91	47 - 180
Naphthalene	20.0	15.8		ug/L		79	36 - 120
Nitrobenzene	20.0	15.1		ug/L		76	54 - 158
N-Nitrosodimethylamine	20.0	16.2		ug/L		81	20 - 120
N-Nitrosodi-n-propylamine	20.0	19.7		ug/L		98	14 - 198
N-Nitrosodiphenylamine	20.0	24.7		ug/L		123	65 - 133
Pentachlorophenol	20.0	19.1		ug/L		96	38 - 152
Phenanthrene	20.0	22.5		ug/L		112	65 - 120
Phenol	20.0	9.60		ug/L		48	17 - 120
Pyrene	20.0	22.8		ug/L		114	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	102		28 - 127
2-Fluorobiphenyl (Surr)	97		31 - 120
2-Fluorophenol	61		17 - 120
Nitrobenzene-d5	75		27 - 120
Phenol-d6 (Surr)	43		10 - 120
p-Terphenyl-d14 (Surr)	110		45 - 120

Lab Sample ID: LCSD 570-294449/3-A
Matrix: Water
Analysis Batch: 294913

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	20.0	16.7		ug/L		83	57 - 130	1	30
1,2-Dichlorobenzene	20.0	19.2		ug/L		96	40 - 120	1	20
1,2-Diphenylhydrazine(as Azobenzene)	20.0	21.1		ug/L		106	60 - 115	4	30
1,3-Dichlorobenzene	20.0	18.7		ug/L		94	37 - 120	4	20
1,4-Dichlorobenzene	20.0	18.8		ug/L		94	39 - 120	1	20
2,4,6-Trichlorophenol	20.0	22.3		ug/L		112	52 - 129	1	35
2,4-Dichlorophenol	20.0	17.4		ug/L		87	53 - 122	1	30
2,4-Dimethylphenol	20.0	17.1		ug/L		85	42 - 120	1	35
2,4-Dinitrophenol	20.0	26.2		ug/L		131	1 - 173	2	79
2,4-Dinitrotoluene	20.0	20.2		ug/L		101	48 - 127	5	25
2,6-Dinitrotoluene	20.0	24.3		ug/L		122	68 - 137	6	29
2-Chloronaphthalene	20.0	21.4		ug/L		107	65 - 120	0	15
2-Chlorophenol	20.0	20.1		ug/L		101	36 - 120	0	37
2-Nitrophenol	20.0	16.1		ug/L		80	45 - 167	2	33
3,3'-Dichlorobenzidine	20.0	19.2		ug/L		96	8 - 213	4	65
4,6-Dinitro-2-methylphenol	20.0	21.7		ug/L		108	53 - 130	0	122
4-Bromophenyl phenyl ether	20.0	22.6		ug/L		113	65 - 120	1	26

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-294449/3-A
Matrix: Water
Analysis Batch: 294913

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
4-Chloro-3-methylphenol	20.0	16.2		ug/L		81	41 - 128	2	44	
4-Chlorophenyl phenyl ether	20.0	21.5		ug/L		108	38 - 145	3	36	
4-Nitrophenol	20.0	10.0		ug/L		50	13 - 129	7	79	
Acenaphthene	20.0	20.9		ug/L		104	60 - 132	2	29	
Acenaphthylene	20.0	24.3		ug/L		121	54 - 126	2	45	
Anthracene	20.0	23.4		ug/L		117	43 - 120	2	40	
Benzidine	20.0	31.1		ug/L		156	20 - 164	17	30	
Benzo[a]anthracene	20.0	24.3		ug/L		121	42 - 133	3	32	
Benzo[a]pyrene	20.0	21.4		ug/L		107	32 - 148	6	43	
Benzo[b]fluoranthene	20.0	21.1		ug/L		105	42 - 140	6	43	
Benzo[g,h,i]perylene	20.0	27.3		ug/L		136	1 - 195	3	61	
Benzo[k]fluoranthene	20.0	25.2		ug/L		126	25 - 146	5	38	
bis (2-chloroisopropyl) ether	20.0	23.8		ug/L		119	63 - 139	3	46	
Bis(2-chloroethoxy)methane	20.0	19.8		ug/L		99	49 - 165	3	32	
Bis(2-chloroethyl)ether	20.0	23.1		ug/L		115	43 - 126	3	65	
Bis(2-ethylhexyl) phthalate	20.0	20.1		ug/L		101	29 - 137	1	50	
Butyl benzyl phthalate	20.0	21.2		ug/L		106	1 - 140	0	36	
Chrysene	20.0	24.3		ug/L		122	44 - 140	2	53	
Dibenz(a,h)anthracene	20.0	23.9		ug/L		120	1 - 200	4	75	
Diethyl phthalate	20.0	21.7		ug/L		109	1 - 120	2	60	
Dimethyl phthalate	20.0	22.0		ug/L		110	1 - 120	0	110	
Di-n-butyl phthalate	20.0	20.8		ug/L		104	8 - 120	3	28	
Di-n-octyl phthalate	20.0	18.7		ug/L		93	19 - 132	1	42	
Fluoranthene	20.0	21.5		ug/L		107	43 - 121	7	40	
Fluorene	20.0	20.4		ug/L		102	70 - 120	5	23	
Hexachlorobenzene	20.0	23.4		ug/L		117	8 - 142	1	33	
Hexachlorobutadiene	20.0	15.8		ug/L		79	38 - 120	2	38	
Hexachlorocyclopentadiene	20.0	23.0		ug/L		115	43 - 145	5	22	
Hexachloroethane	20.0	17.3		ug/L		86	55 - 120	1	32	
Indeno[1,2,3-cd]pyrene	20.0	21.7		ug/L		108	1 - 151	2	60	
Isophorone	20.0	18.8		ug/L		94	47 - 180	3	56	
Naphthalene	20.0	15.5		ug/L		78	36 - 120	2	39	
Nitrobenzene	20.0	15.6		ug/L		78	54 - 158	3	37	
N-Nitrosodimethylamine	20.0	14.7		ug/L		74	20 - 120	10	21	
N-Nitrosodi-n-propylamine	20.0	19.9		ug/L		100	14 - 198	1	52	
N-Nitrosodiphenylamine	20.0	25.0		ug/L		125	65 - 133	1	20	
Pentachlorophenol	20.0	18.8		ug/L		94	38 - 152	2	52	
Phenanthrene	20.0	21.8		ug/L		109	65 - 120	3	24	
Phenol	20.0	9.92		ug/L		50	17 - 120	3	39	
Pyrene	20.0	23.6		ug/L		118	70 - 120	3	30	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol	105		28 - 127
2-Fluorobiphenyl (Surr)	99		31 - 120
2-Fluorophenol	67		17 - 120
Nitrobenzene-d5	79		27 - 120
Phenol-d6 (Surr)	46		10 - 120
p-Terphenyl-d14 (Surr)	113		45 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-294075/1-A
Matrix: Water
Analysis Batch: 294290

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294075

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aldrin	ND		0.0033	0.0031	ug/L		01/06/23 08:13	01/09/23 22:50	1
alpha-BHC	ND		0.0013	0.0012	ug/L		01/06/23 08:13	01/09/23 22:50	1
beta-BHC	ND		0.0050	0.0039	ug/L		01/06/23 08:13	01/09/23 22:50	1
delta-BHC	ND		0.0033	0.0020	ug/L		01/06/23 08:13	01/09/23 22:50	1
gamma-BHC (Lindane)	ND		0.0013	0.00066	ug/L		01/06/23 08:13	01/09/23 22:50	1
Chlordane (technical)	ND		0.033	0.026	ug/L		01/06/23 08:13	01/09/23 22:50	1
4,4'-DDD	ND		0.0067	0.0044	ug/L		01/06/23 08:13	01/09/23 22:50	1
4,4'-DDE	ND		0.0033	0.0019	ug/L		01/06/23 08:13	01/09/23 22:50	1
4,4'-DDT	ND		0.0033	0.0016	ug/L		01/06/23 08:13	01/09/23 22:50	1
Dieldrin	ND		0.0033	0.0013	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endosulfan I	ND		0.0013	0.0013	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endosulfan II	ND		0.0067	0.0041	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endosulfan sulfate	ND		0.0033	0.0014	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endrin	ND		0.0033	0.0023	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endrin aldehyde	ND		0.033	0.024	ug/L		01/06/23 08:13	01/09/23 22:50	1
Heptachlor	ND		0.0013	0.0012	ug/L		01/06/23 08:13	01/09/23 22:50	1
Heptachlor epoxide	ND		0.0067	0.0039	ug/L		01/06/23 08:13	01/09/23 22:50	1
Toxaphene	ND		0.067	0.054	ug/L		01/06/23 08:13	01/09/23 22:50	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	60		20 - 139	01/06/23 08:13	01/09/23 22:50	1

Lab Sample ID: LCS 570-294075/2-A
Matrix: Water
Analysis Batch: 294290

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294075

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Aldrin	0.0333	0.0288		ug/L		86	42 - 140
alpha-BHC	0.0333	0.0277		ug/L		83	37 - 140
beta-BHC	0.0333	0.0375		ug/L		113	17 - 147
delta-BHC	0.0333	0.0298	PI	ug/L		89	19 - 140
gamma-BHC (Lindane)	0.0333	0.0305		ug/L		92	32 - 140
4,4'-DDD	0.0333	0.0335		ug/L		100	31 - 141
4,4'-DDE	0.0333	0.0365		ug/L		110	30 - 145
4,4'-DDT	0.0333	0.0261		ug/L		78	25 - 160
Dieldrin	0.0333	0.0307		ug/L		92	36 - 146
Endosulfan I	0.0333	0.0279	PI	ug/L		84	45 - 153
Endosulfan II	0.0333	0.0352		ug/L		106	1 - 202
Endosulfan sulfate	0.0333	0.0323		ug/L		97	26 - 144
Endrin	0.0333	0.0325		ug/L		97	30 - 147
Endrin aldehyde	0.0333	0.0292	J,DX	ug/L		87	50 - 135
Heptachlor	0.0333	0.0348		ug/L		104	34 - 140
Heptachlor epoxide	0.0333	0.0309		ug/L		93	37 - 142

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	69		20 - 139

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCSD 570-294075/3-A
 Matrix: Water
 Analysis Batch: 294290

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 294075

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aldrin	0.0333	0.0241		ug/L		72	42 - 140	18	35
alpha-BHC	0.0333	0.0225		ug/L		67	37 - 140	21	36
beta-BHC	0.0333	0.0326		ug/L		98	17 - 147	14	44
delta-BHC	0.0333	0.0273	PI	ug/L		82	19 - 140	9	52
gamma-BHC (Lindane)	0.0333	0.0258		ug/L		77	32 - 140	17	39
4,4'-DDD	0.0333	0.0292	PI	ug/L		87	31 - 141	14	39
4,4'-DDE	0.0333	0.0307		ug/L		92	30 - 145	17	35
4,4'-DDT	0.0333	0.0234	PI	ug/L		70	25 - 160	30	42
Dieldrin	0.0333	0.0251		ug/L		75	36 - 146	20	49
Endosulfan I	0.0333	0.0226	PI	ug/L		68	45 - 153	21	28
Endosulfan II	0.0333	0.0292		ug/L		88	1 - 202	19	53
Endosulfan sulfate	0.0333	0.0267	PI	ug/L		80	26 - 144	19	38
Endrin	0.0333	0.0277		ug/L		83	30 - 147	16	48
Endrin aldehyde	0.0333	0.0254	J,DX	ug/L		76	50 - 135	14	30
Heptachlor	0.0333	0.0242		ug/L		73	34 - 140	36	43
Heptachlor epoxide	0.0333	0.0260		ug/L		78	37 - 142	17	26

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	56		20 - 139

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 570-294075/1-A
 Matrix: Water
 Analysis Batch: 294728

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 294075

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1221	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1232	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1242	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1248	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1254	ND		0.10	0.052	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1260	ND		0.10	0.052	ug/L		01/06/23 08:13	01/11/23 00:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	55		20 - 154	01/06/23 08:13	01/11/23 00:45	1

Lab Sample ID: LCS 570-294075/4-A
 Matrix: Water
 Analysis Batch: 295061

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 294075

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor 1016	0.133	0.355	PI LQ	ug/L		267	50 - 140
Aroclor 1260	0.133	0.169		ug/L		127	8 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	67	PI	20 - 154

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: LCSD 570-294075/5-A
Matrix: Water
Analysis Batch: 295061

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294075

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Aroclor 1016	0.133	0.387	LQ	ug/L		291	50 - 140	9	36	
Aroclor 1260	0.133	0.199	LQ PI	ug/L		149	8 - 140	16	38	
LCSD LCSD										
Surrogate	%Recovery	Qualifier	Limits							
DCB Decachlorobiphenyl (Surr)	76		20 - 154							

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 570-293495/5
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

Lab Sample ID: LCS 570-293495/6
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Chromium, hexavalent	50.1	49.1		ug/L		98	95 - 107			

Lab Sample ID: LCSD 570-293495/7
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Chromium, hexavalent	50.1	49.4		ug/L		99	95 - 107	1	20	

Lab Sample ID: 570-122420-T-1 MS
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Chromium, hexavalent	0.14	J,DX	50.1	51.5		ug/L		103	85 - 121			

Lab Sample ID: 570-122420-T-1 MSD
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Chromium, hexavalent	0.14	J,DX	50.1	50.7		ug/L		101	85 - 121	2	25	

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-293190/42
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			01/03/23 22:08	1
Fluoride	ND		0.10	0.046	mg/L			01/03/23 22:08	1
Sulfate	ND		1.0	0.24	mg/L			01/03/23 22:08	1

Lab Sample ID: LCS 570-293190/43
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.2		mg/L		98	90 - 110
Fluoride	2.50	2.61		mg/L		104	90 - 110
Sulfate	50.0	49.3		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-293190/44
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.3		mg/L		99	90 - 110	0	15
Fluoride	2.50	2.62		mg/L		105	90 - 110	1	15
Sulfate	50.0	49.4		mg/L		99	90 - 110	0	15

Lab Sample ID: 570-122420-T-1 MS
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	4.9		50.0	50.2		mg/L		91	80 - 120
Fluoride	ND		2.50	2.58		mg/L		103	80 - 120
Sulfate	150		50.0	207	EY	mg/L		114	80 - 120

Lab Sample ID: 570-122420-T-1 MSD
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	4.9		50.0	50.5		mg/L		91	80 - 120	1	20
Fluoride	ND		2.50	2.68		mg/L		107	80 - 120	4	20
Sulfate	150		50.0	209	EY	mg/L		117	80 - 120	1	20

Lab Sample ID: MB 570-293191/42
Matrix: Water
Analysis Batch: 293191

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			01/03/23 22:08	1
Nitrate as N	ND		0.10	0.020	mg/L			01/03/23 22:08	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 570-293191/43
Matrix: Water
Analysis Batch: 293191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.55		mg/L		102	90 - 110
Nitrate as N	5.00	4.93		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-293191/44
Matrix: Water
Analysis Batch: 293191

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.56		mg/L		102	90 - 110	0	15
Nitrate as N	5.00	4.94		mg/L		99	90 - 110	0	15

Lab Sample ID: 570-122420-T-1 MS
Matrix: Water
Analysis Batch: 293191

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	ND		2.50	2.63		mg/L		105	80 - 120
Nitrate as N	0.91		5.00	5.69		mg/L		96	80 - 120

Lab Sample ID: 570-122420-T-1 MSD
Matrix: Water
Analysis Batch: 293191

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	ND		2.50	2.66		mg/L		106	80 - 120	1	20
Nitrate as N	0.91		5.00	5.72		mg/L		96	80 - 120	1	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-293573/7
Matrix: Water
Analysis Batch: 293573

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/04/23 12:03	1

Lab Sample ID: LCS 570-293573/8
Matrix: Water
Analysis Batch: 293573

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	24.8		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-293573/9
Matrix: Water
Analysis Batch: 293573

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	24.2		ug/L		97	85 - 115	3	15

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 570-122390-2 MS
 Matrix: Water
 Analysis Batch: 293573

Client Sample ID: Outfall002_20230102_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	ND		50.0	51.2		ug/L		102	80 - 120

Lab Sample ID: 570-122390-2 MSD
 Matrix: Water
 Analysis Batch: 293573

Client Sample ID: Outfall002_20230102_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	ND		50.0	51.3		ug/L		103	80 - 120	0	15

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 570-293794/1-A
 Matrix: Water
 Analysis Batch: 294245

Client Sample ID: Method Blank
 Prep Type: Total Recoverable
 Prep Batch: 293794

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		500	3.5	ug/L		01/05/23 06:25	01/06/23 15:34	1

Lab Sample ID: LCS 570-293794/2-A
 Matrix: Water
 Analysis Batch: 294245

Client Sample ID: Lab Control Sample
 Prep Type: Total Recoverable
 Prep Batch: 293794

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	500	486	J,DX	ug/L		97	85 - 115

Lab Sample ID: LCSD 570-293794/3-A
 Matrix: Water
 Analysis Batch: 294245

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total Recoverable
 Prep Batch: 293794

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	500	481	J,DX	ug/L		96	85 - 115	1	20

Lab Sample ID: 570-122390-2 MS
 Matrix: Water
 Analysis Batch: 294245

Client Sample ID: Outfall002_20230102_Comp
 Prep Type: Total Recoverable
 Prep Batch: 293794

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	78	J,DX	500	568		ug/L		98	80 - 120

Lab Sample ID: 570-122390-2 MSD
 Matrix: Water
 Analysis Batch: 294245

Client Sample ID: Outfall002_20230102_Comp
 Prep Type: Total Recoverable
 Prep Batch: 293794

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	78	J,DX	500	583		ug/L		101	80 - 120	3	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: MB 570-293616/1-A
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		500	3.5	ug/L			01/04/23 17:29	1

Lab Sample ID: LCS 570-293616/2-A
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	500	463	J,DX	ug/L		93	85 - 115

Lab Sample ID: LCSD 570-293616/3-A
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	500	447	J,DX	ug/L		89	85 - 115	4	20

Lab Sample ID: 570-122390-1 MS
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Outfall002_20230102_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	71	J,DX BU	500	535		ug/L		93	80 - 120

Lab Sample ID: 570-122390-1 MSD
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Outfall002_20230102_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	71	J,DX BU	500	534		ug/L		93	80 - 120	0	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-293797/1-A
Matrix: Water
Analysis Batch: 294520

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 293797

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.403	J,DX	2.0	0.36	ug/L		01/05/23 07:41	01/09/23 10:42	1
Cadmium	ND		1.0	0.13	ug/L		01/05/23 07:41	01/09/23 10:42	1
Copper	ND		2.0	0.32	ug/L		01/05/23 07:41	01/09/23 10:42	1
Lead	ND		1.0	0.12	ug/L		01/05/23 07:41	01/09/23 10:42	1
Selenium	ND		2.0	0.52	ug/L		01/05/23 07:41	01/09/23 10:42	1
Silver	ND		1.0	0.23	ug/L		01/05/23 07:41	01/09/23 10:42	1
Thallium	ND		1.0	0.11	ug/L		01/05/23 07:41	01/09/23 10:42	1
Beryllium	ND		0.50	0.26	ug/L		01/05/23 07:41	01/09/23 10:42	1
Barium	ND		1.0	0.17	ug/L		01/05/23 07:41	01/09/23 10:42	1
Nickel	ND		2.0	0.17	ug/L		01/05/23 07:41	01/09/23 10:42	1
Vanadium	ND		2.0	0.17	ug/L		01/05/23 07:41	01/09/23 10:42	1
Arsenic	ND		1.0	0.16	ug/L		01/05/23 07:41	01/09/23 10:42	1
Zinc	ND		20	2.8	ug/L		01/05/23 07:41	01/09/23 10:42	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-293797/1-A
Matrix: Water
Analysis Batch: 294520

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 293797

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1.00		1.0	0.41	ug/L		01/05/23 07:41	01/09/23 10:42	1
Chromium	ND		2.0	0.14	ug/L		01/05/23 07:41	01/09/23 10:42	1
Cobalt	ND		1.0	0.14	ug/L		01/05/23 07:41	01/09/23 10:42	1

Lab Sample ID: LCS 570-293797/2-A
Matrix: Water
Analysis Batch: 294520

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 293797

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	40.0	44.7		ug/L		112	85 - 115
Cadmium	40.0	41.8		ug/L		104	85 - 115
Copper	40.0	39.3		ug/L		98	85 - 115
Lead	40.0	40.6		ug/L		101	85 - 115
Selenium	40.0	41.7		ug/L		104	85 - 115
Silver	40.0	36.4		ug/L		91	85 - 115
Thallium	40.0	41.8		ug/L		104	85 - 115
Beryllium	40.0	39.6		ug/L		99	85 - 115
Barium	40.0	41.5		ug/L		104	85 - 115
Nickel	40.0	39.8		ug/L		99	85 - 115
Vanadium	40.0	41.3		ug/L		103	85 - 115
Arsenic	40.0	41.5		ug/L		104	85 - 115
Zinc	40.0	40.5		ug/L		101	85 - 115
Manganese	40.0	42.1		ug/L		105	85 - 115
Chromium	40.0	39.3		ug/L		98	85 - 115
Cobalt	40.0	38.5		ug/L		96	85 - 115

Lab Sample ID: LCSD 570-293797/3-A
Matrix: Water
Analysis Batch: 294520

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 293797

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	40.0	45.5		ug/L		114	85 - 115	2	20
Cadmium	40.0	42.4		ug/L		106	85 - 115	2	20
Copper	40.0	38.7		ug/L		97	85 - 115	1	20
Lead	40.0	40.1		ug/L		100	85 - 115	1	20
Selenium	40.0	41.6		ug/L		104	85 - 115	0	20
Silver	40.0	37.0		ug/L		93	85 - 115	2	20
Thallium	40.0	41.8		ug/L		104	85 - 115	0	20
Beryllium	40.0	40.0		ug/L		100	85 - 115	1	20
Barium	40.0	42.1		ug/L		105	85 - 115	1	20
Nickel	40.0	39.3		ug/L		98	85 - 115	1	20
Vanadium	40.0	41.0		ug/L		102	85 - 115	1	20
Arsenic	40.0	41.4		ug/L		104	85 - 115	0	20
Zinc	40.0	40.2		ug/L		101	85 - 115	1	20
Manganese	40.0	41.2		ug/L		103	85 - 115	2	20
Chromium	40.0	38.9		ug/L		97	85 - 115	1	20
Cobalt	40.0	37.9		ug/L		95	85 - 115	1	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-122390-2 MS
Matrix: Water
Analysis Batch: 294520

Client Sample ID: Outfall002_20230102_Comp
Prep Type: Total Recoverable
Prep Batch: 293797

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	1.2	J,DX MB	40.0	46.3		ug/L		113	80 - 120
Cadmium	ND		40.0	41.7		ug/L		104	80 - 120
Copper	2.7		40.0	40.9		ug/L		96	80 - 120
Lead	0.85	J,DX	40.0	40.7		ug/L		100	80 - 120
Selenium	ND		40.0	40.1		ug/L		100	80 - 120
Silver	0.28	J,DX	40.0	35.9		ug/L		89	80 - 120
Thallium	ND		40.0	41.4		ug/L		103	80 - 120
Beryllium	ND		40.0	40.5		ug/L		101	80 - 120
Barium	31		40.0	75.5		ug/L		111	80 - 120
Nickel	1.9	J,DX	40.0	40.6		ug/L		97	80 - 120
Vanadium	3.9		40.0	45.9		ug/L		105	80 - 120
Arsenic	1.6		40.0	42.3		ug/L		102	80 - 120
Zinc	7.4	J,DX	40.0	46.7		ug/L		98	80 - 120
Manganese	31	MB	40.0	72.8		ug/L		104	80 - 120
Chromium	1.5	J,DX	40.0	40.7		ug/L		98	80 - 120
Cobalt	0.65	J,DX	40.0	38.6		ug/L		95	80 - 120

Lab Sample ID: 570-122390-2 MSD
Matrix: Water
Analysis Batch: 294520

Client Sample ID: Outfall002_20230102_Comp
Prep Type: Total Recoverable
Prep Batch: 293797

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	1.2	J,DX MB	40.0	45.3		ug/L		110	80 - 120	2	20
Cadmium	ND		40.0	41.2		ug/L		103	80 - 120	1	20
Copper	2.7		40.0	39.9		ug/L		93	80 - 120	3	20
Lead	0.85	J,DX	40.0	39.6		ug/L		97	80 - 120	3	20
Selenium	ND		40.0	39.0		ug/L		98	80 - 120	3	20
Silver	0.28	J,DX	40.0	35.6		ug/L		88	80 - 120	1	20
Thallium	ND		40.0	40.5		ug/L		101	80 - 120	2	20
Beryllium	ND		40.0	39.9		ug/L		100	80 - 120	2	20
Barium	31		40.0	73.4		ug/L		105	80 - 120	3	20
Nickel	1.9	J,DX	40.0	39.7		ug/L		95	80 - 120	2	20
Vanadium	3.9		40.0	44.5		ug/L		101	80 - 120	3	20
Arsenic	1.6		40.0	42.0		ug/L		101	80 - 120	1	20
Zinc	7.4	J,DX	40.0	46.3		ug/L		97	80 - 120	1	20
Manganese	31	MB	40.0	70.6		ug/L		98	80 - 120	3	20
Chromium	1.5	J,DX	40.0	39.4		ug/L		95	80 - 120	3	20
Cobalt	0.65	J,DX	40.0	37.6		ug/L		92	80 - 120	3	20

Lab Sample ID: MB 570-301320/1-A
Matrix: Water
Analysis Batch: 301447

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 301320

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		20	3.7	ug/L		02/06/23 07:23	02/06/23 10:48	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-301320/2-A
Matrix: Water
Analysis Batch: 301447

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 301320

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	800	783		ug/L		98	85 - 115

Lab Sample ID: LCSD 570-301320/3-A
Matrix: Water
Analysis Batch: 301447

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 301320

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	800	773		ug/L		97	85 - 115	1	20

Lab Sample ID: 570-126348-E-1-B MS
Matrix: Water
Analysis Batch: 301447

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 301320

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	350		800	1130		ug/L		98	80 - 120

Lab Sample ID: 570-126348-E-1-C MSD
Matrix: Water
Analysis Batch: 301447

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 301320

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	350		800	1110		ug/L		96	80 - 120	2	20

Lab Sample ID: MB 570-293628/1-A
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L			01/06/23 15:01	1
Cadmium	ND		1.0	0.13	ug/L			01/06/23 15:01	1
Copper	ND		2.0	0.32	ug/L			01/06/23 15:01	1
Lead	ND		1.0	0.12	ug/L			01/06/23 15:01	1
Selenium	0.609	J,DX	2.0	0.52	ug/L			01/06/23 15:01	1
Silver	ND		1.0	0.23	ug/L			01/06/23 15:01	1
Thallium	ND		1.0	0.11	ug/L			01/06/23 15:01	1
Beryllium	ND		0.50	0.26	ug/L			01/06/23 15:01	1
Barium	ND		1.0	0.17	ug/L			01/06/23 15:01	1
Iron	ND		20	3.7	ug/L			01/06/23 15:01	1
Nickel	ND		2.0	0.17	ug/L			01/06/23 15:01	1
Vanadium	ND		2.0	0.17	ug/L			01/06/23 15:01	1
Arsenic	ND		1.0	0.16	ug/L			01/06/23 15:01	1
Zinc	ND		20	2.8	ug/L			01/06/23 15:01	1
Manganese	ND		1.0	0.41	ug/L			01/06/23 15:01	1
Chromium	ND		2.0	0.14	ug/L			01/06/23 15:01	1
Cobalt	ND		1.0	0.14	ug/L			01/06/23 15:01	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-293628/2-A
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	71.7		ug/L		90	85 - 115
Cadmium	80.0	76.0		ug/L		95	85 - 115
Copper	80.0	74.9		ug/L		94	85 - 115
Lead	80.0	76.5		ug/L		96	85 - 115
Selenium	80.0	77.1		ug/L		96	85 - 115
Silver	80.0	70.2		ug/L		88	85 - 115
Thallium	80.0	75.4		ug/L		94	85 - 115
Beryllium	80.0	79.9		ug/L		100	85 - 115
Barium	80.0	77.1		ug/L		96	85 - 115
Iron	800	802		ug/L		100	85 - 115
Nickel	80.0	75.3		ug/L		94	85 - 115
Vanadium	80.0	77.1		ug/L		96	85 - 115
Arsenic	80.0	75.5		ug/L		94	85 - 115
Zinc	80.0	75.7		ug/L		95	85 - 115
Manganese	80.0	78.8		ug/L		98	85 - 115
Chromium	80.0	76.4		ug/L		96	85 - 115
Cobalt	80.0	74.9		ug/L		94	85 - 115

Lab Sample ID: LCSD 570-293628/3-A
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	72.5		ug/L		91	85 - 115	1	20
Cadmium	80.0	76.0		ug/L		95	85 - 115	0	20
Copper	80.0	74.6		ug/L		93	85 - 115	0	20
Lead	80.0	76.0		ug/L		95	85 - 115	1	20
Selenium	80.0	77.2		ug/L		96	85 - 115	0	20
Silver	80.0	69.7		ug/L		87	85 - 115	1	20
Thallium	80.0	75.1		ug/L		94	85 - 115	0	20
Beryllium	80.0	78.4		ug/L		98	85 - 115	2	20
Barium	80.0	76.8		ug/L		96	85 - 115	0	20
Iron	800	797		ug/L		100	85 - 115	1	20
Nickel	80.0	75.8		ug/L		95	85 - 115	1	20
Vanadium	80.0	76.8		ug/L		96	85 - 115	0	20
Arsenic	80.0	75.6		ug/L		95	85 - 115	0	20
Zinc	80.0	74.0		ug/L		92	85 - 115	2	20
Manganese	80.0	78.4		ug/L		98	85 - 115	0	20
Chromium	80.0	76.9		ug/L		96	85 - 115	1	20
Cobalt	80.0	74.8		ug/L		94	85 - 115	0	20

Lab Sample ID: 570-122390-1 MS
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Outfall002_20230102_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.76	J,DX BU	80.0	78.5		ug/L		97	80 - 120
Cadmium	ND	BU	80.0	78.1		ug/L		98	80 - 120
Copper	2.0	BU	80.0	79.4		ug/L		97	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-122390-1 MS
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Outfall002_20230102_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	ND	BU	80.0	78.0		ug/L		98	80 - 120
Selenium	0.88	J,DX BU	80.0	78.2		ug/L		97	80 - 120
Silver	ND	BU	80.0	71.5		ug/L		89	80 - 120
Thallium	ND	BU	80.0	77.4		ug/L		97	80 - 120
Beryllium	ND	BU	80.0	79.7		ug/L		100	80 - 120
Barium	23	BU	80.0	102		ug/L		98	80 - 120
Iron	62	BU	800	883		ug/L		103	80 - 120
Nickel	0.99	J,DX BU	80.0	77.7		ug/L		96	80 - 120
Vanadium	1.4	J,DX BU	80.0	81.5		ug/L		100	80 - 120
Arsenic	1.2	BU	80.0	79.7		ug/L		98	80 - 120
Zinc	ND	BU	80.0	77.8		ug/L		97	80 - 120
Manganese	4.2	BU	80.0	85.2		ug/L		101	80 - 120
Chromium	0.24	J,DX BU	80.0	79.2		ug/L		99	80 - 120
Cobalt	0.19	J,DX BU	80.0	77.6		ug/L		97	80 - 120

Lab Sample ID: 570-122390-1 MSD
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Outfall002_20230102_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.76	J,DX BU	80.0	68.8		ug/L		85	80 - 120	13	20
Cadmium	ND	BU	80.0	76.7		ug/L		96	80 - 120	2	20
Copper	2.0	BU	80.0	78.8		ug/L		96	80 - 120	1	20
Lead	ND	BU	80.0	77.7		ug/L		97	80 - 120	0	20
Selenium	0.88	J,DX BU	80.0	74.5		ug/L		92	80 - 120	5	20
Silver	ND	BU	80.0	69.8		ug/L		87	80 - 120	2	20
Thallium	ND	BU	80.0	76.4		ug/L		96	80 - 120	1	20
Beryllium	ND	BU	80.0	76.9		ug/L		96	80 - 120	4	20
Barium	23	BU	80.0	101		ug/L		98	80 - 120	1	20
Iron	62	BU	800	864		ug/L		100	80 - 120	2	20
Nickel	0.99	J,DX BU	80.0	77.1		ug/L		95	80 - 120	1	20
Vanadium	1.4	J,DX BU	80.0	80.2		ug/L		98	80 - 120	2	20
Arsenic	1.2	BU	80.0	78.3		ug/L		96	80 - 120	2	20
Zinc	ND	BU	80.0	77.3		ug/L		97	80 - 120	1	20
Manganese	4.2	BU	80.0	82.7		ug/L		98	80 - 120	3	20
Chromium	0.24	J,DX BU	80.0	77.8		ug/L		97	80 - 120	2	20
Cobalt	0.19	J,DX BU	80.0	76.1		ug/L		95	80 - 120	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-293865/1-A
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293865

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/05/23 10:41	01/05/23 18:35	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-293865/2-A
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293865

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.70		ug/L		109	85 - 115

Lab Sample ID: LCSD 570-293865/3-A
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293865

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	8.03		ug/L		100	85 - 115	8	10

Lab Sample ID: 570-122390-2 MS
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Outfall002_20230102_Comp
Prep Type: Total/NA
Prep Batch: 293865

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.60		ug/L		108	85 - 115

Lab Sample ID: 570-122390-2 MSD
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Outfall002_20230102_Comp
Prep Type: Total/NA
Prep Batch: 293865

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND		8.00	8.54		ug/L		107	85 - 115	1	10

Lab Sample ID: MB 570-293898/1-B
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 293902

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/05/23 11:56	01/05/23 19:32	1

Lab Sample ID: LCS 570-293898/2-B
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 293902

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.59		ug/L		107	85 - 115

Lab Sample ID: LCSD 570-293898/3-B
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 293902

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	7.96		ug/L		99	85 - 115	8	10

Lab Sample ID: 570-122381-C-2-E MS
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 293902

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.70		ug/L		109	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: 570-122381-C-2-F MSD
 Matrix: Water
 Analysis Batch: 293994

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Dissolved
 Prep Batch: 293902

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	7.92		ug/L		99	85 - 115	9	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-295166/5-A
 Matrix: Water
 Analysis Batch: 295182

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 295166

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		01/11/23 12:55	01/11/23 14:31	1

Lab Sample ID: LCS 570-295166/6-A
 Matrix: Water
 Analysis Batch: 295182

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 295166

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.509		mg/L		102	90 - 110

Lab Sample ID: LCSD 570-295166/7-A
 Matrix: Water
 Analysis Batch: 295182

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 295166

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.518		mg/L		104	90 - 110	2	20

Lab Sample ID: 380-31821-AM-1-C MS
 Matrix: Water
 Analysis Batch: 295182

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 295166

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	ND		0.500	0.544		mg/L		109	90 - 110

Lab Sample ID: 380-31821-AM-1-D MSD
 Matrix: Water
 Analysis Batch: 295182

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 295166

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	ND		0.500	0.552		mg/L		110	90 - 110	1	25

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-295446/11
 Matrix: Water
 Analysis Batch: 295446

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			01/11/23 14:55	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: LCS 570-295446/12
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	255		ug/L		102	90 - 110

Lab Sample ID: LCSD 570-295446/18
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	233		ug/L		93	90 - 110	9	20

Lab Sample ID: MRL 570-295446/10
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	4.11	J,DX	ug/L		82	50 - 150

Lab Sample ID: 570-122475-D-1 MS
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	8.7		250	226		ug/L		87	70 - 130

Lab Sample ID: 570-122475-D-1 MSD
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	8.7		250	266		ug/L		103	70 - 130	16	30

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-293492/1
Matrix: Water
Analysis Batch: 293492

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		100.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-293492/2
Matrix: Water
Analysis Batch: 293492

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		101.0	99.0 - 101.0

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: SM 2130B - Turbidity (Continued)

Lab Sample ID: LCSSRM 570-293492/3
 Matrix: Water
 Analysis Batch: 293492

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

Lab Sample ID: 570-122390-2 DU
 Matrix: Water
 Analysis Batch: 293492

Client Sample ID: Outfall002_20230102_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	55		55		NTU		0.7	25

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-293692/3
 Matrix: Water
 Analysis Batch: 293692

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			01/04/23 15:33	1

Lab Sample ID: LCS 570-293692/4
 Matrix: Water
 Analysis Batch: 293692

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	960		mg/L		96	84 - 108

Lab Sample ID: LCSD 570-293692/5
 Matrix: Water
 Analysis Batch: 293692

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1010		mg/L		101	84 - 108	5	10

Lab Sample ID: 570-122453-I-1 DU
 Matrix: Water
 Analysis Batch: 293692

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	6400		6510		mg/L		2	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-294266/1
 Matrix: Water
 Analysis Batch: 294266

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			01/06/23 17:51	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 570-294266/2
Matrix: Water
Analysis Batch: 294266

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	84.0		mg/L		84	77 - 116

Lab Sample ID: LCSD 570-294266/3
Matrix: Water
Analysis Batch: 294266

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	84.0		mg/L		84	77 - 116	0	10

Lab Sample ID: 570-122377-F-1 DU
Matrix: Water
Analysis Batch: 294266

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	400		405		mg/L		3	10

Method: SM 5310D - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-294610/48
Matrix: Water
Analysis Batch: 294610

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.50	0.26	mg/L			01/10/23 10:23	1

Lab Sample ID: LCS 570-294610/49
Matrix: Water
Analysis Batch: 294610

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Carbon, Total Organic	5.03	5.18		mg/L		103	85 - 115

Lab Sample ID: LCSD 570-294610/50
Matrix: Water
Analysis Batch: 294610

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Carbon, Total Organic	5.03	5.16		mg/L		103	85 - 115	0	20

Lab Sample ID: 570-122902-D-1 MS ^2
Matrix: Water
Analysis Batch: 294610

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Carbon, Total Organic	2.0		10.1	11.6		mg/L		96	31 - 145

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: SM 5310D - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 570-122902-D-1 MSD ^2
 Matrix: Water
 Analysis Batch: 294610

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Carbon, Total Organic	2.0		10.1	11.8		mg/L		97	31 - 145	1	20

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-293645/5-A
 Matrix: Water
 Analysis Batch: 293487

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 293645

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.30	0.054	mg/L		01/03/23 20:30	01/03/23 21:43	1

Lab Sample ID: LCS 570-293645/6-A
 Matrix: Water
 Analysis Batch: 293487

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 293645

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	1.00	1.08		mg/L		108	85 - 111

Lab Sample ID: LCSD 570-293645/7-A
 Matrix: Water
 Analysis Batch: 293487

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 293645

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	1.00	1.11		mg/L		111	85 - 111	2	7

Lab Sample ID: 570-122390-2 MS
 Matrix: Water
 Analysis Batch: 293487

Client Sample ID: Outfall002_20230102_Comp
 Prep Type: Total/NA
 Prep Batch: 293645

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	0.14	J,DX	1.00	1.29		mg/L		115	75 - 125

Lab Sample ID: 570-122390-2 MSD
 Matrix: Water
 Analysis Batch: 293487

Client Sample ID: Outfall002_20230102_Comp
 Prep Type: Total/NA
 Prep Batch: 293645

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	0.14	J,DX	1.00	1.29		mg/L		115	75 - 125	0	12

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 570-294568/2
 Matrix: Water
 Analysis Batch: 294568

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L			01/04/23 07:35	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 570-294568/4
Matrix: Water
Analysis Batch: 294568

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	199		mg/L		100	84.6 - 115.4

Lab Sample ID: 570-122469-B-1 DU
Matrix: Water
Analysis Batch: 294568

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	ND		ND		mg/L		NC	25

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

GC/MS VOA

Analysis Batch: 293702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	8260B SIM	
MB 570-293702/7	Method Blank	Total/NA	Water	8260B SIM	
LCS 570-293702/4	Lab Control Sample	Total/NA	Water	8260B SIM	
LCSD 570-293702/5	Lab Control Sample Dup	Total/NA	Water	8260B SIM	

GC/MS Semi VOA

Prep Batch: 294449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	625	
MB 570-294449/1-A	Method Blank	Total/NA	Water	625	
LCS 570-294449/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-294449/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 294913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	625.1 SIM	294449
LCS 570-294449/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	294449
LCSD 570-294449/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	294449

Analysis Batch: 296147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-294449/1-A	Method Blank	Total/NA	Water	625.1 SIM	294449

GC Semi VOA

Prep Batch: 294075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	608	
MB 570-294075/1-A	Method Blank	Total/NA	Water	608	
LCS 570-294075/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 570-294075/4-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-294075/3-A	Lab Control Sample Dup	Total/NA	Water	608	
LCSD 570-294075/5-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 294290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-294075/1-A	Method Blank	Total/NA	Water	608.3	294075
LCS 570-294075/2-A	Lab Control Sample	Total/NA	Water	608.3	294075
LCSD 570-294075/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	294075

Analysis Batch: 294728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	608.3	294075
MB 570-294075/1-A	Method Blank	Total/NA	Water	608.3	294075

Analysis Batch: 295061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-294075/4-A	Lab Control Sample	Total/NA	Water	608.3	294075
LCSD 570-294075/5-A	Lab Control Sample Dup	Total/NA	Water	608.3	294075

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

GC Semi VOA

Analysis Batch: 295559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	608.3	294075

HPLC/IC

Analysis Batch: 293190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	300.0	
MB 570-293190/42	Method Blank	Total/NA	Water	300.0	
LCS 570-293190/43	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-293190/44	Lab Control Sample Dup	Total/NA	Water	300.0	
570-122420-T-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-122420-T-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 293191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	300.0	
MB 570-293191/42	Method Blank	Total/NA	Water	300.0	
LCS 570-293191/43	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-293191/44	Lab Control Sample Dup	Total/NA	Water	300.0	
570-122420-T-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-122420-T-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 293495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	218.6	
MB 570-293495/5	Method Blank	Total/NA	Water	218.6	
LCS 570-293495/6	Lab Control Sample	Total/NA	Water	218.6	
LCSD 570-293495/7	Lab Control Sample Dup	Total/NA	Water	218.6	
570-122420-T-1 MS	Matrix Spike	Total/NA	Water	218.6	
570-122420-T-1 MSD	Matrix Spike Duplicate	Total/NA	Water	218.6	

Analysis Batch: 293573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	314.0	
MB 570-293573/7	Method Blank	Total/NA	Water	314.0	
LCS 570-293573/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-293573/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-122390-2 MS	Outfall002_20230102_Comp	Total/NA	Water	314.0	
570-122390-2 MSD	Outfall002_20230102_Comp	Total/NA	Water	314.0	

Analysis Batch: 295542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 293616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1	Outfall002_20230102_Comp_F	Dissolved	Water	Filtration	
MB 570-293616/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-293616/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-293616/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Metals (Continued)

Filtration Batch: 293616 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1 MS	Outfall002_20230102_Comp_F	Dissolved	Water	Filtration	
570-122390-1 MSD	Outfall002_20230102_Comp_F	Dissolved	Water	Filtration	

Filtration Batch: 293628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1	Outfall002_20230102_Comp_F	Dissolved	Water	Filtration	
MB 570-293628/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-293628/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-293628/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-122390-1 MS	Outfall002_20230102_Comp_F	Dissolved	Water	Filtration	
570-122390-1 MSD	Outfall002_20230102_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 293725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1	Outfall002_20230102_Comp_F	Dissolved	Water	200.7 Rev 4.4	293616
MB 570-293616/1-A	Method Blank	Dissolved	Water	200.7 Rev 4.4	293616
LCS 570-293616/2-A	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	293616
LCSD 570-293616/3-A	Lab Control Sample Dup	Dissolved	Water	200.7 Rev 4.4	293616
570-122390-1 MS	Outfall002_20230102_Comp_F	Dissolved	Water	200.7 Rev 4.4	293616
570-122390-1 MSD	Outfall002_20230102_Comp_F	Dissolved	Water	200.7 Rev 4.4	293616

Prep Batch: 293794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total Recoverable	Water	200.7	
MB 570-293794/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 570-293794/2-A	Lab Control Sample	Total Recoverable	Water	200.7	
LCSD 570-293794/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.7	
570-122390-2 MS	Outfall002_20230102_Comp	Total Recoverable	Water	200.7	
570-122390-2 MSD	Outfall002_20230102_Comp	Total Recoverable	Water	200.7	

Prep Batch: 293797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total Recoverable	Water	200.8	
MB 570-293797/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-293797/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-293797/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-122390-2 MS	Outfall002_20230102_Comp	Total Recoverable	Water	200.8	
570-122390-2 MSD	Outfall002_20230102_Comp	Total Recoverable	Water	200.8	

Prep Batch: 293865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	245.1	
MB 570-293865/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-293865/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-293865/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-122390-2 MS	Outfall002_20230102_Comp	Total/NA	Water	245.1	
570-122390-2 MSD	Outfall002_20230102_Comp	Total/NA	Water	245.1	

Filtration Batch: 293898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1	Outfall002_20230102_Comp_F	Dissolved	Water	Filtration	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Metals (Continued)

Filtration Batch: 293898 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-293898/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-293898/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-293898/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-122381-C-2-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-122381-C-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Prep Batch: 293902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1	Outfall002_20230102_Comp_F	Dissolved	Water	245.1	293898
MB 570-293898/1-B	Method Blank	Dissolved	Water	245.1	293898
LCS 570-293898/2-B	Lab Control Sample	Dissolved	Water	245.1	293898
LCSD 570-293898/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	293898
570-122381-C-2-E MS	Matrix Spike	Dissolved	Water	245.1	293898
570-122381-C-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	293898

Analysis Batch: 293994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1	Outfall002_20230102_Comp_F	Dissolved	Water	245.1	293902
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	245.1	293865
MB 570-293865/1-A	Method Blank	Total/NA	Water	245.1	293865
MB 570-293898/1-B	Method Blank	Dissolved	Water	245.1	293902
LCS 570-293865/2-A	Lab Control Sample	Total/NA	Water	245.1	293865
LCS 570-293898/2-B	Lab Control Sample	Dissolved	Water	245.1	293902
LCSD 570-293865/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	293865
LCSD 570-293898/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	293902
570-122381-C-2-E MS	Matrix Spike	Dissolved	Water	245.1	293902
570-122381-C-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	293902
570-122390-2 MS	Outfall002_20230102_Comp	Total/NA	Water	245.1	293865
570-122390-2 MSD	Outfall002_20230102_Comp	Total/NA	Water	245.1	293865

Analysis Batch: 294245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total Recoverable	Water	200.7 Rev 4.4	293794
MB 570-293794/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	293794
LCS 570-293794/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	293794
LCSD 570-293794/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.7 Rev 4.4	293794
570-122390-2 MS	Outfall002_20230102_Comp	Total Recoverable	Water	200.7 Rev 4.4	293794
570-122390-2 MSD	Outfall002_20230102_Comp	Total Recoverable	Water	200.7 Rev 4.4	293794

Analysis Batch: 294360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1	Outfall002_20230102_Comp_F	Dissolved	Water	SM 2340B	
570-122390-2	Outfall002_20230102_Comp	Total Recoverable	Water	SM 2340B	

Analysis Batch: 294380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1	Outfall002_20230102_Comp_F	Dissolved	Water	200.8	293628
MB 570-293628/1-A	Method Blank	Dissolved	Water	200.8	293628
LCS 570-293628/2-A	Lab Control Sample	Dissolved	Water	200.8	293628
LCSD 570-293628/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	293628
570-122390-1 MS	Outfall002_20230102_Comp_F	Dissolved	Water	200.8	293628

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Metals (Continued)

Analysis Batch: 294380 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-1 MSD	Outfall002_20230102_Comp_F	Dissolved	Water	200.8	293628

Analysis Batch: 294520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total Recoverable	Water	200.8	293797
MB 570-293797/1-A	Method Blank	Total Recoverable	Water	200.8	293797
LCS 570-293797/2-A	Lab Control Sample	Total Recoverable	Water	200.8	293797
LCSD 570-293797/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	293797
570-122390-2 MS	Outfall002_20230102_Comp	Total Recoverable	Water	200.8	293797
570-122390-2 MSD	Outfall002_20230102_Comp	Total Recoverable	Water	200.8	293797

Prep Batch: 301320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total Recoverable	Water	200.8	
MB 570-301320/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-301320/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-301320/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-126348-E-1-B MS	Matrix Spike	Total Recoverable	Water	200.8	
570-126348-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	

Analysis Batch: 301447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-301320/1-A	Method Blank	Total Recoverable	Water	200.8	301320
LCS 570-301320/2-A	Lab Control Sample	Total Recoverable	Water	200.8	301320
LCSD 570-301320/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	301320
570-126348-E-1-B MS	Matrix Spike	Total Recoverable	Water	200.8	301320
570-126348-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	301320

Analysis Batch: 301518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total Recoverable	Water	200.8	301320

General Chemistry

Analysis Batch: 293487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	SM 5540C	293645
MB 570-293645/5-A	Method Blank	Total/NA	Water	SM 5540C	293645
LCS 570-293645/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	293645
LCSD 570-293645/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	293645
570-122390-2 MS	Outfall002_20230102_Comp	Total/NA	Water	SM 5540C	293645
570-122390-2 MSD	Outfall002_20230102_Comp	Total/NA	Water	SM 5540C	293645

Analysis Batch: 293492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-293492/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-293492/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-293492/3	Lab Control Sample	Total/NA	Water	SM 2130B	
570-122390-2 DU	Outfall002_20230102_Comp	Total/NA	Water	SM 2130B	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

General Chemistry

Prep Batch: 293645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	SM 5540C	
MB 570-293645/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-293645/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-293645/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-122390-2 MS	Outfall002_20230102_Comp	Total/NA	Water	SM 5540C	
570-122390-2 MSD	Outfall002_20230102_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 293692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	SM 2540C	
MB 570-293692/3	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-293692/4	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-293692/5	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-122453-I-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 294266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	SM 2540D	
MB 570-294266/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-294266/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-294266/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-122377-F-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 294568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	SM5210B	
USB 570-294568/2	Method Blank	Total/NA	Water	SM5210B	
LCS 570-294568/4	Lab Control Sample	Total/NA	Water	SM5210B	
570-122469-B-1 DU	Duplicate	Total/NA	Water	SM5210B	

Analysis Batch: 294610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	SM 5310D	
MB 570-294610/48	Method Blank	Total/NA	Water	SM 5310D	
LCS 570-294610/49	Lab Control Sample	Total/NA	Water	SM 5310D	
LCSD 570-294610/50	Lab Control Sample Dup	Total/NA	Water	SM 5310D	
570-122902-D-1 MS ^2	Matrix Spike	Total/NA	Water	SM 5310D	
570-122902-D-1 MSD ^2	Matrix Spike Duplicate	Total/NA	Water	SM 5310D	

Prep Batch: 295166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-295166/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-295166/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-295166/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
380-31821-AM-1-C MS	Matrix Spike	Total/NA	Water	Distill/Ammonia	
380-31821-AM-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 295182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	350.1	295166

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

General Chemistry (Continued)

Analysis Batch: 295182 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-295166/5-A	Method Blank	Total/NA	Water	350.1	295166
LCS 570-295166/6-A	Lab Control Sample	Total/NA	Water	350.1	295166
LCSD 570-295166/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	295166
380-31821-AM-1-C MS	Matrix Spike	Total/NA	Water	350.1	295166
380-31821-AM-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	295166

Analysis Batch: 295446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	Kelada 01	
MB 570-295446/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-295446/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-295446/18	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-295446/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-122475-D-1 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-122475-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 296119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	218.6 CR3	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Client Sample ID: Outfall002_20230102_Comp_F

Lab Sample ID: 570-122390-1

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	293616	01/04/23 12:14	JP8N	EET CAL 4
Dissolved	Analysis	200.7 Rev 4.4		1			293725	01/04/23 17:43	A1W	EET CAL 4
		Instrument ID: ICP11								
Dissolved	Filtration	Filtration			50 mL	50 mL	293628	01/04/23 12:36	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			294380	01/06/23 15:08	Y2WS	EET CAL 4
		Instrument ID: ICPMS10								
Dissolved	Filtration	Filtration			25 mL	25 mL	293898	01/05/23 11:45	C0YH	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	293902	01/05/23 11:56	C0YH	EET CAL 4
Dissolved	Analysis	245.1		1			293994	01/05/23 19:43	C0YH	EET CAL 4
		Instrument ID: HG8								
Dissolved	Analysis	SM 2340B		1			294360	01/08/23 16:31	P1R	EET CAL 4
		Instrument ID: NOEQUIP								

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B SIM		1	25 mL	25 mL	293702	01/05/23 02:31	UJHB	EET CAL 4
		Instrument ID: GCMSFFF								
Total/NA	Prep	625			1049.3 mL	2 mL	294449	01/09/23 10:25	OAJ3	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	294913	01/10/23 19:53	ULLI	EET CAL 4
		Instrument ID: GCMSEEE								
Total/NA	Prep	608			1500 mL	1 mL	294075	01/06/23 12:10	OAJ3	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	295559	01/13/23 15:11	N5Y3	EET CAL 4
		Instrument ID: GC52A								
Total/NA	Prep	608			1500 mL	1 mL	294075	01/06/23 12:10	OAJ3	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	294728	01/10/23 23:09	UJ3K	EET CAL 4
		Instrument ID: GC66								
Total/NA	Analysis	218.6		1	4 mL	4 mL	293495	01/04/23 03:11	YO8L	EET CAL 4
		Instrument ID: IC33								
Total/NA	Analysis	300.0		5	4 mL	4 mL	293190	01/03/23 23:55	PS	EET CAL 4
		Instrument ID: IC15								
Total/NA	Analysis	300.0		5	4 mL	4 mL	293191	01/03/23 23:55	PS	EET CAL 4
		Instrument ID: IC15								
Total/NA	Analysis	314.0		1	4 mL	4 mL	293573	01/04/23 14:29	PS	EET CAL 4
		Instrument ID: IC13								
Total/NA	Analysis	NO2NO3 Calc		1			295542	01/12/23 18:24	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total Recoverable	Prep	200.7			50 mL	50 mL	293794	01/05/23 06:25	JP8N	EET CAL 4
Total Recoverable	Analysis	200.7 Rev 4.4		1			294245	01/06/23 16:20	P1R	EET CAL 4
		Instrument ID: ICP10								
Total Recoverable	Prep	200.8			50 mL	50 mL	293797	01/05/23 07:41	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			294520	01/09/23 10:50	Y2WS	EET CAL 4
		Instrument ID: ICPMS09								

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.8			50 mL	50 mL	301320	02/06/23 11:30	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			301518	02/06/23 14:04	Y2WS	EET CAL 4
		Instrument ID: ICPMS10								
Total/NA	Prep	245.1			25 mL	50 mL	293865	01/05/23 10:41	JP8N	EET CAL 4
Total/NA	Analysis	245.1		1			293994	01/05/23 18:44	C0YH	EET CAL 4
		Instrument ID: HG8								
Total Recoverable	Analysis	SM 2340B		1			294360	01/08/23 16:31	P1R	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	218.6 CR3		1			296119	01/16/23 11:45	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	295166	01/11/23 12:55	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	295182	01/11/23 15:10	UXCH	EET CAL 4
		Instrument ID: ACA2								
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	295446	01/11/23 14:55	GG0B	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2130B		1			293492	01/03/23 22:46	TXA8	EET CAL 4
		Instrument ID: TUR4								
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	293692	01/04/23 15:33	ZL7L	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540D		1	700 mL	1000 mL	294266	01/06/23 17:51	U7UR	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 5310D		10	40 mL	40 mL	294610	01/10/23 18:01	UAPD	EET CAL 4
		Instrument ID: TOC8								
Total/NA	Prep	SM 5540C			100 mL	100 mL	293645	01/03/23 20:30	TXA8	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	293487	01/03/23 21:46	TXA8	EET CAL 4
		Instrument ID: UV8								
Total/NA	Analysis	SM5210B		1			294568	01/04/23 08:26	W0EF	EET CAL 4
		Instrument ID: BOD3								

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Method	Method Description	Protocol	Laboratory
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	EET CAL 4
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	EPA	EET CAL 4
608.3	Polychlorinated Biphenyls (PCBs) (GC)	EPA	EET CAL 4
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.7 Rev 4.4	Metals (ICP)	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	EET CAL 4
218.6 CR3	Chromium, Trivalent (Calculation)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5310D	Organic Carbon, Total (TOC)	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
SM5210B	BOD, 5 Day	SM	EET CAL 4
200.7	Preparation, Total Recoverable Metals	EPA	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
5030C	Purge and Trap	SW846	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET CAL 4
625	Liquid-Liquid Extraction	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122390-1	Outfall002_20230102_Comp_F	Water	01/02/23 09:15	01/03/23 17:05
570-122390-2	Outfall002_20230102_Comp	Water	01/02/23 09:15	01/03/23 17:05

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122390

CHAIN OF CUSTODY FORM



570-122390 Chain of Custody

Client Name/Address:
Hayley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Dertian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

Test America's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Hayley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Adrien Mobeka

Project:
Boeing-SSFL NPDES
Permit 2023
Annual Outfall 001 002, 011 018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606; 520.904.6944 (cell)
Field Manager: Mark Dominick
978.234.5033; 818.589.0702 (cell)

Table with columns: Sample Description, Sampling Date/Time, Sample Matrix, Container Type, # of Cont., Preservative, Bottle #, MSMSD, Total Dissolved Metals, Cyanide, Tritium, Radium, Chronic Toxicity, Sensitivity, Total Organic Carbon, Monomethyl hydrazine, Cr(VI), Total Dissolved Metals, Comments.

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Administrative section with fields for Date/Time, Company, Received By, and Turn-around time options.

Handwritten notes: 2.3/2.3 2.6/2.6 2.1/2.1 1.2/1.2 1.3/1.3



CHAIN OF CUSTODY FORM

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SFL NPDES Permit 2023 Annual Outfall 001 002, 011, 016 Outfall 002 Comp</p>				<p>R/A</p>		<p>R/R</p>		<p>R/A</p>		<p>R/R</p>		<p>R/A</p>		<p>R/R</p>		<p>R/A</p>		<p>R/R</p>		<p>R/A</p>		<p>R/R</p>		<p>R/A</p>		<p>R/R</p>					
<p>Test America Contact: Christian Bontoc 17461 Denan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)</p>		<p>Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>		<p>MS/MSD</p>					
<p>Sample Description</p>		<p>Sample I.D.</p>		<p>Sampling Date/Time</p>		<p>Sample Matrix</p>		<p>Container Type</p>		<p># of Cont.</p>		<p>Preservative</p>		<p>Bottle #</p>		<p>MS/MSD</p>		<p>TDS (20 degrees C) (E405.1)</p>		<p>Turbidity TDS (SM2540C/E180 1)</p>		<p>TSS (160.2 (SM2540D))</p>		<p>Ammonia-N (E30.2)</p>		<p>Priority Pollutants-SVOCs (E625)</p>		<p>Priority Pollutants-PCBs (E609)</p>		<p>Total Recoverable Metals, Mercury (E245.1)</p>		<p>Comments</p>	
<p>Outfall 002</p>		<p>Outfall002_20230102_Comp</p>		<p>1/2/2023 10:15</p>		<p>WM</p>		<p>500 mL Poly</p>		<p>3</p>		<p>HNO₃</p>		<p>80</p>		<p>Yes</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>Outfall 018 analyze for Al.</p>			
<p>Outfall 002</p>		<p>Outfall002_20230102_Comp_Extra</p>		<p>1/2/2023 10:15</p>		<p>WM</p>		<p>500 mL Poly</p>		<p>3</p>		<p>H₂SO₄</p>		<p>160</p>		<p>Yes</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>48 hours Holding Time NO₂ & NO₃ 48 hour holding time for turbidity</p>					

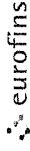
<p>Relinquished By <i>HA</i></p>		<p>Date/Time: 1-3-23/1245</p>		<p>Received By <i>EC</i></p>		<p>Date/Time: 1/3/23/1245</p>	
<p>Relinquished By <i>HA</i></p>		<p>Date/Time: 01/03/23 1705</p>		<p>Received By <i>EC</i></p>		<p>Date/Time: 1/3/23 1705</p>	
<p>Relinquished By <i>HA</i></p>		<p>Date/Time: 01/03/23 1705</p>		<p>Received By <i>EC</i></p>		<p>Date/Time: 1/3/23 1705</p>	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Turn-around time: (Check)
 24 Hour _____ 72 Hour _____ 10 Day _____ X _____
 48 Hour _____ 5 Day _____ Normal: _____

Sample Integrity: (Check)
 Intact: _____ On Ice: _____
 Store samples for 6 months: _____
 Data Requirements: (Check)
 No Level IV _____ All Level IV _____ X _____

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler Patel Virendra	Lab PM Patel Virendra	Carrier Tracking No(s)	570-203234 1
Shipping/Receiving Company Weck Laboratories, Inc.		Phone: Virendra.Patel@et.eurofins.com	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin California	Page: Page 1 of 1
Address: 14859 E Clark Avenue,		Due Date Requested 1/17/2023			Job #: 570-122390-4
City: City of Industry		TAT Requested (days)			Preservation Codes
State/Zip: CA, 91745		PO #:			A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other
Email:		WO #:			M Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - Trizma Z - other (specify)
Project Name: Boeing SSFL NPDES - Outfall 002 - COMP		Project #: 44024446			Preservation Codes
Site:		SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=Tissue, A=Air)	Perform MS/MSD (Yes or No)		SUB (Week-Hydrzine) / Week-Hydrzine (Hold)		Field Filtered Sample (Yes or No)	Total Number of Containers	Special Instructions/Note:
					Yes	No	Yes	No			
Outfall002_20230102_Comp (570-122390-2)	1/2/23	09 15 Pacific	Water	Water		X		X		1	See Attached Instructions
Outfall002_20230102_Comp_Extra (570-122390-3)	1/2/23	09 15 Pacific	Water	Water		X		X		1	See Attached Instructions

Note: Since laboratory accreditations are subject to change Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) _____
 Primary Deliverable Rank: 2
 Method of Shipment: _____
 Date: _____ Time: _____
 Received by: _____ Company: _____
 Received by: _____ Company: _____
 Received by: _____ Company: _____
 Cooler Temperature(s) °C and Other Remarks: _____
 Custody Seal No
 Δ Yes Δ No



ICOC No:
570-203234

Containers

Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV needed
3	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine (Hold)	Level IV needed





Client Information (Sub Contract Lab)			Lab PM: Virendra Patel	Carrier Tracking No(s): 570-203260 1
Shipping/Receiving			E-Mail: Virendra.Patel@et.eurofins.com	Page: 1 of 1
Company: TestAmerica Laboratories Inc.			State of Origin: California	
Address: 13715 Rider Trail North			Job #: 570-122390-1	
City: Earth City	Due Date Requested: 1/17/2023		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
State, Zip: MO, 63045	TAT Requested (days):		Analysis Requested	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:		Total Number of Containers	
Email:	WO #:		6	
Project Name: Boeing SSFL NPDES - Outfall 002 - COMP	Project #: 44024446		Boeing SSFL DO NOT FILTER, use prep date from preservation	
Site:	SSOW#:		Special Instructions/Note:	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=wastewat, BT=Tissue, A=air)
Outfall002_20230102_Comp (570-122390-2)	1/2/23	09 15 Pacific		Water
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p> <p>Possible Hazard Identification Unconfirmed</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>				
Deliverable Requested I, II, III, IV, Other (specify)			Special Instructions/QC Requirements.	
Primary Deliverable Rank: 2			Method of Shipment:	
Empty Kit Relinquished by:	Date:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:
	1/4/23 15:28			
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks:		
Ver: 06/08/2021				



Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-203260.1																				
Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1																				
Company: Test/America Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #:	570-122390-1																				
Address: 13715 Rider Trail North,		Due Date Requested: 1/17/2023		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma L - EDTA Z - other (specify) Other:																					
City: Earth City	State, Zip: MO, 63045	PO #: 314-298-8566(Tel) 314-298-8757(Fax)	WO #: 44024446	Analysis Requested																					
Project Name: Boeing SSFL NPDES - Outfall 002 - COMP	Site: 44024446	SSOW#: 44024446	Project #: 44024446	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>900.0/Evaporation Gross Alpha/Beta</th> <th>906.0/LSC Dist. Susp Tritium</th> <th>905.5/Sr/PreSep_7 Strontium-90</th> <th>903.0/PreSep_21 Radium-226</th> <th>904.0/PreSep_0 Radium-228</th> <th>A07R_U/ExtChrom_Actin Total Uranium</th> <th>901.1_Cs/III_Geo_0 K-40 and Csium-137</th> <th>Total Number of containers</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>6</td> </tr> </tbody> </table>		Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC Dist. Susp Tritium	905.5/Sr/PreSep_7 Strontium-90	903.0/PreSep_21 Radium-226	904.0/PreSep_0 Radium-228	A07R_U/ExtChrom_Actin Total Uranium	901.1_Cs/III_Geo_0 K-40 and Csium-137	Total Number of containers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC Dist. Susp Tritium	905.5/Sr/PreSep_7 Strontium-90	903.0/PreSep_21 Radium-226	904.0/PreSep_0 Radium-228	A07R_U/ExtChrom_Actin Total Uranium	901.1_Cs/III_Geo_0 K-40 and Csium-137	Total Number of containers																
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6																
Sample Identification - Client ID (Lab ID)		Sample Date: 1/2/23	Sample Time: 09:15 Pacific	Sample Type (C=Comp, G=grab): Water	Matrix (W=Water, S=Soils, O=Swab/Soil, BT=Tissue, A=Air):																				
Outfall002_20230102_Comp (570-122390-2)																									
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/testis/mainx being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>																									
Possible Hazard Identification																									
<input type="checkbox"/> Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months																									
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2	Special Instructions/QC Requirements:																						
Empty Kit Relinquished by:		Date:	Method of Shipment:																						
Relinquished by: [Signature]		Date/Time: 1/4/23 15:28	Received by: [Signature]																						
Relinquished by: [Signature]		Date/Time: [Signature]	Date/Time: JAN 05 2023 08:31																						
Relinquished by: [Signature]		Date/Time: [Signature]	Date/Time: [Signature]																						
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:																						



Chain of Custody Record



Environment Testing



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact:		Patel, Virendra	Patel, Virendra		570-203232-1
Shipping/Receiving		E-Mail:	E-Mail:	State of Origin:	Page
Company:		Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	California	Page 1 of 1
Address:		Accreditations Required (See note):		Job #	570-122390-2
880 Riverside Parkway,		State Program - California		Preservation Codes:	
City:	West Sacramento	Due Date Requested:	1/13/2023	M - Hexane	
State, Zip:	CA, 95605	TAT Requested (days):		N - None	
Phone:	916-373-5600(Tel) 916-372-1059(Fax)	PO #:		O - AsNaO2	
Email:		WO #:		P - Na2O4S	
Project #:	44024446	Project #:	44024446	Q - Na2SO3	
Site:	Boeing SSFL NPDES - Outfall 002 - COMP	SSOW#:		R - NaHSO4	
				S - H2SO4	
				T - TSP Dodecahydrate	
				U - Acetone	
				V - MCAA	
				W - pH 4-5	
				Y - Trizma	
				Z - other (specify)	
				Other:	
Sample Identification - Client ID (Lab ID)		Sample Date	1/2/23	Sample Time	09:15 Pacific
Outfall002_20230102_Comp_Extra (570-122390-3)		Sample Type (C=Comp, G=grab)		Preservation Code:	Water
		Matrix (W=water, S=solid, O=washoff, I=Ice)			
		Field Filtered Sample (Yes or No)	X		
		Perform MS/MSD (Yes or No)	X		
		1618/1613B Sox_Sep_P Standard List w/ Totals (Hold)	X		
		Total Number of Containers	2		
		Special Instructions/Note:	See QAS, Boeing, w/lu to zero, u/L; Use Boeing glassware.		
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/mainx being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience</p>					
Possible Hazard Identification					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)					
Primary Deliverable Rank: 2					
Special Instructions/QC Requirements:					
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Empty Kit Relinquished by:					
Relinquished by:		Date:		Method of Shipment:	
Relinquished by:		Date:		Received by:	
Relinquished by:		Date:		Received by:	
Relinquished by:		Date:		Received by:	
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	
Δ Yes Δ No				1.7L	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122390-1

Login Number: 122390

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 1/25/2023 1:43:14 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - COMP

JOB NUMBER

570-122390-2

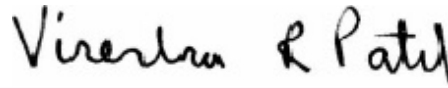
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
1/25/2023 1:43:14 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-122390-2

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Job ID: 570-122390-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122390-2

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.2° C, 1.3° C, 2.1° C, 2.3° C and 2.6° C.

Dioxin

Method 1613B: The continuing calibration verification (CCV) associated with batch 320-648570 recovered above the upper control limit for isotope dilution analyte (IDA) 13C-1,2,3,4,7,8,9-HpCDF. The samples associated with this CCV were non-detect above the reporting limit (RL) for the native analyte 1,2,3,4,7,8,9-HpCDF and the IDA is in control for all associated samples; therefore, the data have been reported. No further corrective action was taken.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.000032	J,DX	0.000048	0.000002	ug/L	1		1613B	Total/NA
				0					
1,2,3,6,7,8-HxCDD	0.000014	J,DX q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				2					
1,2,3,7,8,9-HxCDD	0.000014	J,DX MB q	0.000048	0.000001	ug/L	1		1613B	Total/NA
				9					
1,2,3,4,7,8-HxCDF	0.000016	J,DX	0.000048	0.000001	ug/L	1		1613B	Total/NA
				3					
1,2,3,6,7,8-HxCDF	0.000011	J,DX q	0.000048	0.000001	ug/L	1		1613B	Total/NA
				3					
1,2,3,7,8,9-HxCDF	0.000035	J,DX MB	0.000048	0.000001	ug/L	1		1613B	Total/NA
				3					
2,3,4,6,7,8-HxCDF	0.000012	J,DX q	0.000048	0.0000011	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.000024	J,DX MB q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,6,7,8-HpCDF	0.000014	J,DX MB	0.000048	0.000002	ug/L	1		1613B	Total/NA
				0					
1,2,3,4,7,8,9-HpCDF	0.000020	J,DX MB	0.000048	0.000002	ug/L	1		1613B	Total/NA
				1					
OCDD	0.00028	MB	0.000097	0.000006	ug/L	1		1613B	Total/NA
				5					
OCDF	0.000026	J,DX MB	0.000097	0.000001	ug/L	1		1613B	Total/NA
				9					
Total HxCDD	0.000060	J,DX MB q	0.000048	0.000001	ug/L	1		1613B	Total/NA
				9					
Total HxCDF	0.000010	J,DX MB q	0.000048	0.0000011	ug/L	1		1613B	Total/NA
Total HpCDD	0.000048	J,DX MB q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				5					
Total HpCDF	0.000025	J,DX MB q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				0					

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230102_Comp

Date Collected: 01/02/23 09:15

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000097	0.0000000	ug/L		01/06/23 04:42	01/23/23 03:40	1
				87					
2,3,7,8-TCDF	ND		0.0000097	0.0000000	ug/L		01/06/23 04:42	01/23/23 03:40	1
				51					
1,2,3,7,8-PeCDD	ND		0.000048	0.0000000	ug/L		01/06/23 04:42	01/23/23 03:40	1
				67					
1,2,3,7,8-PeCDF	ND		0.000048	0.0000000	ug/L		01/06/23 04:42	01/23/23 03:40	1
				43					
2,3,4,7,8-PeCDF	ND		0.000048	0.0000000	ug/L		01/06/23 04:42	01/23/23 03:40	1
				53					
1,2,3,4,7,8-HxCDD	0.0000032	J,DX	0.000048	0.0000002	ug/L		01/06/23 04:42	01/23/23 03:40	1
				0					
1,2,3,6,7,8-HxCDD	0.0000014	J,DX q	0.000048	0.0000002	ug/L		01/06/23 04:42	01/23/23 03:40	1
				2					
1,2,3,7,8,9-HxCDD	0.0000014	J,DX MB q	0.000048	0.0000001	ug/L		01/06/23 04:42	01/23/23 03:40	1
				9					
1,2,3,4,7,8-HxCDF	0.0000016	J,DX	0.000048	0.0000001	ug/L		01/06/23 04:42	01/23/23 03:40	1
				3					
1,2,3,6,7,8-HxCDF	0.0000011	J,DX q	0.000048	0.0000001	ug/L		01/06/23 04:42	01/23/23 03:40	1
				3					
1,2,3,7,8,9-HxCDF	0.0000035	J,DX MB	0.000048	0.0000001	ug/L		01/06/23 04:42	01/23/23 03:40	1
				3					
2,3,4,6,7,8-HxCDF	0.0000012	J,DX q	0.000048	0.00000011	ug/L		01/06/23 04:42	01/23/23 03:40	1
1,2,3,4,6,7,8-HpCDD	0.000024	J,DX MB q	0.000048	0.0000002	ug/L		01/06/23 04:42	01/23/23 03:40	1
				5					
1,2,3,4,6,7,8-HpCDF	0.000014	J,DX MB	0.000048	0.0000002	ug/L		01/06/23 04:42	01/23/23 03:40	1
				0					
1,2,3,4,7,8,9-HpCDF	0.0000020	J,DX MB	0.000048	0.0000002	ug/L		01/06/23 04:42	01/23/23 03:40	1
				1					
OCDD	0.00028	MB	0.000097	0.0000006	ug/L		01/06/23 04:42	01/23/23 03:40	1
				5					
OCDF	0.000026	J,DX MB	0.000097	0.0000001	ug/L		01/06/23 04:42	01/23/23 03:40	1
				9					
Total TCDD	ND		0.0000097	0.0000000	ug/L		01/06/23 04:42	01/23/23 03:40	1
				87					
Total TCDF	ND		0.0000097	0.0000000	ug/L		01/06/23 04:42	01/23/23 03:40	1
				51					
Total PeCDD	ND		0.000048	0.0000000	ug/L		01/06/23 04:42	01/23/23 03:40	1
				67					
Total PeCDF	ND		0.000048	0.0000000	ug/L		01/06/23 04:42	01/23/23 03:40	1
				43					
Total HxCDD	0.0000060	J,DX MB q	0.000048	0.0000001	ug/L		01/06/23 04:42	01/23/23 03:40	1
				9					
Total HxCDF	0.000010	J,DX MB q	0.000048	0.00000011	ug/L		01/06/23 04:42	01/23/23 03:40	1
Total HpCDD	0.000048	J,DX MB q	0.000048	0.0000002	ug/L		01/06/23 04:42	01/23/23 03:40	1
				5					
Total HpCDF	0.000025	J,DX MB q	0.000048	0.0000002	ug/L		01/06/23 04:42	01/23/23 03:40	1
				0					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	77		25 - 164				01/06/23 04:42	01/23/23 03:40	1
13C-2,3,7,8-TCDF	73		24 - 169				01/06/23 04:42	01/23/23 03:40	1
13C-1,2,3,7,8-PeCDD	85		25 - 181				01/06/23 04:42	01/23/23 03:40	1
13C-1,2,3,7,8-PeCDF	83		24 - 185				01/06/23 04:42	01/23/23 03:40	1
13C-2,3,4,7,8-PeCDF	75		21 - 178				01/06/23 04:42	01/23/23 03:40	1
13C-1,2,3,4,7,8-HxCDD	88		32 - 141				01/06/23 04:42	01/23/23 03:40	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230102_Comp

Date Collected: 01/02/23 09:15

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,6,7,8-HxCDD	77		28 - 130	01/06/23 04:42	01/23/23 03:40	1
13C-1,2,3,4,7,8-HxCDF	91		26 - 152	01/06/23 04:42	01/23/23 03:40	1
13C-1,2,3,6,7,8-HxCDF	92		26 - 123	01/06/23 04:42	01/23/23 03:40	1
13C-1,2,3,7,8,9-HxCDF	94		29 - 147	01/06/23 04:42	01/23/23 03:40	1
13C-2,3,4,6,7,8-HxCDF	103		28 - 136	01/06/23 04:42	01/23/23 03:40	1
13C-1,2,3,4,6,7,8-HpCDD	104		23 - 140	01/06/23 04:42	01/23/23 03:40	1
13C-1,2,3,4,6,7,8-HpCDF	97		28 - 143	01/06/23 04:42	01/23/23 03:40	1
13C-1,2,3,4,7,8,9-HpCDF	109		26 - 138	01/06/23 04:42	01/23/23 03:40	1
13C-OCDD	99		17 - 157	01/06/23 04:42	01/23/23 03:40	1
13C-OCDF	107		17 - 157	01/06/23 04:42	01/23/23 03:40	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	88		35 - 197	01/06/23 04:42	01/23/23 03:40	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-122390-2	Outfall002_20230102_Comp	88
MB 320-644871/1-A	Method Blank	91

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-644871/2-A	Lab Control Sample	88
LCSD 320-644871/3-A	Lab Control Sample Dup	90

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-122390-2	Outfall002_20230102_Comp	77	73	85	83	75	88	77	91
MB 320-644871/1-A	Method Blank	68	66	79	74	75	74	67	79

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-122390-2	Outfall002_20230102_Comp	92	94	103	104	97	109	99	107
MB 320-644871/1-A	Method Blank	76	80	85	87	83	93	87	99

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-644871/2-A	Lab Control Sample	61	60	74	70	69	72	64	75
LCSD 320-644871/3-A	Lab Control Sample Dup	67	65	80	73	76	82	71	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-644871/2-A	Lab Control Sample	74	79	83	85	79	89	82	93
LCSD 320-644871/3-A	Lab Control Sample Dup	83	86	90	95	91	101	91	104

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-644871/1-A
 Matrix: Water
 Analysis Batch: 648570

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 644871

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000002	ug/L		01/06/23 04:42	01/23/23 00:28	1
				1					
2,3,7,8-TCDF	ND		0.000010	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				32					
1,2,3,7,8-PeCDD	ND		0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				92					
1,2,3,7,8-PeCDF	0.00000179	J,DX q	0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				46					
2,3,4,7,8-PeCDF	ND		0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				49					
1,2,3,4,7,8-HxCDD	ND		0.000050	0.0000001	ug/L		01/06/23 04:42	01/23/23 00:28	1
				3					
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000001	ug/L		01/06/23 04:42	01/23/23 00:28	1
				4					
1,2,3,7,8,9-HxCDD	0.00000222	J,DX	0.000050	0.0000001	ug/L		01/06/23 04:42	01/23/23 00:28	1
				2					
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				91					
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				91					
1,2,3,7,8,9-HxCDF	0.00000589	J,DX	0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				94					
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				82					
1,2,3,4,6,7,8-HpCDD	0.00000429	J,DX	0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				50					
1,2,3,4,6,7,8-HpCDF	0.00000364	J,DX	0.000050	0.0000001	ug/L		01/06/23 04:42	01/23/23 00:28	1
				3					
1,2,3,4,7,8,9-HpCDF	0.00000306	J,DX q	0.000050	0.0000001	ug/L		01/06/23 04:42	01/23/23 00:28	1
				4					
OCDD	0.00000937	J,DX	0.00010	0.0000002	ug/L		01/06/23 04:42	01/23/23 00:28	1
				4					
OCDF	0.00000201	J,DX	0.00010	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				99					
Total TCDD	ND		0.000010	0.0000002	ug/L		01/06/23 04:42	01/23/23 00:28	1
				1					
Total TCDF	ND		0.000010	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				32					
Total PeCDD	ND		0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				92					
Total PeCDF	0.00000179	J,DX q	0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				46					
Total HxCDD	0.00000222	J,DX	0.000050	0.0000001	ug/L		01/06/23 04:42	01/23/23 00:28	1
				2					
Total HxCDF	0.00000589	J,DX	0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				82					
Total HpCDD	0.00000927	J,DX q	0.000050	0.0000000	ug/L		01/06/23 04:42	01/23/23 00:28	1
				50					
Total HpCDF	0.00000669	J,DX q	0.000050	0.0000001	ug/L		01/06/23 04:42	01/23/23 00:28	1
				3					
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	68		25 - 164				01/06/23 04:42	01/23/23 00:28	1
13C-2,3,7,8-TCDF	66		24 - 169				01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,7,8-PeCDD	79		25 - 181				01/06/23 04:42	01/23/23 00:28	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-644871/1-A
Matrix: Water
Analysis Batch: 648570

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 644871

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDF	74		24 - 185	01/06/23 04:42	01/23/23 00:28	1
13C-2,3,4,7,8-PeCDF	75		21 - 178	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,7,8-HxCDD	74		32 - 141	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,6,7,8-HxCDD	67		28 - 130	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,7,8-HxCDF	79		26 - 152	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,6,7,8-HxCDF	76		26 - 123	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,7,8,9-HxCDF	80		29 - 147	01/06/23 04:42	01/23/23 00:28	1
13C-2,3,4,6,7,8-HxCDF	85		28 - 136	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,6,7,8-HpCDD	87		23 - 140	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,6,7,8-HpCDF	83		28 - 143	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,7,8,9-HpCDF	93		26 - 138	01/06/23 04:42	01/23/23 00:28	1
13C-OCDD	87		17 - 157	01/06/23 04:42	01/23/23 00:28	1
13C-OCDF	99		17 - 157	01/06/23 04:42	01/23/23 00:28	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	91		35 - 197	01/06/23 04:42	01/23/23 00:28	1

Lab Sample ID: LCS 320-644871/2-A
Matrix: Water
Analysis Batch: 648570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 644871

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000237		ug/L		119	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000957		ug/L		96	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000966	MB	ug/L		97	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000942		ug/L		94	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000967		ug/L		97	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00110		ug/L		110	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00103	MB	ug/L		103	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000993		ug/L		99	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000999		ug/L		100	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000995	MB	ug/L		99	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000983	MB	ug/L		98	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00111	MB	ug/L		111	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000995	MB	ug/L		100	78 - 138
OCDD	0.00200	0.00222	MB	ug/L		111	78 - 144
OCDF	0.00200	0.00218	MB	ug/L		109	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	61		20 - 175
13C-2,3,7,8-TCDF	60		22 - 152
13C-1,2,3,7,8-PeCDD	74		21 - 227
13C-1,2,3,7,8-PeCDF	70		21 - 192
13C-2,3,4,7,8-PeCDF	69		13 - 328
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-644871/2-A
Matrix: Water
Analysis Batch: 648570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 644871

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDF	75		19 - 202
13C-1,2,3,6,7,8-HxCDF	74		21 - 159
13C-1,2,3,7,8,9-HxCDF	79		17 - 205
13C-2,3,4,6,7,8-HxCDF	83		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	85		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	79		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	89		20 - 186
13C-OCDD	82		13 - 199
13C-OCDF	93		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	88		31 - 191

Lab Sample ID: LCSD 320-644871/3-A
Matrix: Water
Analysis Batch: 648570

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 644871

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000217		ug/L		109	67 - 158	3	50	
2,3,7,8-TCDF	0.000200	0.000231		ug/L		116	75 - 158	3	50	
1,2,3,7,8-PeCDD	0.00100	0.000984		ug/L		98	70 - 142	3	50	
1,2,3,7,8-PeCDF	0.00100	0.00101	MB	ug/L		101	80 - 134	4	50	
2,3,4,7,8-PeCDF	0.00100	0.000953		ug/L		95	68 - 160	1	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000959		ug/L		96	70 - 164	1	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00113		ug/L		113	76 - 134	3	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00104	MB	ug/L		104	64 - 162	1	50	
1,2,3,4,7,8-HxCDF	0.00100	0.00102		ug/L		102	72 - 134	2	50	
1,2,3,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	84 - 130	3	50	
1,2,3,7,8,9-HxCDF	0.00100	0.00105	MB	ug/L		105	78 - 130	5	50	
2,3,4,6,7,8-HxCDF	0.00100	0.00104		ug/L		104	70 - 156	2	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00101	MB	ug/L		101	70 - 140	3	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00110	MB	ug/L		110	82 - 122	1	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00100	MB	ug/L		100	78 - 138	1	50	
OCDD	0.00200	0.00230	MB	ug/L		115	78 - 144	3	50	
OCDF	0.00200	0.00223	MB	ug/L		112	63 - 170	2	50	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	67		20 - 175
13C-2,3,7,8-TCDF	65		22 - 152
13C-1,2,3,7,8-PeCDD	80		21 - 227
13C-1,2,3,7,8-PeCDF	73		21 - 192
13C-2,3,4,7,8-PeCDF	76		13 - 328
13C-1,2,3,4,7,8-HxCDD	82		21 - 193
13C-1,2,3,6,7,8-HxCDD	71		25 - 163
13C-1,2,3,4,7,8-HxCDF	83		19 - 202
13C-1,2,3,6,7,8-HxCDF	83		21 - 159
13C-1,2,3,7,8,9-HxCDF	86		17 - 205
13C-2,3,4,6,7,8-HxCDF	90		22 - 176

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-644871/3-A
Matrix: Water
Analysis Batch: 648570

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 644871

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,4,6,7,8-HpCDD	95		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	91		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	101		20 - 186
13C-OCDD	91		13 - 199
13C-OCDF	104		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	90		31 - 191

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Specialty Organics

Prep Batch: 644871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	1613B	
MB 320-644871/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-644871/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-644871/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 648570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	1613B	644871
MB 320-644871/1-A	Method Blank	Total/NA	Water	1613B	644871
LCS 320-644871/2-A	Lab Control Sample	Total/NA	Water	1613B	644871
LCSD 320-644871/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	644871

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Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1033.2 mL	20.0 uL	644871	01/06/23 04:42	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	648570	01/23/23 03:40	KSS	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-31-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-30-23
Hawaii	State	<cert No.>	01-29-23
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	01-23-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-13-22 *
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-122390-2

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122390-2	Outfall002_20230102_Comp	Water	01/02/23 09:15	01/03/23 17:05

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122390

CHAIN OF CUSTODY FORM



570-122390 Chain of Custody

Client Name/Address:
Hayley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Dertian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

Test America's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Hayley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Adrien Mobeke

Project:
Boeing-SSFL NPDES
Permit 2023
Annual Outfall [001_002_011_018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606; 520.904.6944 (cell)
Field Manager: Mark Dominick
978.234.5033; 818.589.0702 (cell)

Table with columns: ANALYSIS REQUIRED, Total Dissolved Metals, Cr (VI), Total (E218.6), Monomethyl hydrazine, Total Organic Carbon, 1,4-Dioxane, Chronic Toxicity, Selenium & Species, Radium, Tritium, Gross Alpha, Cyanide, Total Dissolved Metals, Zn, Hardness, Ag, Cd, Cu, Pb, Sb, Se, Tl, MS/MSD, Bottle #, Preservative, # of Cont., Container Type, Sample Matrix, Sampling Date/Time, Sample I.D., Outfall ID.

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Administrative section containing: Requisitioned By (LAL), Date/Time (1-3-23/1245), Company (HA), Received By (M. Bondoc), Date/Time (1/3/23/1245 EC), 1705, Requisitioned By (M. Bondoc), Date/Time (01/03/23 1705 EC), Company (EC), Turn-around time options, Sample Integrity (Check), Inact, On toe, Store samples for 6 months, Data Requirements (Check), No Level IV, All Level IV.

2.3/2.3 2.6/2.6 2.1/2.1 1.2/1.2 1.3/1.3



CHAIN OF CUSTODY FORM

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 001 002, 011, 016 Outfall 002 Comp</p>				<p>ANALYSIS REQUIRED</p> <p><input type="checkbox"/> R/A <input type="checkbox"/> R <input type="checkbox"/> R/A <input type="checkbox"/> R <input type="checkbox"/> R <input type="checkbox"/> R/A <input type="checkbox"/> R <input type="checkbox"/> R <input type="checkbox"/> R/A <input type="checkbox"/> R <input type="checkbox"/> R <input type="checkbox"/> R/A <input type="checkbox"/> R</p>													
<p>Test America Contact: Christian Bontoc 17461 Denan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)</p>		<p>Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>Total Recoverable Metals: (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V, Zn Hardness as CaCO3 (E200.9) Ag, Cd, Cu, Pb, Sb, Se, Ti</p> <p>TCDD (and all congeners) (E181B)</p> <p>BOD5 (20 degrees C) (E405.1)</p> <p>Surfactants (MBAS) (SM540C/E425.1)</p> <p>Chloride (E300)</p> <p>Turbidity TDS (SM2540C/E180.1)</p> <p>TSS (160.2) (SM2540D)</p> <p>Ammonia-N (E300.2)</p> <p>Priority Pollutants-SVOCs (E625)</p> <p>Priority Pollutants-Pesticides+PCBs (E609)</p> <p>Total Recoverable Metals, Mercury (E245.1)</p>													
<p>Sampler: Adrien Mobeka</p>		<p>Sample Matrix: WM</p>		<p>Preservative: HNO3</p>		<p>MS/MSD: Yes</p>		<p>Comments:</p> <p>Outfall 018 analyze for AL.</p> <p>48 hours Holding Time NO2 & NO3</p> <p>48 hour holding time for turbidity</p>											
<p>Sample Description: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 500 mL Poly</p>		<p># of Cont.: 3</p>		<p>Bottle #: 80</p>		<p>MS/MSD: Yes</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 1 L Glass Amber</p>		<p># of Cont.: 2</p>		<p>Bottle #: 110</p>		<p>MS/MSD: No</p>									
<p>Sample ID: Outfall002_20230102_Comp_Extra</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 500 mL Poly</p>		<p># of Cont.: 6</p>		<p>Bottle #: 125</p>		<p>MS/MSD: Yes</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 500 mL Poly</p>		<p># of Cont.: 6</p>		<p>Bottle #: 150</p>		<p>MS/MSD: No</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 500 mL Poly</p>		<p># of Cont.: 3</p>		<p>Bottle #: 160</p>		<p>MS/MSD: Yes</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 1 L Glass Amber</p>		<p># of Cont.: 6</p>		<p>Bottle #: 250</p>		<p>MS/MSD: Yes</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 1 L Glass Amber</p>		<p># of Cont.: 6</p>		<p>Bottle #: 175</p>		<p>MS/MSD: Yes</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 1 L Poly</p>		<p># of Cont.: 1</p>		<p>Bottle #: 185</p>		<p>MS/MSD: No</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 1 L Glass Amber</p>		<p># of Cont.: 2</p>		<p>Bottle #: 110</p>		<p>MS/MSD: No</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 500 mL Poly</p>		<p># of Cont.: 2</p>		<p>Bottle #: 120</p>		<p>MS/MSD: No</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 500 mL Poly</p>		<p># of Cont.: 2</p>		<p>Bottle #: 125</p>		<p>MS/MSD: No</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 1 L Glass Amber</p>		<p># of Cont.: 2</p>		<p>Bottle #: 250</p>		<p>MS/MSD: No</p>									
<p>Sample ID: Outfall002_20230102_Comp</p>		<p>Sampling Date/Time: 1/23/2023 10:15</p>		<p>Container Type: 1 L Glass Amber</p>		<p># of Cont.: 2</p>		<p>Bottle #: 175</p>		<p>MS/MSD: No</p>									

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

<p>Relinquished By: <i>HA</i></p>	<p>Date/Time: 1-23-23/1245</p>	<p>Received By: <i>EC</i></p>	<p>Date/Time: 1/23/23/1245</p>
<p>Relinquished By: <i>EC</i></p>	<p>Date/Time: 01/23/23 1705</p>	<p>Received By: <i>EC</i></p>	<p>Date/Time: 1/23/23 1705</p>
<p>Relinquished By: <i>EC</i></p>	<p>Date/Time: 01/23/23 1705</p>	<p>Received By: <i>EC</i></p>	<p>Date/Time: 1/23/23 1705</p>



ICOC No:
570-203234

Containers

Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved None

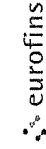
Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV needed
3	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine (Hold)	Level IV needed



Eurofins Calscience
 2841 Dow Avenue Suite 100
 Tustin CA 92780
 Phone: 714-895-5494

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM Patel Virendra	Carrier Tracking No(s)	COC No: 570-203269-1
Shipping/Receiving		E-Mail: Virendra.Patel@eurofins.com	State of Origin California	Page: Page 1 of 1
Company Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - California		
Address: 880 Riverside Parkway		Analysis Requested		
City: West Sacramento				
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)				
Email:				
Project Name: Boeing SSFL NPDES - Outfall 002 - COMP				
Site:				
Due Date Requested 1/13/2023				
TAT Requested (days)				
PO #:				
WO #:				
Project #: 44024446				
SSOW#:				
Sample Identification - Client ID (Lab ID)		Field Filled Sample (Yes or No)		
Outfall002_20230102_Comp (570-122390-2)		1613B/1613B_Sox_Sep_P Standard List w/ Totals		
Sample Date 1/2/23		Perform MS/MSD (Yes or No)		
Sample Time 09 15 Pacific		X		
Sample Type (C=Comp, G=grab)		Total Number of containers		
Matrix (W=water, S=solid, O=wastewater, BT=Tissue, A=Air)		2		
Preservation Code: Water		Special Instructions/Note:		
		See QAS, Boeing_wtu to zero ug/L Use Boeing glassware.		
<p>Note: Since laboratory accreditations are subject to change Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>				
Possible Hazard Identification				
Unconfirmed				
Deliverable Requested I, II, III, IV, Other (specify) _____				
Primary Deliverable Rank: 2				
Special Instructions/QC Requirements:				
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Method of Shipment:				
Date/Time: <i>[Signature]</i>		Received by:		
Date/Time: 1/4/23 1617		Company		
Date/Time:		Received by:		
Date/Time:		Company		
Date/Time:		Received by:		
Date/Time:		Company		
Custody Seals Intact: _____ <input type="checkbox"/> Yes <input type="checkbox"/> No				
Cooler Temperature(s) °C and Other Remarks:				



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact:		Patel, Virendra	Patel, Virendra		570-203232-1
Shipping/Receiving		E-Mail:	E-Mail:	State of Origin:	Page
Company:		Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	California	Page 1 of 1
Address:		Accreditations Required (See note):		Job #:	570-122390-2
880 Riverside Parkway,		State Program - California		Preservation Codes:	
City:	West Sacramento	Analysis Requested		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
State, Zip:	CA, 95605	Due Date Requested:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Phone:	916-373-5600(Tel) 916-372-1059(Fax)	TAT Requested (days):		Total Number of Containers	
Email:		1/13/2023		2	
Project #:	44024446	Field Filtered Sample (Yes or No)		Special Instructions/Note:	
Site:	Boeing SSFL NPDES - Outfall 002 - COMP	16138/16138 Sox_Sep_P Standard List w/ Totals		See QAS, Boeing, w/lu to zero, u/L; Use Boeing glassware.	
Sample Identification - Client ID (Lab ID)		Sample Type (C=Comp, G=grab)	Sample Time	Sample Date	Matrix (W=water, S=solid, O=washoil, I=I-Tissue, A=AU)
Outfall002_20230102_Comp_Extra (570-122390-3)		Preservation Code:	09:15 Pacific	1/2/23	Water
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/mainx being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience</p>					
Possible Hazard Identification					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)					
Primary Deliverable Rank: 2					
Empty Kit Relinquished by:					
Relinquished by: <i>[Signature]</i> Date: 01/04/23 13:03 PLV Company: <i>[Signature]</i>					
Relinquished by: <i>[Signature]</i> Date/Time: <i>[Signature]</i> Company: <i>[Signature]</i>					
Relinquished by: <i>[Signature]</i> Date/Time: <i>[Signature]</i> Company: <i>[Signature]</i>					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Δ <input type="checkbox"/> No <input type="checkbox"/> Δ <input type="checkbox"/> No					
Custody Seal No.: <i>172</i>					
Cooler Temperature(s) °C and Other Remarks:					



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	State of Origin: California	570-203269.1
Company: Eurofins Environment Testing Northern Ca		E-Mail: Virendra.Patel@et.eurofins.com		Page 1 of 1	
Address: 880 Riverside Parkway,		Accreditations Required (See note): State Program - California		Job #:	570-122390-1
City: West Sacramento		Analysis Requested		Preservation Codes:	
State, Zip: CA, 95605		Due Date Requested: 1/13/2023		A - HCL M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify)	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		TAT Requested (days):		B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Email:		PO #:		Total Number of containers	
Project Name: Boeing SSFL NPDES - Outfall 002 - COMP		WO #:		2	
Site: Boeing SSFL NPDES - Outfall 002 - COMP		Project #: 44024446		Special Instructions/Note:	
		SSOW#:		See QAS, Boeing_wlt to zero, ug/L; Use Boeing glassware.	
Sample Identification - Client ID (Lab ID)		Sample Date			
Outfall002_20230102_Comp (570-122390-2)		1/2/23			
		Sample Time			
		09:15 Pacific			
		Sample Type (C=Comp, G=grab)			
		Matrix (W=water, S=solid, O=wasteoil, BT=tissue, A=air)			
		Preservation Code:			
		Water			
		Field Filtered Sample (Yes or No)			
		X			
		Perform MS/MSD (Yes or No)			
		X			
		1613B/1613B_Sox_Sep_P Standard List w/ Totals			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysts/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify) _____

Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____

Relinquished by: *[Signature]* Date/Time: 1/14/23 1617 Company _____

Relinquished by: _____ Date/Time: _____ Company _____

Relinquished by: _____ Date/Time: _____ Company _____

Custody Seals Intact: _____ (Custody Seal No.: _____)

Δ Yes Δ No

Received by: *[Signature]* Date/Time: 1/5/23 1010 Company _____

Received by: _____ Date/Time: _____ Company _____

Received by: _____ Date/Time: _____ Company _____

Cooler Temperature(s) °C and Other Remarks: *[Signature]*



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122390-2

Login Number: 122390

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122390-2

Login Number: 122390

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 01/05/23 02:58 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/15/2023 4:39:03 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - COMP

JOB NUMBER

570-122390-3

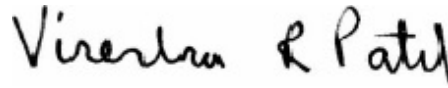
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/15/2023 4:39:03 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-122390-3

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-3

Job ID: 570-122390-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122390-3

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.2° C, 1.3° C, 2.1° C, 2.3° C and 2.6° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-3

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122390-2	Outfall002_20230102_Comp	Water	01/02/23 09:15	01/03/23 17:05

1

2

3

4

5

6

7

8

9



February 8th, 2023

Mr. Virendra Patel
Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1432

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* Results were as follows:

CLIENT: Eurofins Calscience
SAMPLE I.D.: Outfall 002
DATE RECEIVED: 3 Jan - 2023
ABC LAB. NO.: CSE0123.002

CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY


IWC = 100.00%

TST RESULT

SURVIVAL = PASS % EFFECT = 0.00 %

GROWTH = PASS % EFFECT = 0.70 %

Yours very truly,


Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 07 Feb-23 12:15 (p 1 of 1)
 Test Code/ID: CSE0123.002fml / 13-1243-1426

Fathead Minnow 7-d Larval Survival and Growth Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID:	20-8695-6397	Test Type:	Growth-Survival (7d)	Analyst:			
Start Date:	04 Jan-23 13:40	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water		
Ending Date:	11 Jan-23 14:20	Species:	Pimephales promelas	Brine:	Not Applicable		
Test Length:	7d 1h	Taxon:	Actinopterygii	Source:	Aquatic Biosystems, CO	Age:	
Sample ID:	01-6020-5070	Code:	CSE0123.002fml	Project:	Boeing-SSFL NPDES		
Sample Date:	02 Jan-23 09:15	Material:	Sample Water	Source:	Bioassay Report		
Receipt Date:	03 Jan-23 14:45	CAS (PC):		Station:	Outfall 002		
Sample Age:	52h (0.5 °C)	Client:	Eurofins Calscience				

Single Comparison Summary					
Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
01-3257-2656	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
20-9906-5041	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

Test Acceptability		TAC Limits					
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
01-3257-2656	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
20-9906-5041	Mean Dry Biomass-mg	Control Resp	0.3445	0.25	<<	Yes	Passes Criteria

7d Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Mean Dry Biomass-mg Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3445	0.3393	0.3497	0.3373	0.3573	0.00221	0.006251	1.81%	0.00%
100		8	0.3421	0.3345	0.3497	0.334	0.3607	0.003203	0.00906	2.65%	0.70%

7d Survival Rate Detail										MD5: F33D79D05FEF902C5DB24788526CB24A	
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8		
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		

Mean Dry Biomass-mg Detail										MD5: 6AA4420999FA6D8BBDFC3CC89F5EEA49	
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8		
0	N	0.34	0.3573	0.3393	0.346	0.344	0.3447	0.3473	0.3373		
100		0.3607	0.3433	0.3393	0.334	0.334	0.3413	0.3487	0.3353		

7d Survival Rate Binomials									
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

CETIS Analytical Report

Report Date: 07 Feb-23 12:15 (p 1 of 4)
 Test Code/ID: CSE0123.002fml / 13-1243-1426

Fathead Minnow 7-d Larval Survival and Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 01-3257-2656	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1	
Analyzed: 02 Feb-23 10:33	MD5 Hash: F33D79D05FEF902C5DB24788526CB24A	Editor ID: 007-730-798-8			
Edit Date: 02 Feb-23 10:32					
Batch ID: 20-8695-6397	Test Type: Growth-Survival (7d)	Analyst:			
Start Date: 04 Jan-23 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 11 Jan-23 14:20	Species: Pimephales promelas	Brine: Not Applicable			
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO	Age:		
Sample ID: 01-6020-5070	Code: CSE0123.002fml	Project: Boeing-SSFL NPDES			
Sample Date: 02 Jan-23 09:15	Material: Sample Water	Source: Bioassay Report			
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 002			
Sample Age: 52h (0.5 °C)	Client: Eurofins Calscience				

Data Transform	Alt Hyp	TST b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

TST-Welch's t Test							
Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	1	0.8	<<	Yes	Passes Criteria

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

ANOVA Assumptions Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variance	Variance Ratio F Test				Indeterminate	
Distribution	Shapiro-Wilk W Normality Test				Indeterminate	

7d Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

Angular (Corrected) Transformed Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

7d Survival Rate Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	

Angular (Corrected) Transformed Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	

CETIS Analytical Report

Report Date: 07 Feb-23 12:15 (p 2 of 4)
 Test Code/ID: CSE0123.002fml / 13-1243-1426

Fathead Minnow 7-d Larval Survival and Growth Test

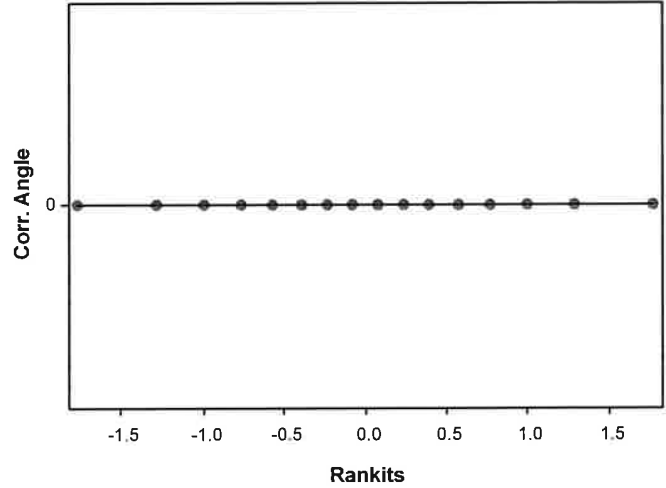
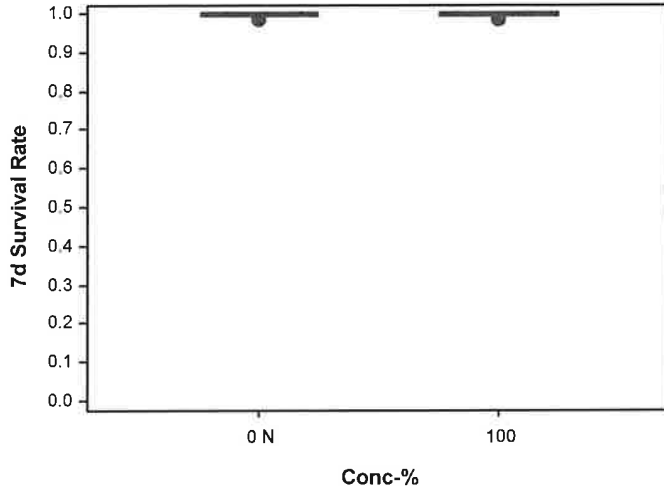
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 01-3257-2656 Endpoint: 7d Survival Rate CETIS Version: CETISv2.1.4
 Analyzed: 02 Feb-23 10:33 Analysis: Parametric Bioequivalence-Two Sample Status Level: 1
 Edit Date: 02 Feb-23 10:32 MD5 Hash: F33D79D05FEF902C5DB24788526CB24A Editor ID: 007-730-798-8

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

Graphics



CETIS Analytical Report

Report Date: 07 Feb-23 12:15 (p 3 of 4)
 Test Code/ID: CSE0123.002fml / 13-1243-1426

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 20-9906-5041	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 02 Feb-23 10:33	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 02 Feb-23 10:32	MD5 Hash: 6AA4420999FA6D8BBD8FC3CC89F5EEA4	Editor ID: 007-730-798-8
Batch ID: 20-8695-6397	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-23 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-23 14:20	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 01-6020-5070	Code: CSE0123.002fml	Project: Boeing-SSFL NPDES
Sample Date: 02 Jan-23 09:15	Material: Sample Water	Source: Bioassay Report
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 002
Sample Age: 52h (0.5 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	10	23.21	0.6998	CDF	<1.0E-05	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	0.3445	0.25	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.336E-05	2.336E-05	1	0.3856	0.5446	Non-Significant Effect
Error	0.0008482	6.058E-05	14			
Total	0.0008715		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.8274	8.862	0.3784	Equal Variances
	Mod Levene Equality of Variance Test	0.618	8.862	0.4449	Equal Variances
	Variance Ratio F Test	2.101	8.885	0.3486	Equal Variances
Distribution	Anderson-Darling A2 Test	0.7	3.878	0.0676	Normal Distribution
	D'Agostino Skewness Test	2.123	2.576	0.0338	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1709	0.2471	0.2460	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8859	0.8408	0.0480	Normal Distribution

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3445	0.3393	0.3497	0.3443	0.3373	0.3573	0.00221	1.81%	0.00%
100		8	0.3421	0.3345	0.3497	0.3403	0.334	0.3607	0.003203	2.65%	0.70%

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.34	0.3573	0.3393	0.346	0.344	0.3447	0.3473	0.3373
100		0.3607	0.3433	0.3393	0.334	0.334	0.3413	0.3487	0.3353

CETIS Analytical Report

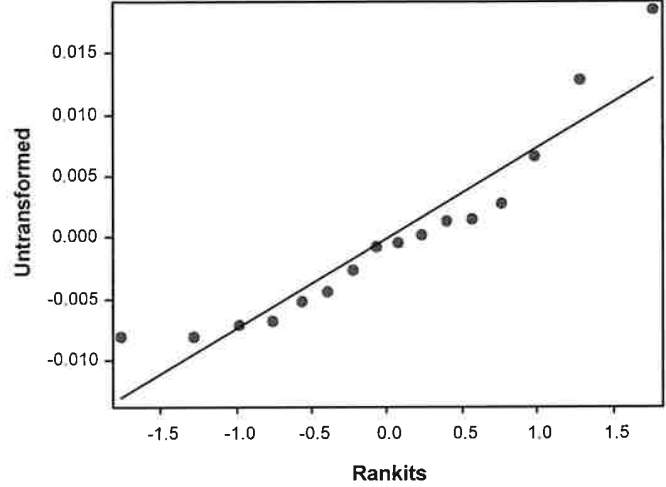
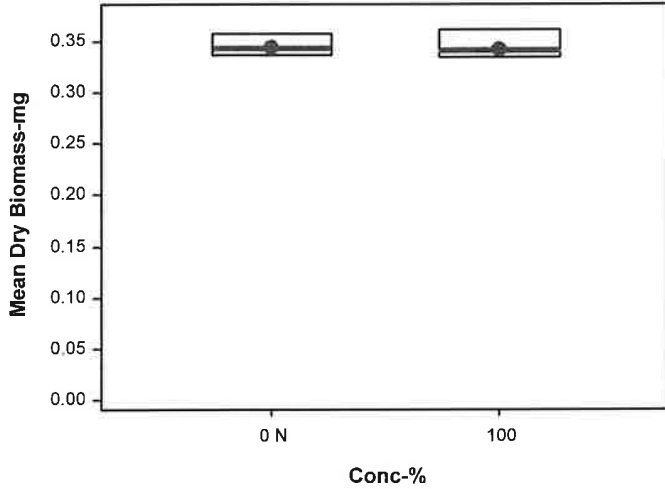
Report Date: 07 Feb-23 12:15 (p 4 of 4)
Test Code/ID: CSE0123.002fml / 13-1243-1426

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 20-9906-5041	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 02 Feb-23 10:33	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 02 Feb-23 10:32	MD5 Hash: 6AA4420999FA6D8BBD8FC3CC89F5EEA4	Editor ID: 007-730-798-8

Graphics



CETIS Measurement Report

Report Date: 08 Feb-23 17:57 (p 1 of 1)
 Test Code/ID: CSE0123.002fml / 13-1243-1426

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 20-8695-6397	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-23 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-23 14:20	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 01-6020-5070	Code: CSE0123.002fml	Project: Boeing-SSFL NPDES
Sample Date: 02 Jan-23 09:15	Material: Sample Water	Source: Bioassay Report
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 002
Sample Age: 52h (0.5 °C)	Client: Eurofins Calscience	

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	66.38	63.35	69.4	62	69	0.4529	3.623	5.46%	0
100		8	85	85	85	85	85	0	0	0.00%	0
Overall		16	75.69	70.4	80.98	62	85	2.483	9.931	13.12%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	368.2	363.4	373.1	362	379	0.7312	5.849	1.59%	0
100		8	473	467	479	464	485	0.8939	7.151	1.51%	0
Overall		16	420.6	391.6	449.6	362	485	13.61	54.46	12.95%	0 (0%)

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.788	7.529	8.046	7.1	8	0.03864	0.3091	3.97%	0
100		8	7.625	7.282	7.968	6.9	8.2	0.05121	0.4097	5.37%	0
Overall		16	7.706	7.514	7.898	6.9	8.2	0.09012	0.3605	4.68%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	98	98	98	98	98	0	0	0.00%	0
100		8	115	115	115	115	115	0	0	0.00%	0
Overall		16	106.5	101.8	111.2	98	115	2.195	8.779	8.24%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.763	7.645	7.88	7.6	7.9	0.0176	0.1408	1.81%	0
100		8	7.663	7.484	7.841	7.4	7.9	0.02667	0.2134	2.78%	0
Overall		16	7.713	7.615	7.81	7.4	7.9	0.04553	0.1821	2.36%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.01	23.98	24.04	24	24.1	0.004414	0.03531	0.15%	0
Overall		16	24.01	23.99	24.02	24	24.1	0.00625	0.025	0.10%	0 (0%)



February 8th, 2023

Mr. Virendra Patel
Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1432

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* Results were as follows:*

CLIENT: Eurofins Calscience
SAMPLE I.D.: Outfall 002
DATE RECEIVED: 3 Jan - 2023
ABC LAB. NO.: CSE0123.002

CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY

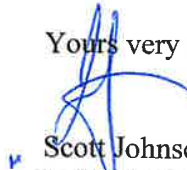
IWC = 100.00%

TST RESULT

SURVIVAL = PASS % EFFECT = 0.00 %

REPRODUCTION = PASS % EFFECT = 16.87 %

Yours very truly,


Scott Johnson
Laboratory Director

*Note: The chronic survival TST analysis is not available for ceriodaphnia dubia.

CETIS Summary Report

Report Date: 07 Feb-23 12:16 (p 1 of 1)
 Test Code/ID: CSE0123.002cer / 17-2201-2684

Ceriodaphnia 7-d Survival and Reproduction Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID:	05-5780-1856	Test Type:	Reproduction-Survival (7d)	Analyst:			
Start Date:	04 Jan-23 13:40	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water		
Ending Date:	11 Jan-23 14:20	Species:	Ceriodaphnia dubia	Brine:	Not Applicable		
Test Length:	7d 1h	Taxon:	Branchiopoda	Source:	Aquatic Biosystems, CO	Age:	<24
Sample ID:	09-8165-4090	Code:	CSE0123.002cer	Project:	Boeing-SSFL NPDES		
Sample Date:	02 Jan-23 09:15	Material:	Sample Water	Source:	Bioassay Report		
Receipt Date:	03 Jan-23 14:45	CAS (PC):		Station:	Outfall 002		
Sample Age:	52h (0.5 °C)	Client:	Eurofins Calscience				

Single Comparison Summary					
Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
00-4892-4157	7d Survival Rate	Fisher Exact Test	1.0000	100% passed 7d survival rate	1
17-2177-2648	Reproduction	TST-Welch's t Test	0.0186	100% passed reproduction	1

Test Acceptability							
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
00-4892-4157	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
17-2177-2648	Reproduction	Control Resp	24.9	15	<<	Yes	Passes Criteria

7d Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Reproduction Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	24.9	23.67	26.13	21	30	0.5889	2.634	10.58%	0.00%
100		20	20.7	18.99	22.41	12	25	0.8147	3.643	17.60%	16.87%

7d Survival Rate Detail											
MD5: E2FCA10CAEB5BD33B061F6901431A2E1											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Reproduction Detail											
MD5: 1F6749B4FA9E9AFD36B1AD7F1E1AA72F											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	24	24	28	26	21	25	26	25	24	30
		26	21	26	21	21	24	23	28	28	27
100		24	25	19	19	18	19	12	15	22	22
		23	23	25	25	23	15	21	22	19	23

7d Survival Rate Binomials											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Analytical Report

Report Date: 07 Feb-23 12:16 (p 1 of 2)
 Test Code/ID: CSE0123.002cer / 17-2201-2684

Ceriodaphnia 7-d Survival and Reproduction Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 17-2177-2648	Endpoint: Reproduction	CETIS Version: CETISv2.1.4			
Analyzed: 07 Feb-23 12:16	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1			
Edit Date: 25 Jan-23 21:41	MD5 Hash: 1F6749B4FA9E9AFD36B1AD7F1E1AA72F	Editor ID: 007-730-798-8			
Batch ID: 05-5780-1856	Test Type: Reproduction-Survival (7d)	Analyst:			
Start Date: 04 Jan-23 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 11 Jan-23 14:20	Species: Ceriodaphnia dubia	Brine: Not Applicable			
Test Length: 7d 1h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24			
Sample ID: 09-8165-4090	Code: CSE0123.002cer	Project: Boeing-SSFL NPDES			
Sample Date: 02 Jan-23 09:15	Material: Sample Water	Source: Bioassay Report			
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 002			
Sample Age: 52h (0.5 °C)	Client: Eurofins Calscience				

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed reproduction endpoint

TST-Welch's t Test								
Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:20%)
Negative Control		100*	29	2.185	0.8542	CDF	0.0186	Non-Significant Effect

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	24.9	15	<<	Yes	Passes Criteria

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	176.4	176.4	1	17.46	0.0002	Significant Effect
Error	384	10.1053	38			
Total	560.4		39			

ANOVA Assumptions Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variance	Levene Equality of Variance Test	2.293	7.353	0.1382	Equal Variances	
	Mod Levene Equality of Variance Test	1.076	7.353	0.3061	Equal Variances	
	Variance Ratio F Test	1.914	3.432	0.1663	Equal Variances	
Distribution	Anderson-Darling A2 Test	0.5514	3.878	0.1591	Normal Distribution	
	D'Agostino Kurtosis Test	0.4807	2.576	0.6308	Normal Distribution	
	D'Agostino Skewness Test	1.751	2.576	0.0799	Normal Distribution	
	D'Agostino-Pearson K2 Omnibus Test	3.297	9.21	0.1923	Normal Distribution	
	Kolmogorov-Smirnov D Test	0.137	0.1617	0.0564	Normal Distribution	
	Shapiro-Wilk W Normality Test	0.9587	0.9236	0.1509	Normal Distribution	

Reproduction Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	24.9	23.67	26.13	25	21	30	0.5889	10.58%	0.00%
100		20	20.7	18.99	22.41	22	12	25	0.8147	17.60%	16.87%

Reproduction Detail											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	24	24	28	26	21	25	26	25	24	30
		26	21	26	21	21	24	23	28	28	27
100		24	25	19	19	18	19	12	15	22	22
		23	23	25	25	23	15	21	22	19	23

CETIS Analytical Report

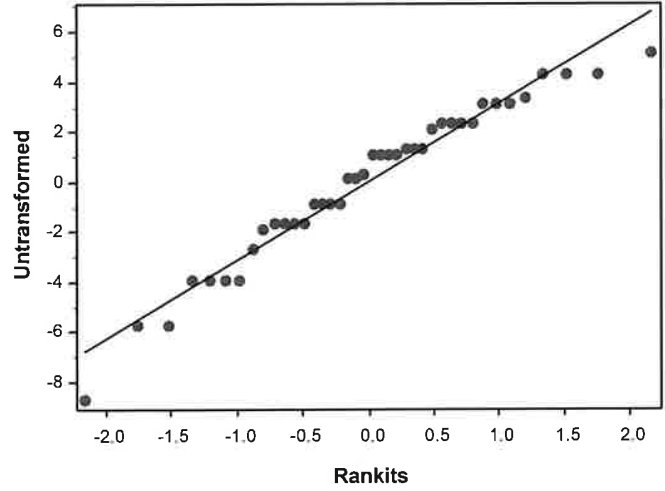
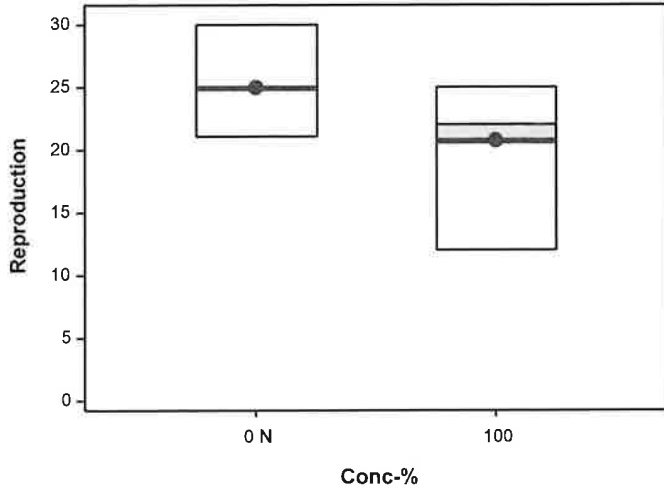
Report Date: 07 Feb-23 12:16 (p 2 of 2)
Test Code/ID: CSE0123.002cer / 17-2201-2684

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 17-2177-2648 Endpoint: Reproduction CETIS Version: CETISv2.1.4
Analyzed: 07 Feb-23 12:16 Analysis: Parametric Bioequivalence-Two Sample Status Level: 1
Edit Date: 25 Jan-23 21:41 MD5 Hash: 1F6749B4FA9E9AFD36B1AD7F1E1AA72F Editor ID: 007-730-798-8

Graphics



CETIS Analytical Report

Report Date: 07 Feb-23 12:16 (p 1 of 2)
 Test Code/ID: CSE0123.002cer / 17-2201-2684

Ceriodaphnia 7-d Survival and Reproduction Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 00-4892-4157	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4	Analyzed: 07 Feb-23 12:16	Analysis: Single 2x2 Contingency Table	Status Level: 1
Edit Date: 25 Jan-23 21:41	MD5 Hash: E2FCA10CAEB5BD33B061F6901431A2E1	Editor ID: 007-730-798-8	Batch ID: 05-5780-1856	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 04 Jan-23 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water	Ending Date: 11 Jan-23 14:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO	Age: <24	Sample ID: 09-8165-4090	Code: CSE0123.002cer
Sample Date: 02 Jan-23 09:15	Material: Sample Water	Project: Boeing-SSFL NPDES	Sample Age: 52h (0.5 °C)	Client: Eurofins Calscience	Source: Bioassay Report
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 002			

Data Transform	Alt Hyp	Comparison Result
Untransformed	C > T	100% passed 7d survival rate endpoint

Fisher Exact Test						
Control	vs	Conc-%	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		100	1.0000	Exact	1.0000	Non-Significant Effect

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	1	0.8	<<	Yes	Passes Criteria

7d Survival Rate Frequencies							
Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	20	0	20	1.0000	0.0000	0.00%
100		20	0	20	1.0000	0.0000	0.00%

7d Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

7d Survival Rate Detail											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

7d Survival Rate Binomials											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Analytical Report

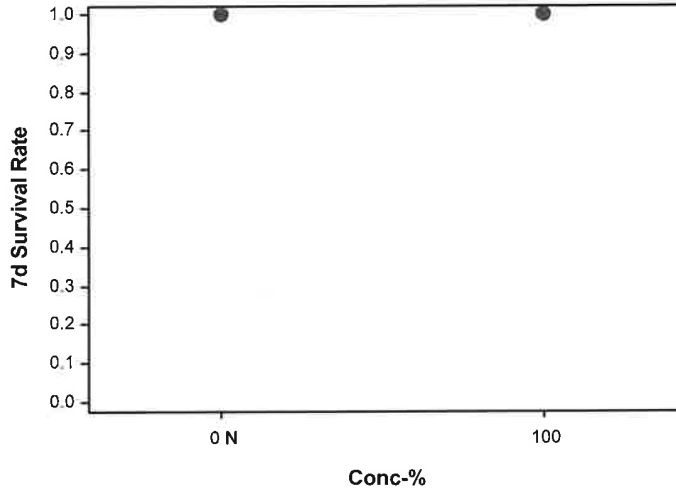
Report Date: 07 Feb-23 12:16 (p 2 of 2)
Test Code/ID: CSE0123.002cer / 17-2201-2684

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-4892-4157	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 07 Feb-23 12:16	Analysis: Single 2x2 Contingency Table	Status Level: 1
Edit Date: 25 Jan-23 21:41	MD5 Hash: E2FCA10CAEB5BD33B061F6901431A2E1	Editor ID: 007-730-798-8

Graphics



CETIS Measurement Report

Report Date: 08 Feb-23 17:57 (p 1 of 1)
 Test Code/ID: CSE0123.002cer / 17-2201-2684

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 05-5780-1856	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 04 Jan-23 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-23 14:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 09-8165-4090	Code: CSE0123.002cer	Project: Boeing-SSFL NPDES
Sample Date: 02 Jan-23 09:15	Material: Sample Water	Source: Bioassay Report
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 002
Sample Age: 52h (0.5 °C)	Client: Eurofins Calscience	

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	66.38	63.35	69.4	62	69	0.4529	3.623	5.46%	0
100		8	85	85	85	85	85	0	0	0.00%	0
Overall		16	75.69	70.4	80.98	62	85	2.483	9.931	13.12%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	368.2	363.4	373.1	362	379	0.7312	5.849	1.59%	0
100		8	473	467	479	464	485	0.8939	7.151	1.51%	0
Overall		16	420.6	391.6	449.6	362	485	13.61	54.46	12.95%	0 (0%)

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.788	7.529	8.046	7.1	8	0.03864	0.3091	3.97%	0
100		8	7.7	7.229	8.171	6.5	8.3	0.07039	0.5632	7.31%	0
Overall		16	7.744	7.509	7.979	6.5	8.3	0.1103	0.4412	5.70%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	98	98	98	98	98	0	0	0.00%	0
100		8	115	115	115	115	115	0	0	0.00%	0
Overall		16	106.5	101.8	111.2	98	115	2.195	8.779	8.24%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.763	7.645	7.88	7.6	7.9	0.0176	0.1408	1.81%	0
100		8	7.663	7.484	7.841	7.4	7.9	0.02667	0.2134	2.78%	0
Overall		16	7.713	7.615	7.81	7.4	7.9	0.04553	0.1821	2.36%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.01	23.98	24.04	24	24.1	0.004414	0.03531	0.15%	0
Overall		16	24.01	23.99	24.02	24	24.1	0.00625	0.025	0.10%	0 (0%)



February 8th, 2023

Mr. Virendra Patel
Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1432

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013*. Results were as follows:

CLIENT: Eurofins Calscience
SAMPLE I.D.: Outfall 002
DATE RECEIVED: 3 Jan - 2023
ABC LAB. NO.: CSE0123.002

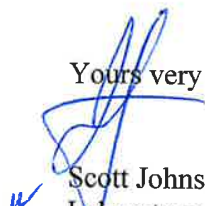
CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00 %

TST RESULT

GROWTH = PASS % EFFECT = -75.39 %

Yours very truly,



Scott Johnson
Laboratory Director



CETIS Summary Report

Report Date: 19 Jan-23 16:59 (p 1 of 1)
 Test Code/ID: CSE0123.002sel / 11-1554-1525

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 15-4162-5332	Test Type: Cell Growth	Analyst:
Start Date: 04 Jan-23 09:30	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 08 Jan-23 10:00	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 4d 0h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 6d
Sample ID: 00-8429-4943	Code: CSE0123.002sel	Project: Boeing-SSFL NPDES
Sample Date: 02 Jan-23 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 002
Sample Age: 50h (0.5 °C)	Client: Eurofins Calscience	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
07-0953-8801	Cell Density	TST-Welch's t Test	<1.0E-05	100% passed cell density	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
07-0953-8801	Cell Density	Control CV	0.05696	<<	0.2	Yes	Passes Criteria
07-0953-8801	Cell Density	Control Resp	1.39E+6	1.00E+6	<<	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.387E+6	1.321E+6	1.453E+6	1.232E+6	1.460E+6	2.793E+4	7.900E+4	5.70%	0.00%
100		8	2.432E+6	2.315E+6	2.550E+6	2.237E+6	2.641E+6	4.958E+4	1.402E+5	5.77%	-75.39%

Cell Density Detail

MD5: 1DD6D8D414770DB58461BF6E0733A552

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.438E+6	1.232E+6	1.460E+6	1.404E+6	1.449E+6	1.324E+6	1.436E+6	1.352E+6
100		2.335E+6	2.237E+6	2.444E+6	2.345E+6	2.532E+6	2.347E+6	2.579E+6	2.641E+6

CETIS Analytical Report

Report Date: 19 Jan-23 16:59 (p 1 of 2)
 Test Code/ID: CSE0123.002sel / 11-1554-1525

Selenastrum Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0953-8801	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 19 Jan-23 16:58	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 19 Jan-23 16:57	MD5 Hash: 1DD6D8D414770DB58461BF6E0733A552	Editor ID: 009-702-627-3
Batch ID: 15-4162-5332	Test Type: Cell Growth	Analyst:
Start Date: 04 Jan-23 09:30	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 08 Jan-23 10:00	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 4d 0h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 6d
Sample ID: 00-8429-4943	Code: CSE0123.002sel	Project: Boeing-SSFL NPDES
Sample Date: 02 Jan-23 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 002
Sample Age: 50h (0.5 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density endpoint

TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	9	25.87	0.7027	CDF	<1.0E-05	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control CV	0.05696	<<	0.2	Yes	Passes Criteria
Control Resp	1.39E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.373E+12	4.373E+12	1	337.6	<1.0E-05	Significant Effect
Error	1.813E+11	1.295E+10	14			
Total	4.555E+12		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	3.9	8.862	0.0683	Equal Variances
	Mod Levene Equality of Variance Test	2.871	8.862	0.1123	Equal Variances
	Variance Ratio F Test	3.151	8.885	0.1529	Equal Variances
Distribution	Anderson-Darling A2 Test	0.199	3.878	0.9305	Normal Distribution
	D'Agostino Skewness Test	0.04122	2.576	0.9671	Normal Distribution
	Kolmogorov-Smirnov D Test	0.11	0.2471	1.0000	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9829	0.8408	0.9823	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.387E+6	1.321E+6	1.453E+6	1.420E+6	1.232E+6	1.460E+6	2.793E+4	5.70%	0.00%
100		8	2.432E+6	2.315E+6	2.550E+6	2.396E+6	2.237E+6	2.641E+6	4.958E+4	5.77%	-75.39%

Cell Density Detail

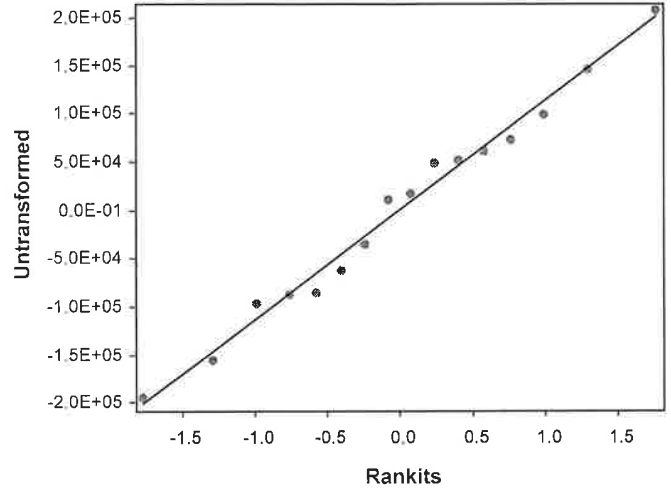
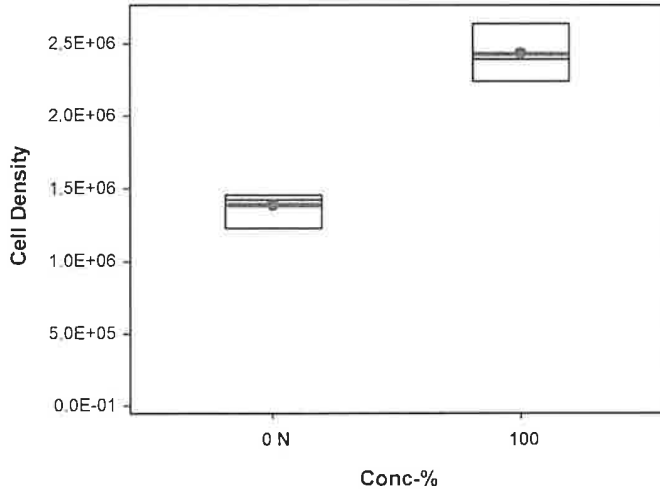
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.438E+6	1.232E+6	1.460E+6	1.404E+6	1.449E+6	1.324E+6	1.436E+6	1.352E+6
100		2.335E+6	2.237E+6	2.444E+6	2.345E+6	2.532E+6	2.347E+6	2.579E+6	2.641E+6

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0953-8801 Endpoint: Cell Density CETIS Version: CETISv2.1.4
Analyzed: 19 Jan-23 16:58 Analysis: Parametric Bioequivalence-Two Sample Status Level: 1
Edit Date: 19 Jan-23 16:57 MD5 Hash: 1DD6D8D414770DB58461BF6E0733A552 Editor ID: 009-702-627-3

Graphics



CETIS Measurement Report

Report Date: 19 Jan-23 16:59 (p 1 of 1)
 Test Code/ID: CSE0123.002sel / 11-1554-1525

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 15-4162-5332 Test Type: Cell Growth Analyst:
 Start Date: 04 Jan-23 09:30 Protocol: EPA/821/R-02-013 (2002) Diluent: Laboratory Water
 Ending Date: 08 Jan-23 10:00 Species: Selenastrum capricornutum Brine: Not Applicable
 Test Length: 4d 0h Taxon: Chlorophyta Source: Aquatic Biosystems, CO Age: 6d

Sample ID: 00-8429-4943 Code: CSE0123.002sel Project: Boeing-SSFL NPDES
 Sample Date: 02 Jan-23 08:00 Material: Sample Water Source: Bioassay Report
 Receipt Date: 03 Jan-23 14:45 CAS (PC): Station: Outfall 002
 Sample Age: 50h (0.5 °C) Client: Eurofins Calscience

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	78	---	---	78	78	---	---	---	0
100		1	111	---	---	111	111	---	---	---	0
Overall		2	94.5	-115.2	304.2	78	111	16.5	23.33	24.69%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	460	453.2	466.8	452	466	1.095	5.477	1.19%	0
100		5	542.2	539.4	545	540	546	0.4561	2.28	0.42%	0
Overall		10	501.1	470	532.2	452	546	13.76	43.5	8.68%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	115	---	---	115	115	---	---	---	0
100		1	158	---	---	158	158	---	---	---	0
Overall		2	136.5	-136.7	409.7	115	158	21.5	30.41	22.28%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.6	7.424	7.776	7.4	7.7	0.02828	0.1414	1.86%	0
100		5	7.46	7.272	7.648	7.2	7.6	0.03033	0.1517	2.03%	0
Overall		10	7.53	7.418	7.642	7.2	7.7	0.04955	0.1567	2.08%	0 (0%)

Temperature-°C


Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.8	25.8	25.8	25.8	25.8	0	0	0.00%	0
100		5	25.8	25.8	25.8	25.8	25.8	0	0	0.00%	0
Overall		10	25.8	25.8	25.8	25.8	25.8	0	0	0.00%	0 (0%)

CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 4 January 2023
STANDARD TOXICANT: Copper Chloride
ENDPOINT: SURVIVAL
NOEC = 75.00 ug/l
EC25 = 49.00 ug/l
EC50 = 64.00 ug/l

ENDPOINT: GROWTH
NOEC = 75.00 ug/l
IC25 = 45.55 ug/l
IC50 = 59.99 ug/l

Yours very truly,


Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 08 Feb-23 17:43 (p 1 of 2)
 Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID: 03-7224-7254	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-23 14:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-23 13:30	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 00-0780-4328	Code: FML010423	Project: REF TOX
Sample Date: 04 Jan-23 14:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
06-5054-7707	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 38	75	53.39	11.1%	1
03-0967-3213	Mean Dry Biomass-mg	Steel Many-One Rank Sum Test	✓ 38	75	53.39	19.5%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
03-7442-5637	7d Survival Rate	Linear Interpolation (ICPIN)	EC15	43	27.4	49.8	1
			EC20	46	33.2	52.93	
			EC25	49	36.95	56.07	
			EC40	58	48.2	68.29	
			EC50	64	55.7	76.67	
13-0551-5424	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	39.77	19.96	49.8	1
			✓ IC20	42.66	22.7	52.38	
			✓ IC25	45.55	25.44	55.19	
			✓ IC40	54.22	35.46	63.71	
			✓ IC50	59.99	47.73	70.4	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
03-7442-5637	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
06-5054-7707	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
03-0967-3213	Mean Dry Biomass-mg	Control Resp	0.3387	0.25	<<	Yes	Passes Criteria	
13-0551-5424	Mean Dry Biomass-mg	Control Resp	0.3387	0.25	<<	Yes	Passes Criteria	
03-0967-3213	Mean Dry Biomass-mg	PMSD	0.1949	0.12	0.3	Yes	Passes Criteria	

7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
38		4	0.9333	0.7212	1.1450	0.7333	1.0000	0.0667	0.1333	14.29%	6.67%
75		4	0.3167	0.0815	0.5519	0.2000	0.5333	0.0739	0.1478	46.68%	68.33%
150		4	0.0667	-0.0834	0.2167	0.0000	0.2000	0.0471	0.0943	141.42%	93.33%

Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3387	0.3318	0.3455	0.334	0.344	0.00216	0.00432	1.28%	0.00%
10		4	0.338	0.3327	0.3433	0.3353	0.3427	0.001656	0.003311	0.98%	0.20%
19		4	0.3595	0.3264	0.3926	0.3347	0.378	0.01041	0.02082	5.79%	-6.15%
38		4	0.3042	0.178	0.4303	0.1867	0.3607	0.03964	0.07929	26.07%	10.19%
75		4	0.083	0.01262	0.1534	0.04267	0.14	0.02212	0.04423	53.29%	75.49%
150		4	0.01233	-0.01619	0.04086	0	0.038	0.008963	0.01793	145.34%	96.36%

CETIS Summary Report

Report Date: 08 Feb-23 17:43 (p 2 of 2)
 Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

7d Survival Rate Detail

MD5: C9D80E083B9346B95E8F7AB895E49ECE

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	0.7333	1.0000
75		0.2000	0.2667	0.5333	0.2667
150		0.0667	0.0000	0.2000	0.0000

Mean Dry Biomass-mg Detail

MD5: 8D2D90DA75AD4DB0DB7A152191EA5C68

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.3367	0.34	0.334	0.344
10		0.3427	0.338	0.3353	0.336
19		0.35	0.3753	0.378	0.3347
38		0.334	0.3607	0.1867	0.3353
75		0.09533	0.054	0.14	0.04267
150		0.01133	0	0.038	0

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	11/15	15/15
75		3/15	4/15	8/15	4/15
150		1/15	0/15	3/15	0/15



CETIS Analytical Report

Report Date: 08 Feb-23 17:42 (p 1 of 3)
 Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 06-5054-7707	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4			
Analyzed: 02 Feb-23 9:56	Analysis: Nonparametric-Control vs Treatments	Status Level: 1			
Edit Date: 02 Feb-23 9:53	MD5 Hash: C9D80E083B9346B95E8F7AB895E49ECE	Editor ID: 007-730-798-8			
Batch ID: 03-7224-7254	Test Type: Growth-Survival (7d)	Analyst:			
Start Date: 04 Jan-23 14:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 11 Jan-23 13:30	Species: Pimephales promelas	Brine: Not Applicable			
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24			
Sample ID: 00-0780-4328	Code: FML010423	Project: REF TOX			
Sample Date: 04 Jan-23 14:00	Material: Copper chloride	Source: Reference Toxicant			
Receipt Date:	CAS (PC):	Station: REF TOX			
Sample Age: ---	Client: ABC Labs				

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	38	75	53.39	---	0.1113	11.13%

Steel Many-One Rank Sum Test									
Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8333	Non-Significant Effect
		19	6	18	10	1	CDF	0.8333	Non-Significant Effect
		38	6	16	10	1	CDF	0.6105	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

Test Acceptability Criteria		TAC Limits		Overlap	Decision
Attribute	Test Stat	Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

ANOVA Table							
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)	
Between	5.5684	1.11368	5	72.75	<1.0E-05	Significant Effect	
Error	0.275566	0.0153092	18				
Total	5.84397		23				

ANOVA Assumptions Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variance	Bartlett Equality of Variance Test				Indeterminate	
	Levene Equality of Variance Test	5.024	4.248	0.0047	Unequal Variances	
	Mod Levene Equality of Variance Test	1.116	4.248	0.3870	Equal Variances	
Distribution	Anderson-Darling A2 Test	1.795	3.878	<1.0E-05	Non-Normal Distribution	
	D'Agostino Kurtosis Test	2.059	2.576	0.0395	Normal Distribution	
	D'Agostino Skewness Test	0.8011	2.576	0.4231	Normal Distribution	
	D'Agostino-Pearson K2 Omnibus Test	4.881	9.21	0.0871	Normal Distribution	
	Kolmogorov-Smirnov D Test	0.25	0.2056	0.0004	Non-Normal Distribution	
	Shapiro-Wilk W Normality Test	0.8675	0.884	0.0047	Non-Normal Distribution	

7d Survival Rate Summary											
Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
38		4	0.9333	0.7212	1.0000	1.0000	0.7333	1.0000	0.0667	14.29%	6.67%
75		4	0.3167	0.0815	0.5519	0.2667	0.2000	0.5333	0.0739	46.68%	68.33%
150		4	0.0667	0.0000	0.2167	0.0222	0.0000	0.2000	0.0471	141.42%	93.33%

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-5054-7707 Endpoint: 7d Survival Rate CETIS Version: CETISv2.1.4
 Analyzed: 02 Feb-23 9:56 Analysis: Nonparametric-Control vs Treatments Status Level: 1
 Edit Date: 02 Feb-23 9:53 MD5 Hash: C9D80E083B9346B95E8F7AB895E49ECE Editor ID: 007-730-798-8

Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
38		4	1.3380	1.0090	1.6670	1.4410	1.0280	1.4410	0.1033	15.44%	7.17%
75		4	0.5919	0.3441	0.8397	0.5426	0.4636	0.8188	0.0779	26.31%	58.93%
150		4	0.2459	-0.0053	0.4971	0.1734	0.1295	0.4636	0.0789	64.19%	82.94%

7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	0.7333	1.0000
75		0.2000	0.2667	0.5333	0.2667
150		0.0667	0.0000	0.2000	0.0000

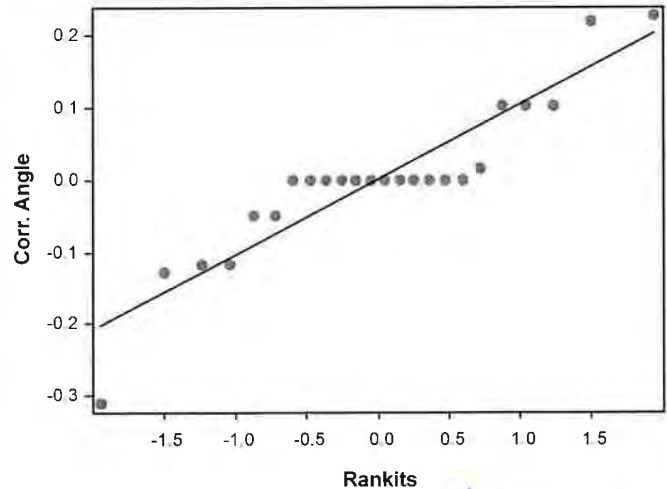
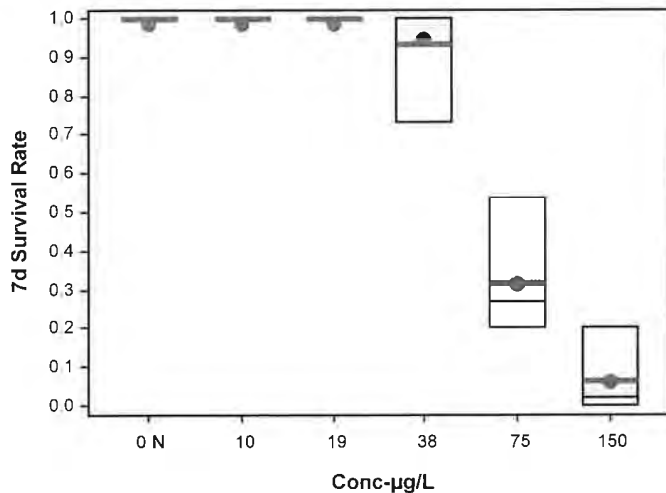
Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.4410	1.4410	1.4410
38		1.4410	1.4410	1.0280	1.4410
75		0.4636	0.5426	0.8188	0.5426
150		0.2612	0.1295	0.4636	0.1295

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	11/15	15/15
75		3/15	4/15	8/15	4/15
150		1/15	0/15	3/15	0/15

Graphics



CETIS Analytical Report

Report Date: 08 Feb-23 17:42 (p 3 of 3)
 Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 03-0967-3213	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 02 Feb-23 9:56	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 02 Feb-23 9:53	MD5 Hash: 8D2D90DA75AD4DB0DB7A152191EA5C6	Editor ID: 007-730-798-8
Batch ID: 03-7224-7254	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-23 14:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-23 13:30	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 00-0780-4328	Code: FML010423	Project: REF TOX
Sample Date: 04 Jan-23 14:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.06602	19.49%

Steel Many-One Rank Sum Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	17	10	0	CDF	0.7334	Non-Significant Effect
		19	6	23	10	0	CDF	0.9966	Non-Significant Effect
		38	6	15.5	10	1	CDF	0.5438	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	0.3387	0.25	<<	Yes	Passes Criteria
PMSD	0.1949	0.12	0.3	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.456859	0.0913718	5	60.73	<1.0E-05	Significant Effect
Error	0.0270816	0.0015045	18			
Total	0.48394		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	27.64	15.09	4.3E-05	Unequal Variances
	Levene Equality of Variance Test	5.16	4.248	0.0041	Unequal Variances
	Mod Levene Equality of Variance Test	1.217	4.248	0.3412	Equal Variances
Distribution	Anderson-Darling A2 Test	1.079	3.878	0.0080	Non-Normal Distribution
	D'Agostino Kurtosis Test	3.042	2.576	0.0023	Non-Normal Distribution
	D'Agostino Skewness Test	2.881	2.576	0.0040	Non-Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	17.56	9.21	0.0002	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.193	0.2056	0.0212	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8635	0.884	0.0039	Non-Normal Distribution

Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3387	0.3318	0.3455	0.3383	0.334	0.344	0.00216	1.28%	0.00%
10		4	0.338	0.3327	0.3433	0.337	0.3353	0.3427	0.001655	0.98%	0.20%
19		4	0.3595	0.3264	0.3926	0.3627	0.3347	0.378	0.01041	5.79%	-6.15%
38		4	0.3042	0.178	0.4303	0.3347	0.1867	0.3607	0.03964	26.07%	10.19%
75		4	0.083	0.01262	0.1534	0.07467	0.04267	0.14	0.02212	53.29%	75.49%
150		4	0.01233	-0.01619	0.04086	0.003778	0	0.038	0.008963	145.34%	96.36%

Fathead Minnow 7-d Larval Survival and Growth Test

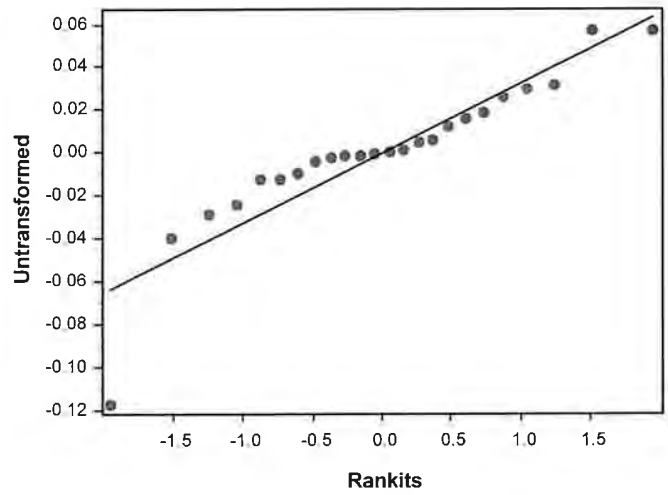
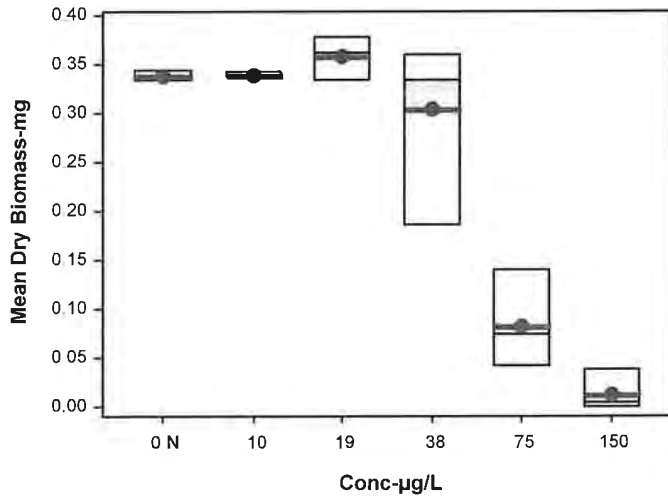
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 03-0967-3213 Endpoint: Mean Dry Biomass-mg CETIS Version: CETISv2.1.4
 Analyzed: 02 Feb-23 9:56 Analysis: Nonparametric-Control vs Treatments Status Level: 1
 Edit Date: 02 Feb-23 9:53 MD5 Hash: 8D2D90DA75AD4DB0DB7A152191EA5C6 Editor ID: 007-730-798-8

Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.3367	0.34	0.334	0.344
10		0.3427	0.338	0.3353	0.336
19		0.35	0.3753	0.378	0.3347
38		0.334	0.3607	0.1867	0.3353
75		0.09533	0.054	0.14	0.04267
150		0.01133	0	0.038	0

Graphics



CETIS Analytical Report

Report Date: 08 Feb-23 17:43 (p 1 of 4)
 Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 03-7442-5637	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 02 Feb-23 9:56	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 02 Feb-23 9:53	MD5 Hash: C9D80E083B9346B95E8F7AB895E49ECE	Editor ID: 007-730-798-8
Batch ID: 03-7224-7254	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-23 14:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-23 13:30	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 00-0780-4328	Code: FML010423	Project: REF TOX
Sample Date: 04 Jan-23 14:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
EC15	43	27.4	49.8
EC20	46	33.2	52.93
EC25	49	36.95	56.07
EC40	58	48.2	68.29
EC50	64	55.7	76.67

7d Survival Rate Summary

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
38		4	0.9333	1.0000	0.7333	1.0000	14.29%	6.67%	56/60	0.9333	6.67%
75		4	0.3167	0.2667	0.2000	0.5333	46.68%	68.33%	19/60	0.3167	68.33%
150		4	0.0667	0.0222	0.0000	0.2000	141.42%	93.33%	4/60	0.0667	93.33%

7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	0.7333	1.0000
75		0.2000	0.2667	0.5333	0.2667
150		0.0667	0.0000	0.2000	0.0000

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	11/15	15/15
75		3/15	4/15	8/15	4/15
150		1/15	0/15	3/15	0/15

CETIS Analytical Report

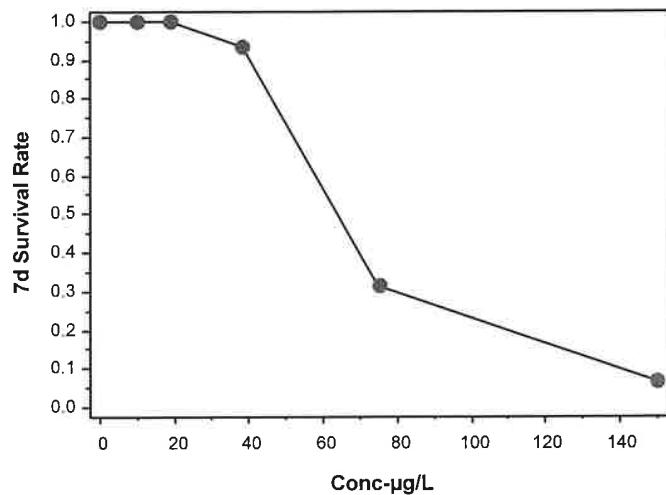
Report Date: 08 Feb-23 17:43 (p 2 of 4)
Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 03-7442-5637	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 02 Feb-23 9:56	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 02 Feb-23 9:53	MD5 Hash: C9D80E083B9346B95E8F7AB895E49ECE	Editor ID: 007-730-798-8

Graphics



CETIS Analytical Report

Report Date: 08 Feb-23 17:43 (p 3 of 4)
 Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 13-0551-5424	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 02 Feb-23 9:56	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 02 Feb-23 9:53	MD5 Hash: 8D2D90DA75AD4DB0DB7A152191EA5C6	Editor ID: 007-730-798-8
Batch ID: 03-7224-7254	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-23 14:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-23 13:30	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 00-0780-4328	Code: FML010423	Project: REF TOX
Sample Date: 04 Jan-23 14:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	156995	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3387	0.25	<<	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
IC15	39.77	19.96	49.8
IC20	42.66	22.7	52.38
IC25	45.55	25.44	55.19
IC40	54.22	35.46	63.71
IC50	59.99	47.73	70.4

Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3387	0.3383	0.334	0.344	1.28%	0.00%	0.3454	0.00%
10		4	0.338	0.337	0.3353	0.3427	0.98%	0.20%	0.3454	0.00%
19		4	0.3595	0.3627	0.3347	0.378	5.79%	-6.15%	0.3454	0.00%
38		4	0.3042	0.3347	0.1867	0.3607	26.07%	10.19%	0.3042	11.93%
75		4	0.083	0.07467	0.04267	0.14	53.29%	75.49%	0.083	75.97%
150		4	0.01233	0.003778	0	0.038	145.34%	96.36%	0.01233	96.43%

Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.3367	0.34	0.334	0.344
10		0.3427	0.338	0.3353	0.336
19		0.35	0.3753	0.378	0.3347
38		0.334	0.3607	0.1867	0.3353
75		0.09533	0.054	0.14	0.04267
150		0.01133	0	0.038	0

CETIS Analytical Report

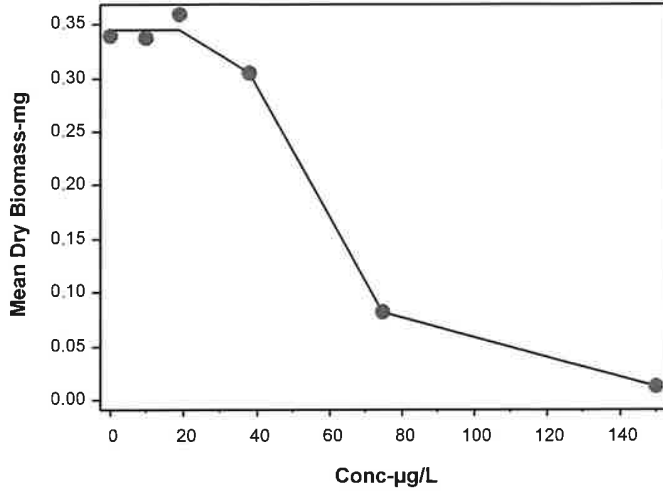
Report Date: 08 Feb-23 17:43 (p 4 of 4)
Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 13-0551-5424	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 02 Feb-23 9:56	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 02 Feb-23 9:53	MD5 Hash: 8D2D90DA75AD4DB0DB7A152191EA5C6	Editor ID: 007-730-798-8

Graphics



CETIS Measurement Report

Report Date: 08 Feb-23 17:49 (p 1 of 2)
 Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 03-7224-7254	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-23 14:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-23 13:30	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 00-0780-4328	Code: FML010423	Project: REF TOX
Sample Date: 04 Jan-23 14:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	66.38	63.35	69.4	62	69	0.4529	3.623	5.46%	0
150		8	60	60	60	60	60	0	0	0.00%	0
Overall		16	63.19	60.99	65.38	60	69	1.03	4.119	6.52%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	368.2	363.4	373.1	362	379	0.7312	5.849	1.59%	0
10		8	365.6	362.6	368.7	360	369	0.4578	3.662	1.00%	0
19		8	362.8	360.4	365.1	359	365	0.3583	2.866	0.79%	0
38		8	361.6	358.5	364.7	357	365	0.4626	3.701	1.02%	0
75		8	360.2	357.1	363.4	356	365	0.4665	3.732	1.04%	0
150		8	359	354.4	363.6	350	365	0.6847	5.477	1.53%	0
Overall		48	362.9	361.4	364.4	350	379	0.7514	5.206	1.43%	0 (0%)

Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.788	7.529	8.046	7.1	8	0.03864	0.3091	3.97%	0
10		8	7.75	7.489	8.011	7	8	0.03896	0.3117	4.02%	0
19		8	7.75	7.489	8.011	7	8	0.03896	0.3117	4.02%	0
38		8	7.738	7.473	8.002	7	8	0.03949	0.3159	4.08%	0
75		8	7.75	7.514	7.986	7.1	8	0.03536	0.2828	3.65%	0
150		8	7.725	7.465	7.985	7	8	0.03882	0.3105	4.02%	0
Overall		48	7.75	7.666	7.834	7	8	0.042	0.291	3.76%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	98	98	98	98	98	0	0	0.00%	0
150		8	98	98	98	98	98	0	0	0.00%	0
Overall		16	98	98	98	98	98	0	0	0.00%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.763	7.645	7.88	7.6	7.9	0.0176	0.1408	1.81%	0
10		8	7.813	7.708	7.917	7.6	8	0.01558	0.1246	1.60%	0
19		8	7.813	7.708	7.917	7.6	8	0.01558	0.1246	1.60%	0
38		8	7.825	7.728	7.922	7.7	8	0.01456	0.1165	1.49%	0
75		8	7.838	7.749	7.926	7.7	8	0.01326	0.1061	1.35%	0
150		8	7.838	7.749	7.926	7.7	8	0.01326	0.1061	1.35%	0
Overall		48	7.815	7.781	7.848	7.6	8	0.01684	0.1167	1.49%	0 (0%)

CETIS Measurement Report

Report Date: 08 Feb-23 17:49 (p 2 of 2)
 Test Code/ID: FML010423 / 00-0436-4887

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)

CHRONIC CERIODAPHNIA SURVIVAL AND REPRODUCTION BIOASSAY

DATE: 10 January - 2023

STANDARD TOXICANT: Copper Chloride

ENDPOINT: SURVIVAL

NOEC = 10.00 ug/l

EC25 = 16.25 ug/l

EC50 = 22.50 ug/l

ENDPOINT: REPRODUCTION

NOEC = 10.00 ug/l

IC25 = 11.93 ug/l

IC50 = 19.12 ug/l

Yours very truly,



for Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 07 Feb-23 17:37 (p 1 of 2)
 Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 01-6625-2273	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 10 Jan-23 13:52	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 17 Jan-23 14:17	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age:
Sample ID: 11-2760-2683	Code: CER011023	Project: REF TOX
Sample Date: 10 Jan-23 13:52	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	PMSD	S
09-5274-7099	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test		10	30	17.32	---	1
20-7829-5260	Reproduction	Steel Many-One Rank Sum Test	✓	5	10	7.071	14.9%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	µg/L	95% LCL	95% UCL	S
09-0929-4266	7d Survival Rate	Linear Interpolation (ICPIN)		EC15	13.75	13	16	1
				EC20	15	14	18	
				EC25	16.25	15	20	
				EC40	20	18	26	
				EC50	22.5	20	30	
09-4382-2405	Reproduction	Linear Interpolation (ICPIN)	✓	IC15	8.442	4.989	10.82	1
			✓	IC20	10.49	8.057	12.13	
			✓	IC25	11.93	10.06	13.55	
			✓	IC40	16.25	14.4	18.56	
			✓	IC50	19.12	17.22	22.11	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
09-0929-4266	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
09-5274-7099	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
09-4382-2405	Reproduction	Control Resp	24.6	15	<<	Yes	Passes Criteria	
20-7829-5260	Reproduction	Control Resp	24.6	15	<<	Yes	Passes Criteria	
20-7829-5260	Reproduction	PMSD	0.149	0.13	0.47	Yes	Passes Criteria	

7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
30		10	0.2000	-0.1016	0.5016	0.0000	1.0000	0.1333	0.4216	210.82%	80.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

Reproduction Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	24.6	23.2	26	22	28	0.6182	1.955	7.95%	0.00%
3		10	23.4	21.81	24.99	21	27	0.7024	2.221	9.49%	4.88%
5		10	22.7	20.79	24.61	18	26	0.8439	2.669	11.76%	7.72%
10		10	20.1	18.27	21.93	17	25	0.809	2.558	12.73%	18.29%
30		10	3	-1.828	7.828	0	20	2.134	6.749	224.98%	87.80%
50		10	0	0	0	0	0	0	0	---	100.00%

CETIS Summary Report

Report Date: 07 Feb-23 17:37 (p 2 of 2)
 Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

7d Survival Rate Detail

MD5: 856400CA97C28F88B977559C6FFF2B35

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Reproduction Detail

MD5: 709383762885797C68B70890F5B62A91

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	23	24	25	26	26	28	24	26	22
3		21	21	23	27	26	23	21	25	25	22
5		26	22	19	18	24	23	21	25	25	24
10		25	17	19	19	17	20	19	22	23	20
30		10	20	0	0	0	0	0	0	0	0
50		0	0	0	0	0	0	0	0	0	0

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	1/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1



CETIS Analytical Report

Report Date: 07 Feb-23 17:37 (p 1 of 2)
 Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test				Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID:	20-7829-5260	Endpoint:	Reproduction	CETIS Version:	CETISv2.1.4		
Analyzed:	31 Jan-23 14:25	Analysis:	Nonparametric-Control vs Treatments	Status Level:	1		
Edit Date:	31 Jan-23 14:24	MD5 Hash:	709383762885797C68B70890F5B62A91	Editor ID:	007-730-798-8		
Batch ID:	01-6625-2273	Test Type:	Reproduction-Survival (7d)	Analyst:			
Start Date:	10 Jan-23 13:52	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water		
Ending Date:	17 Jan-23 14:17	Species:	Ceriodaphnia dubia	Brine:	Not Applicable		
Test Length:	7d 0h	Taxon:	Branchiopoda	Source:	Aquatic Biosystems, CO	Age:	
Sample ID:	11-2760-2683	Code:	CER011023	Project:	REF TOX		
Sample Date:	10 Jan-23 13:52	Material:	Copper chloride	Source:	Reference Toxicant		
Receipt Date:		CAS (PC):		Station:	REF TOX		
Sample Age:	---	Client:	ABC Labs				

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	5	10	7.071	---	3.665	14.90%

Steel Many-One Rank Sum Test									
Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		3	18	88.5	76	4	CDF	0.2717	Non-Significant Effect
		5	18	85	76	5	CDF	0.1813	Non-Significant Effect
		10*	18	64	76	3	CDF	0.0036	Significant Effect
		30*	18	55	76	0	CDF	0.0003	Significant Effect

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	24.6	15	<<	Yes	Passes Criteria
PMSD	0.149	0.13	0.47	Yes	Passes Criteria

ANOVA Table							
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)	
Between	3213.32	803.33	4	59.09	<1.0E-05	Significant Effect	
Error	611.8	13.5956	45				
Total	3825.12		49				

ANOVA Assumptions Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variance	Bartlett Equality of Variance Test	21.12	13.28	0.0003	Unequal Variances	
	Levene Equality of Variance Test	3.292	3.767	0.0189	Equal Variances	
	Mod Levene Equality of Variance Test	0.2754	3.767	0.8923	Equal Variances	
Distribution	Anderson-Darling A2 Test	1.923	3.878	<1.0E-05	Non-Normal Distribution	
	D'Agostino Kurtosis Test	4.461	2.576	<1.0E-05	Non-Normal Distribution	
	D'Agostino Skewness Test	5.132	2.576	<1.0E-05	Non-Normal Distribution	
	D'Agostino-Pearson K2 Omnibus Test	46.23	9.21	<1.0E-05	Non-Normal Distribution	
	Kolmogorov-Smirnov D Test	0.1502	0.1453	0.0066	Non-Normal Distribution	
	Shapiro-Wilk W Normality Test	0.7979	0.9367	<1.0E-05	Non-Normal Distribution	

Reproduction Summary											
Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	24.6	23.2	26	24.33	22	28	0.6182	7.95%	0.00%
3		10	23.4	21.81	24.99	23	21	27	0.7024	9.49%	4.88%
5		10	22.7	20.79	24.61	23.67	18	26	0.8439	11.76%	7.72%
10		10	20.1	18.27	21.93	19.4	17	25	0.809	12.73%	18.29%
30		10	3	-1.828	7.828	0	0	20	2.134	224.98%	87.80%
50		10	0	0	0	0	0	0	---	---	100.00%

CETIS Analytical Report

Report Date: 07 Feb-23 17:37 (p 2 of 2)
 Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test

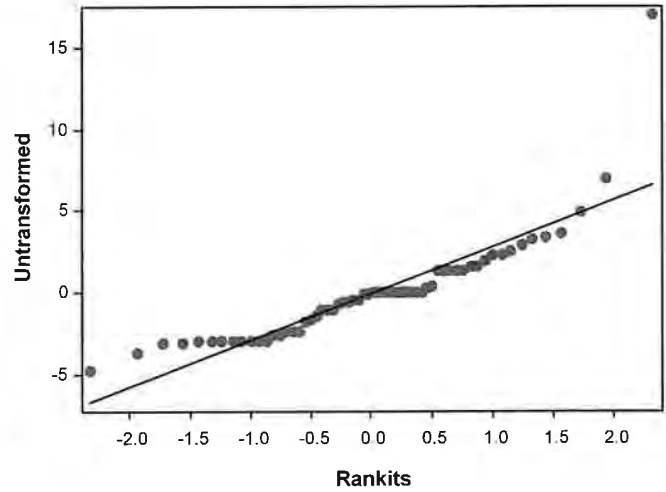
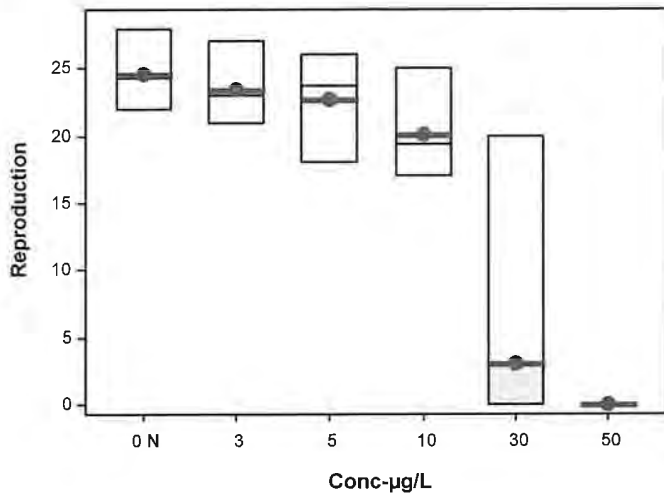
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 20-7829-5260 Endpoint: Reproduction CETIS Version: CETISv2.1.4
 Analyzed: 31 Jan-23 14:25 Analysis: Nonparametric-Control vs Treatments Status Level: 1
 Edit Date: 31 Jan-23 14:24 MD5 Hash: 709383762885797C68B70890F5B62A91 Editor ID: 007-730-798-8

Reproduction Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	23	24	25	26	26	28	24	26	22
3		21	21	23	27	26	23	21	25	25	22
5		26	22	19	18	24	23	21	25	25	24
10		25	17	19	19	17	20	19	22	23	20
30		10	20	0	0	0	0	0	0	0	0
50		0	0	0	0	0	0	0	0	0	0

Graphics



CETIS Analytical Report

Report Date: 07 Feb-23 17:37 (p 1 of 4)
 Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test				Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID:	09-0929-4266	Endpoint:	7d Survival Rate	CETIS Version:	CETISv2.1.4		
Analyzed:	31 Jan-23 14:25	Analysis:	Linear Interpolation (ICPIN)	Status Level:	1		
Edit Date:	31 Jan-23 14:24	MD5 Hash:	856400CA97C28F88B977559C6FFF2B35	Editor ID:	007-730-798-8		
Batch ID:	01-6625-2273	Test Type:	Reproduction-Survival (7d)	Analyst:			
Start Date:	10 Jan-23 13:52	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water		
Ending Date:	17 Jan-23 14:17	Species:	Ceriodaphnia dubia	Brine:	Not Applicable		
Test Length:	7d 0h	Taxon:	Branchiopoda	Source:	Aquatic Biosystems, CO	Age:	
Sample ID:	11-2760-2683	Code:	CER011023	Project:	REF TOX		
Sample Date:	10 Jan-23 13:52	Material:	Copper chloride	Source:	Reference Toxicant		
Receipt Date:		CAS (PC):		Station:	REF TOX		
Sample Age:	---	Client:	ABC Labs				

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	1	0.8	<<	Yes	Passes Criteria

Point Estimates			
Level	µg/L	95% LCL	95% UCL
EC15	13.75	13	16
EC20	15	14	18
EC25	16.25	15	20
EC40	20	18	26
EC50	22.5	20	30

7d Survival Rate Summary			Calculated Variate(A/B)							Isotonic Variate	
Conc-µg/L	Code	Count	Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
30		10	0.2000	0.0000	0.0000	1.0000	210.82%	80.00%	2/10	0.2000	80.00%
50		10	0.0000	0.0000	0.0000	0.0000	--	100.00%	0/10	0.0000	100.00%

7d Survival Rate Detail											
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7d Survival Rate Binomials											
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	1/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

CETIS Analytical Report

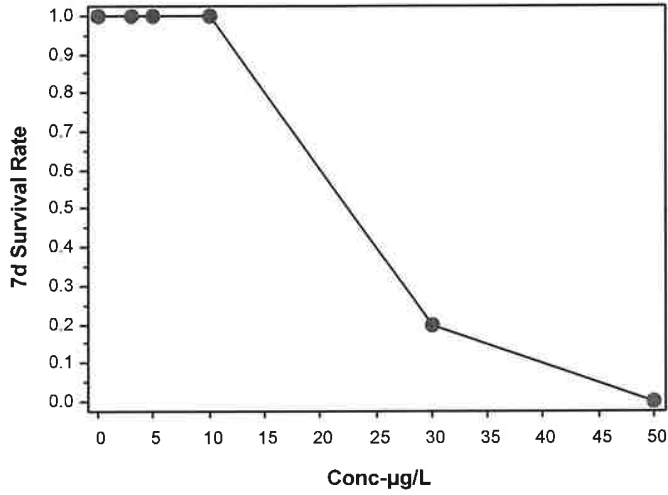
Report Date: 07 Feb-23 17:37 (p 2 of 4)
Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-0929-4266	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 31 Jan-23 14:25	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 31 Jan-23 14:24	MD5 Hash: 856400CA97C28F88B977559C6FFF2B35	Editor ID: 007-730-798-8

Graphics



CETIS Analytical Report

Report Date: 07 Feb-23 17:37 (p 3 of 4)
 Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID: 09-4382-2405	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 31 Jan-23 14:25	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 31 Jan-23 14:24	MD5 Hash: 709383762885797C68B70890F5B62A91	Editor ID: 007-730-798-8
Batch ID: 01-6625-2273	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 10 Jan-23 13:52	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 17 Jan-23 14:17	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age:
Sample ID: 11-2760-2683	Code: CER011023	Project: REF TOX
Sample Date: 10 Jan-23 13:52	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1953426	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	24.6	15	<<	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
IC15	8.442	4.989	10.82
IC20	10.49	8.057	12.13
IC25	11.93	10.06	13.55
IC40	16.25	14.4	18.56
IC50	19.12	17.22	22.11

Reproduction Summary

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	10	24.6	24.33	22	28	7.95%	0.00%	24.6	0.00%
3		10	23.4	23	21	27	9.49%	4.88%	23.4	4.88%
5		10	22.7	23.67	18	26	11.76%	7.72%	22.7	7.72%
10		10	20.1	19.4	17	25	12.73%	18.29%	20.1	18.29%
30		10	3	0	0	20	224.98%	87.80%	3	87.80%
50		10	0	0	0	0	--	100.00%	0	100.00%

Reproduction Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	23	24	25	26	26	28	24	26	22
3		21	21	23	27	26	23	21	25	25	22
5		26	22	19	18	24	23	21	25	25	24
10		25	17	19	19	17	20	19	22	23	20
30		10	20	0	0	0	0	0	0	0	0
50		0	0	0	0	0	0	0	0	0	0

CETIS Analytical Report

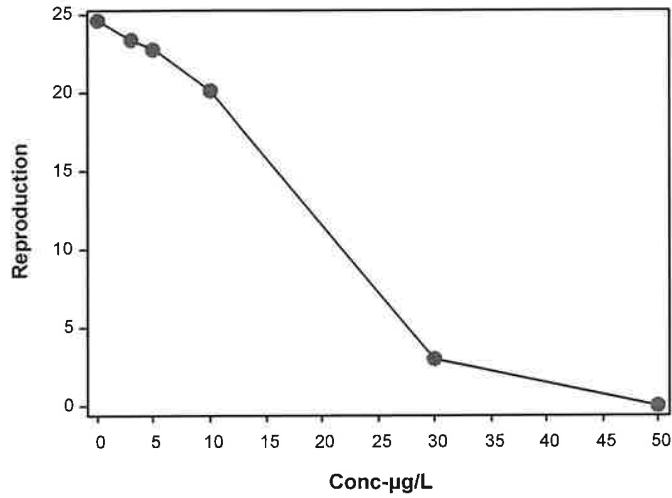
Report Date: 07 Feb-23 17:37 (p 4 of 4)
Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-4382-2405	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 31 Jan-23 14:25	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 31 Jan-23 14:24	MD5 Hash: 709383762885797C68B70890F5B62A91	Editor ID: 007-730-798-8

Graphics



CETIS Analytical Report

Report Date: 07 Feb-23 17:37 (p 1 of 2)
 Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 09-5274-7099	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4	Analyzed: 31 Jan-23 14:25	Analysis: STP 2xK Contingency Tables	Status Level: 1
Edit Date: 31 Jan-23 14:24	MD5 Hash: 856400CA97C28F88B977559C6FFF2B35	Editor ID: 007-730-798-8	Batch ID: 01-6625-2273	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 10 Jan-23 13:52	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water	Ending Date: 17 Jan-23 14:17	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO	Age:	Sample ID: 11-2760-2683	Code: CER011023
Sample Date: 10 Jan-23 13:52	Material: Copper chloride	Project: REF TOX	Receipt Date:	Source: Reference Toxicant	Station: REF TOX
Sample Age: ---	Client: ABC Labs				

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units
Untransformed	C > T	10	30	17.32	---

Fisher Exact/Bonferroni-Holm Test						
Control	vs	Conc-µg/L	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		3	1.0000	Exact	1.0000	Non-Significant Effect
		5	1.0000	Exact	1.0000	Non-Significant Effect
		10	1.0000	Exact	1.0000	Non-Significant Effect
		30*	0.0004	Exact	0.0014	Significant Effect
		50*	0.0000	Exact	2.7E-05	Significant Effect

Test Acceptability Criteria					
Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

7d Survival Rate Frequencies							
Conc-µg/L	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	10	0	10	1.0000	0.0000	0.00%
3		10	0	10	1.0000	0.0000	0.00%
5		10	0	10	1.0000	0.0000	0.00%
10		10	0	10	1.0000	0.0000	0.00%
30		2	8	10	0.2000	0.8000	80.00%
50		0	10	10	0.0000	1.0000	100.00%

7d Survival Rate Summary											
Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
30		10	0.2000	0.0000	0.5016	0.0000	0.0000	1.0000	0.1333	210.82%	80.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

7d Survival Rate Detail											
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

CETIS Analytical Report

Report Date: 07 Feb-23 17:37 (p 2 of 2)
 Test Code/ID: CER011023 / 14-0629-8567

Ceriodaphnia 7-d Survival and Reproduction Test

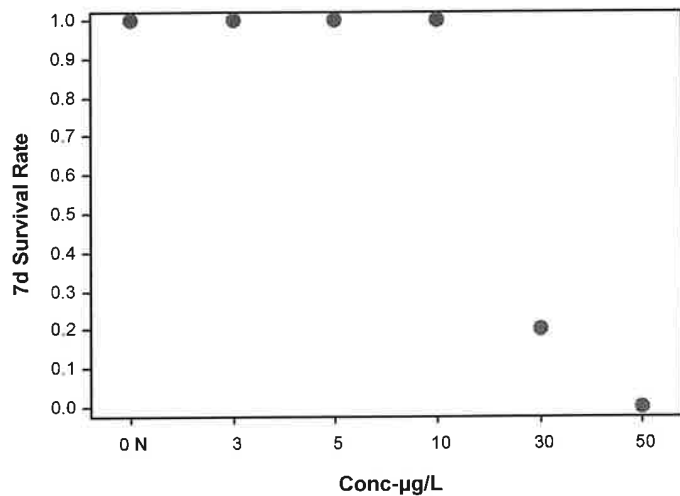
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-5274-7099 Endpoint: 7d Survival Rate CETIS Version: CETISv2.1.4
 Analyzed: 31 Jan-23 14:25 Analysis: STP 2xK Contingency Tables Status Level: 1
 Edit Date: 31 Jan-23 14:24 MD5 Hash: 856400CA97C28F88B977559C6FFF2B35 Editor ID: 007-730-798-8

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	1/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

Graphics





CHRONIC SELENASTRUM GROWTH BIOASSAY


DATE: 12 January - 2023

STANDARD TOXICANT: Cadmium Chloride

NOEC = 20.00 ug/l

IC25 = 53.36 ug/l
IC50 = 102.30 ug/l

Yours very truly,


r Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 20 Jan-23 16:52 (p 1 of 1)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
02-3719-8182	Cell Density	Dunnett Multiple Comparison Test	20	40	28.28	4.66%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
05-1997-3179	Cell Density	Linear Interpolation (ICPIN)	IC15	34.55	31.57	37.91	1
			IC20	39.4	35.65	48.58	
			IC25	53.36	40.71	62.3	
			IC40	88.59	84.67	92.36	
			IC50	102.3	99.22	105.6	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
02-3719-8182	Cell Density	Control CV	0.03087	<<	0.2	Yes	Passes Criteria
05-1997-3179	Cell Density	Control CV	0.03087	<<	0.2	Yes	Passes Criteria
02-3719-8182	Cell Density	Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria
05-1997-3179	Cell Density	Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.057E+6	1.005E+6	1.109E+6	1.033E+6	1.105E+6	1.631E+4	3.262E+4	3.09%	0.00%
20		4	1.091E+6	1.026E+6	1.156E+6	1.040E+6	1.131E+6	2.040E+4	4.080E+4	3.74%	-3.26%
40		4	8.525E+5	8.034E+5	9.016E+5	8.250E+5	8.890E+5	1.541E+4	3.083E+4	3.62%	19.33%
80		4	7.118E+5	6.788E+5	7.447E+5	6.940E+5	7.330E+5	1.035E+4	2.069E+4	2.91%	32.65%
140		4	2.412E+5	1.995E+5	2.830E+5	2.190E+5	2.790E+5	1.312E+4	2.623E+4	10.87%	77.17%
180		4	1.472E+5	1.228E+5	1.717E+5	1.320E+5	1.610E+5	7.696E+3	1.539E+4	10.45%	86.07%

Cell Density Detail

MD5: 8002C18F242E2CF77D044A91E3CE4461

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5

CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test			Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID: 02-3719-8182	Endpoint: Cell Density	CETIS Version: CETISv2.1.4				
Analyzed: 20 Jan-23 16:51	Analysis: Parametric-Control vs Treatments	Status Level: 1				
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3				
Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:				
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water				
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable				
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 7d			
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX				
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant				
Receipt Date:	CAS (PC):	Station: REF TOX				
Sample Age: ---	Client: Internal Lab					

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	20	40	28.28	---	49300	4.66%

Dunnett Multiple Comparison Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		20	6	-1.685	2.407	49300	CDF	0.9976	Non-Significant Effect
		40*	6	9.973	2.407	49300	CDF	2.7E-05	Significant Effect
		80*	6	16.85	2.407	49300	CDF	2.7E-05	Significant Effect
		140*	6	39.82	2.407	49300	CDF	2.7E-05	Significant Effect
		180*	6	44.41	2.407	49300	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control CV	0.03087	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.272E+12	6.545E+11	5	780.2	<1.0E-05	Significant Effect
Error	1.51E+10	838820000	18			
Total	3.287E+12		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	2.884	15.09	0.7178	Equal Variances
	Levene Equality of Variance Test	1.242	4.248	0.3306	Equal Variances
	Mod Levene Equality of Variance Test	0.6992	4.248	0.6311	Equal Variances
Distribution	Anderson-Darling A2 Test	0.7994	3.878	0.0381	Normal Distribution
	D'Agostino Kurtosis Test	0.7357	2.576	0.4619	Normal Distribution
	D'Agostino Skewness Test	0.6079	2.576	0.5433	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	0.9108	9.21	0.6342	Normal Distribution
	Kolmogorov-Smirnov D Test	0.2114	0.2056	0.0070	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9401	0.884	0.1636	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.057E+6	1.005E+6	1.109E+6	1.044E+6	1.033E+6	1.105E+6	1.631E+4	3.09%	0.00%
20		4	1.091E+6	1.026E+6	1.156E+6	1.097E+6	1.040E+6	1.131E+6	2.040E+4	3.74%	-3.26%
40		4	8.525E+5	8.034E+5	9.016E+5	8.480E+5	8.250E+5	8.890E+5	1.541E+4	3.62%	19.33%
80		4	7.118E+5	6.788E+5	7.447E+5	7.047E+5	6.940E+5	7.330E+5	1.035E+4	2.91%	32.65%
140		4	2.412E+5	1.995E+5	2.830E+5	2.335E+5	2.190E+5	2.790E+5	1.312E+4	10.87%	77.17%
180		4	1.472E+5	1.228E+5	1.717E+5	1.480E+5	1.320E+5	1.610E+5	7.696E+3	10.45%	86.07%

CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Analysis ID: 05-1997-3179	Endpoint: Cell Density	CETIS Version: CETISv2.1.4	
Analyzed: 20 Jan-23 16:51	Analysis: Linear Interpolation (ICPIN)	Status Level: 1	
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3	
Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:	
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water	
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable	
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 7d
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX	
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant	
Receipt Date:	CAS (PC):	Station: REF TOX	
Sample Age: ---	Client: Internal Lab		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control CV	0.03087	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
IC15	34.55	31.57	37.91
IC20	39.4	35.65	48.58
IC25	53.36	40.71	62.3
IC40	88.59	84.67	92.36
IC50	102.3	99.22	105.6

Cell Density Summary

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	1.057E+6	1.044E+6	1.033E+6	1.105E+6	3.09%	0.00%	1.074E+6	0.00%
20		4	1.091E+6	1.097E+6	1.040E+6	1.131E+6	3.74%	-3.26%	1.074E+6	0.00%
40		4	8.525E+5	8.480E+5	8.250E+5	8.890E+5	3.62%	19.33%	8.525E+5	20.62%
80		4	7.118E+5	7.047E+5	6.940E+5	7.330E+5	2.91%	32.65%	7.118E+5	33.72%
140		4	2.412E+5	2.335E+5	2.190E+5	2.790E+5	10.87%	77.17%	2.412E+5	77.54%
180		4	1.472E+5	1.480E+5	1.320E+5	1.610E+5	10.45%	86.07%	1.472E+5	86.29%

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5

CETIS Analytical Report

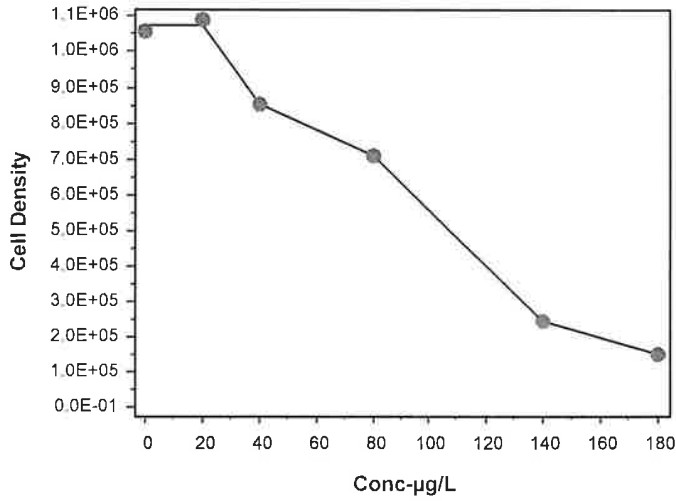
Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-1997-3179	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 16:51	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3

Graphics



CETIS Measurement Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	77	---	---	77	77	---	---	---	0
20		1	80	---	---	80	80	---	---	---	0
40		1	77	---	---	77	77	---	---	---	0
80		1	68	---	---	68	68	---	---	---	0
140		1	66	---	---	66	66	---	---	---	0
180		1	65	---	---	65	65	---	---	---	0
Overall		6	72.17	65.29	79.05	65	80	2.676	6.555	9.08%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	497.6	487.7	507.5	489	510	1.591	7.956	1.60%	0
20		5	489.2	474.1	504.3	468	499	2.439	12.19	2.49%	0
40		5	453.6	434.3	472.9	445	481	3.104	15.52	3.42%	0
80		5	432.4	417.2	447.6	425	454	2.452	12.26	2.84%	0
140		5	407.8	390.9	424.7	400	432	2.722	13.61	3.34%	0
180		5	390.4	369.6	411.2	379	420	3.348	16.74	4.29%	0
Overall		30	445.2	429.5	460.8	379	510	7.646	41.88	9.41%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	118	---	---	118	118	---	---	---	0
20		1	110	---	---	110	110	---	---	---	0
40		1	125	---	---	125	125	---	---	---	0
80		1	95	---	---	95	95	---	---	---	0
140		1	98	---	---	98	98	---	---	---	0
180		1	93	---	---	93	93	---	---	---	0
Overall		6	106.5	92.63	120.4	93	125	5.396	13.22	12.41%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.849	8.071	7.8	8	0.01789	0.08944	1.12%	0
20		5	8	8	8	8	8	0	0	0.00%	0
40		5	8	8	8	8	8	0	0	0.00%	0
80		5	8	8	8	8	8	0	0	0.00%	0
140		5	7.98	7.924	8.036	7.9	8	0.008943	0.04472	0.56%	0
180		5	7.98	7.924	8.036	7.9	8	0.008943	0.04472	0.56%	0
Overall		30	7.987	7.97	8.003	7.8	8	0.007927	0.04342	0.54%	0 (0%)

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
20		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
40		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
80		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
140		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
180		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
Overall		30	25.28	25.21	25.35	25	25.5	0.03601	0.1972	0.78%	0 (0%)

Convergent Rounding (4 sf)

CETIS™ v2.1.4.1 x64 (009-702-627-3)

Analyst:  QA: 

CETIS Measurement Report

Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

122390

CHAIN OF CUSTODY FORM



570-122390 Chain of Custody

Test America

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Dertian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the TACs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Adrien Mobeka

Project:
Boeing-SSFL NPDES
Permit 2023
Annual Outfall [001_002_011_018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606; 520.904.6944 (cell)
Field Manager: Mark Dominick
978.234.5033; 818.589.0702 (cell)

Table with columns: Sample Description, Sampling Date/Time, Sample Matrix, Container Type, # of Cont., Preservative, Bottle #, MSMSD, Total Dissolved Metals, Cyanide, Gross Alpha, Tritium, Radium, Sensitivity, 1,4-Dioxane, Total Organic Carbon, Monomethylhydrazine, Cr(VI), Total Dissolved Metals, Comments.

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Administrative section containing signatures, dates, and company information for Release, Received, and Retained by parties.

Handwritten notes: 2.3/2.3 2.6/2.6 2.1/2.1 1.2/1.2 1.3/1.3



ICOC No:
570-203234

Containers

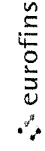
Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV needed
3	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine (Hold)	Level IV needed



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Carrier Tracking No(s): 570-203260 1																						
Shipping/Receiving		Phone: Virendra Patel@et.eurofins.com	Page: Page 1 of 1																						
Company: TestAmerica Laboratories Inc.		E-Mail: Virendra Patel@et.eurofins.com	Job #: 570-122390-1																						
Address: 13715 Rider Trail North		Accreditations Required (See note): State Program - California	State of Origin: California																						
City: Earth City	State, Zip: MO, 63045	Due Date Requested: 1/17/2023	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:																						
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #: _____	TAT Requested (days): _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Analysis Requested</th> <th rowspan="2">Field Filled Sample (Yes or No)</th> <th rowspan="2">Perform MS/MSD (Yes or No)</th> <th rowspan="2">900.0/Evaporation Gross Alpha/Beta</th> <th rowspan="2">906.0/LSC_Dist_Susp Tritium</th> <th rowspan="2">906.0/Presep_21 Radium-226</th> <th rowspan="2">904.0/Presep_0 Radium-228</th> <th rowspan="2">A01R_U/ExChrom_Actin Total Uranium</th> <th rowspan="2">901.1_Cs/Fill_Geo_0 K-40 and Cesium-137</th> <th rowspan="2">Total Number of Containers</th> </tr> <tr> <td colspan="11">Boeing SSFL DO NOT FILTER, use prep date from preservation</td> </tr> </table>	Analysis Requested		Field Filled Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	906.0/Presep_21 Radium-226	904.0/Presep_0 Radium-228	A01R_U/ExChrom_Actin Total Uranium	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	Total Number of Containers	Boeing SSFL DO NOT FILTER, use prep date from preservation										
Analysis Requested		Field Filled Sample (Yes or No)		Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta										906.0/LSC_Dist_Susp Tritium	906.0/Presep_21 Radium-226	904.0/Presep_0 Radium-228	A01R_U/ExChrom_Actin Total Uranium	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	Total Number of Containers					
Boeing SSFL DO NOT FILTER, use prep date from preservation																									
Matrix: _____	Sample Type (C=Comp, G=grab): _____	Sample Time: 09 15 Pacific		Sample Date: 1/2/23	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____														
Project Name: Boeing SSFL NPDES - Outfall 002 - COMP	Project #: 44024446	Sample Date: _____		Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____														
Site: _____	SSOW#: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____															
Sample Identification - Client ID (Lab ID)	Outfall002_20230102_Comp (570-122390-2)	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____	Sample Date: _____															

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) _____

Special Instructions/QC Requirements: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements		Method of Shipment:	
Received by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Relinquished by:	Date/Time:
Relinquished by:	Date/Time:	Relinquished by:	Date/Time:

Cooler Temperature(s) °C and Other Remarks: _____



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122390-3

Login Number: 122390

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - COMP

JOB NUMBER

570-122390-4

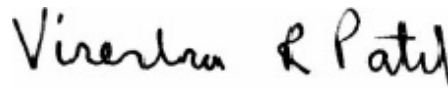
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

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3/2/2023 2:34:24 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-122390-4

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-4

Job ID: 570-122390-4

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122390-4

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.2° C, 1.3° C, 2.1° C, 2.3° C and 2.6° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Weck-Hydrazine: This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-4

Method	Method Description	Protocol	Laboratory
Subcontract	Weck-Hydrazine	None	Weck Lab

Protocol References:

None = None

Laboratory References:

Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122390-2	Outfall002_20230102_Comp	Water	01/02/23 09:15	01/03/23 17:05

1

2

3

4

5

6

7

8

9

Work Orders: 3A05035

Project: 570-122390-4

Attn: Virendra Patel

Client: Eurofins Calscience - Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Report Date: 2/24/2023

Received Date: 1/5/2023

Turnaround Time: Normal

Phones: (949) 261-1022

Fax: (949) 260-3297

P.O. #:

Billing Code:

Dear Virendra Patel,

Enclosed are the results of analyses for samples received 1/05/23 with the Chain-of-Custody document. The samples were received in good condition, at 2.6 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Outfall002_20230102_Comp (570-122390-2)
3A05035-01 (Water)

Sampled: 01/02/23 9:15 by Client

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8315M		Instr: LCMS03					
Batch ID: W3A1773		Preparation: Microextraction		Prepared: 01/20/23 16:29		Analyst: pjs	
Monomethylhydrazine (MMH)	ND	0.31	2.0	ug/l	1	01/20/23	P-2

Quality Control Results

Hydrazine by LCMS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Blank (W3A1773-BLK1)											
Prepared & Analyzed: 01/20/23											
Monomethylhydrazine (MMH)	ND	0.31	2.0	ug/l							
Blank (W3A1773-BLK2)											
Prepared: 01/20/23 Analyzed: 01/23/23											
Monomethylhydrazine (MMH)	ND	0.31	2.0	ug/l							QC-2
LCS (W3A1773-BS1)											
Prepared & Analyzed: 01/20/23											
Monomethylhydrazine (MMH)	20.7	0.31	2.0	ug/l	20.0		103	50-150			
LCS (W3A1773-BS2)											
Prepared: 01/20/23 Analyzed: 01/23/23											
Monomethylhydrazine (MMH)	27.6	0.31	2.0	ug/l	20.0		138	50-150			QC-2
Matrix Spike (W3A1773-MS1)											
Source: 3A06106-03 Prepared & Analyzed: 01/20/23											
Monomethylhydrazine (MMH)	15.5	0.31	2.0	ug/l	20.0	ND	77	50-150			
Matrix Spike Dup (W3A1773-MSD1)											
Source: 3A06106-03 Prepared & Analyzed: 01/20/23											
Monomethylhydrazine (MMH)	14.2	0.31	2.0	ug/l	20.0	ND	71	50-150	9	30	

Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
P-2	Sample received without proper preservation and was preserved at the lab upon receiving.
QC-2	This QC sample was reanalyzed to complement samples that require re-analysis on different date. See analysis date.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.


All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Analyses Accreditation Summary

Analyte	CAS #	Not By NELAP	ANAB ISO 17025
EPA 8315M in Water Monomethylhydrazine (MMH)	60-34-4	✓	

Reviewed by:



Tiffany T. Felix For Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



3A05035

eurofins

Environmental Testing

Client Information (Sub Contract Lab)		Sampler:	Lab P/N:	Carrier Tracking No(s):	COC No:					
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	570-203234-1	570-203234-1					
Company: Weck Laboratories, Inc.		Phone:	E-Mail: Virendra.Patel@et.eurofinsus.com	State of Origin: California	Page: Page 1 of 1					
Address: 14659 E. Clark Avenue, City: City of Industry State, Zip: CA, 91745 Phone: Email:		Accreditations Required (See note): State Program - California	Job #: 570-122390-4							
Project Name: Boeing SSFL NPDES - Outfall 002 - COMP Site:		Due Date Requested: 1/17/2023 TAT Requested (days):	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:							
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wateroil, BT= tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Week-Hydrzine/Week-Hydrzine Hold)	SUB (Week-Hydrzine/Week-Hydrzine Hold)	Total Number of Containers	Special Instructions/Note:
Outfall002_20230102_Comp (570-122390-2)	1/2/23	09:15 Pacific	Water	Water	X	X			1	See Attached Instructions
Outfall002_20230102_Comp_Extra (570-122390-3)	1/2/23	09:15 Pacific	Water	Water		X			1	See Attached Instructions

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify)
 Primary Deliverable Rank: 2

Special Instructions/QC Requirements:
 Return To Client Disposal By Lab Archive For Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Received by:	Date/Time:	Company:	Method of Shipment:
<i>[Signature]</i>	1/14/23 13:46	Company	Fedex
<i>[Signature]</i>	1/15/23 10:05	Company	
<i>[Signature]</i>		Company	

Cooler Temperature(s) °C and Other Remarks: 7.6 °C TD269



ICOC No:
570-203234

Containers

Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV needed
3	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine (Hold)	Level IV needed



ICOC No:
570-203139

Containers

Count 4 **Container Type** Amber Glass 1 liter - unpreserved **Preservative** None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV needed
3	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine (Hold)	Level IV needed





Sample Receipt Checklist



Weck WKO: 3A05035
 WKO Logged by: Algabriel Holanda
 Samples Checked by: ATH

Date/Time Received: 01/05/23 @ 10:05
 # Of Samples: 1
 Delivered by: Fedex

	Task	Yes	No	N/A	Comments
COC	COC present at receipt?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	COC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	COC matches sample labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Receipt Information	Sample Temperature			2.6°C	
	Samples received on ice?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Ice Type (Blue/Wet)			Wet	
	All samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Samples in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Sufficient sample volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Sample Preservation Verification?	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Sample labels checked for correct preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	VOC Headspace: (No) none, If Yes (See comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> <6mm/Pea size?
	pH verified upon receipt?				pH paper Lot# 2071882
	Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 525.2<2; 6710B<2; 608.3 5-9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preserved at Lab
	Free Chlorine Tested <0.1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cl Test Strip Lot# 061221E
	O&G pH <2 verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pH paper Lot#
	pH adjusted for O&G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pH Reading: Acid Lot# Amt added:
Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

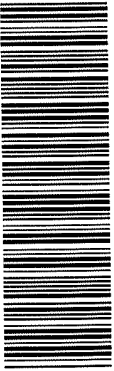
PM Comments

Sample Receipt Checklist Prepared by:

Signature: _____ Date: 01/05/23

122390

CHAIN OF CUSTODY FORM



570-122390 Chain of Custody

Test America

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Christian Bondoc
17461 Dertian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

Test America's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Adrien Mobeka

Project:
Boeing-SSFL NPDES
Permit 2023
Annual Outfall [001_002_011_018]
Outfall 002
Comp

Project Manager: Katherine Miller
520.289.8606; 520.904.6944 (cell)
Field Manager: Mark Dominick
978.234.5033; 818.589.0702 (cell)

Table with columns: ANALYSIS REQUIRED, Total Dissolved Metals, Cr (VI), Total (E218.6), Monomethyl hydrazine, Total Organic Carbon, 1,4-Dioxane, Chronic Toxicity, Selenium & Species, Radium, Tritium, Gross Alpha, Cyenide, Total Dissolved Metals, Zn Hardness, Ag, Cd, Cu, Pb, Sb, Se, Tl, MSMSD, Bottle #, Preservative, Container Type, Sample Matrix, Sampling Date/Time, Sample I.D., Outfall ID, Comments.

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Received By, Date/Time, Turn-around time, Sample Integrity, Data Requirements, All Level IV, X

2.3/2.3 2.6/2.6 2.1/2.1 1.2/1.2 1.3/1.3

ICOC No:
570-203234

Containers

Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV needed
3	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine (Hold)	Level IV needed



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122390-4

Login Number: 122390

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - COMP

JOB NUMBER

570-122390-5

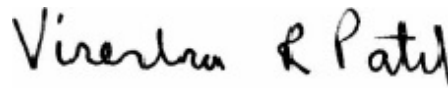
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Job ID: 570-122390-5

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122390-5

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.2° C, 1.3° C, 2.1° C, 2.3° C and 2.6° C.

Receipt Exceptions

The reference method requires samples to be preserved to a pH of <2 SU. The following samples were received with insufficient preservation at a pH of >2 SU: Outfall002_20230102_Comp_F (570-122390-1), Outfall002_20230102_Comp (570-122390-2) and Outfall002_20230102_Comp_Extra (570-122390-3). 570-122390-BC-2 and BD-2. The samples were preserved to the appropriate pH in the laboratory.

570-122390-BC-2 was received cracked.

RAD

Methods 900.0, 9310: Gross Alpha Beta prep batch 160-597138:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230102_Comp (570-122390-2), (LCS 160-597138/2-A), (LCSB 160-597138/3-A), (MB 160-597138/1-A), (570-122390-BC-2-E DU), (570-122390-BC-2-C MS) and (570-122390-BC-2-D MSBT)

Method 901.1: Gamma prep batch 160-595846:

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Job ID: 570-122390-5 (Continued)

Laboratory: Eurofins Calscience (Continued)

sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230102_Comp (570-122390-2), (LCS 160-595846/2-A), (MB 160-595846/1-A) and (570-122390-BD-2-B DU)

Method 903.0: Radium-226 batch 596127

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230102_Comp (570-122390-2), (LCS 160-596127/2-A), (MB 160-596127/1-A), (160-48493-E-2-A) and (160-48493-D-2-A DU)

Method 904.0: Radium-228 prep batch 160-596130:

The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative.

Outfall002_20230102_Comp (570-122390-2)

Method 904.0: Radium-228 prep batch 160-596130:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230102_Comp (570-122390-2), (LCS 160-596130/2-A), (MB 160-596130/1-A), (160-48493-E-2-B) and (160-48493-D-2-B DU)

Method 905: Strontium-90 batch 596504

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230102_Comp (570-122390-2), (LCS 160-596504/2-A), (MB 160-596504/1-A), (380-33412-AJ-1-A) and (380-33412-A-1-B DU)

Method 906.0: Tritium 597258

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230102_Comp (570-122390-2), (LCS 160-597258/2-A), (MB 160-597258/1-A), (160-48493-A-2-A), (160-48493-A-2-B MS), (160-48582-A-1-A) and (160-48582-A-1-C DU)

Method A-01-R: Isotopic Uranium batch 596512

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230102_Comp (570-122390-2), (LCS 160-596512/2-A), (MB 160-596512/1-A), (160-48520-A-1-A) and (160-48520-A-1-B DU)

Method ExtChrom: Uranium Prep Batch 160-596512:

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall002_20230102_Comp (570-122390-2).

Method PrecSep_0:

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Job ID: 570-122390-5 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method PrecSep-21:

Method PrecSep-7:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230102_Comp
 Date Collected: 01/02/23 09:15
 Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.45	U	1.45	1.46	3.00	2.33	pCi/L	01/17/23 09:22	01/19/23 21:00	1
Gross Beta	3.81		0.823	0.907	4.00	0.901	pCi/L	01/17/23 09:22	01/19/23 21:00	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230102_Comp
Date Collected: 01/02/23 09:15
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	4.92	U	9.26	9.27	20.0	11.9	pCi/L	01/06/23 10:05	01/26/23 11:39	1
Potassium-40	-29.6	U	135	135		208	pCi/L	01/06/23 10:05	01/26/23 11:39	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230102_Comp
 Date Collected: 01/02/23 09:15
 Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0627	U	0.118	0.118	1.00	0.214	pCi/L	01/09/23 11:46	02/01/23 10:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	63.1		40 - 110					01/09/23 11:46	02/01/23 10:24	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230102_Comp
Date Collected: 01/02/23 09:15
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.190	U G	0.843	0.843	1.00	1.53	pCi/L	01/09/23 12:10	01/19/23 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	63.1		40 - 110					01/09/23 12:10	01/19/23 12:20	1
Y Carrier	84.5		40 - 110					01/09/23 12:10	01/19/23 12:20	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230102_Comp
Date Collected: 01/02/23 09:15
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.265	U	0.268	0.269	3.00	0.436	pCi/L	01/11/23 10:43	01/24/23 19:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	83.9		40 - 110					01/11/23 10:43	01/24/23 19:36	1
Y Carrier	87.9		40 - 110					01/11/23 10:43	01/24/23 19:36	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230102_Comp
 Date Collected: 01/02/23 09:15
 Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-14.0	U	160	160	500	300	pCi/L	01/17/23 15:44	01/20/23 15:12	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230102_Comp
 Date Collected: 01/02/23 09:15
 Date Received: 01/03/23 17:05

Lab Sample ID: 570-122390-2
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.900		0.445	0.449	1.00	0.357	pCi/L	01/11/23 12:14	01/16/23 22:24	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	71.7		30 - 110					01/11/23 12:14	01/16/23 22:24	1

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
160-48493-D-2-A DU	Duplicate	83.5	
570-122390-2	Outfall002_20230102_Comp	63.1	
LCS 160-596127/2-A	Lab Control Sample	90.5	
MB 160-596127/1-A	Method Blank	97.2	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
160-48493-D-2-B DU	Duplicate	83.5	84.1
570-122390-2	Outfall002_20230102_Comp	63.1	84.5
LCS 160-596130/2-A	Lab Control Sample	90.5	84.1
MB 160-596130/1-A	Method Blank	97.2	84.1
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (40-110)	Y (40-110)
380-33412-A-1-B DU	Duplicate	71.6	82.6
570-122390-2	Outfall002_20230102_Comp	83.9	87.9
LCS 160-596504/2-A	Lab Control Sample	86.3	86.0
MB 160-596504/1-A	Method Blank	80.2	86.4
Tracer/Carrier Legend			
Sr = Sr Carrier			
Y = Y Carrier			

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
160-48520-A-1-B DU	Duplicate	80.9	
570-122390-2	Outfall002_20230102_Comp	71.7	
LCS 160-596512/2-A	Lab Control Sample	87.6	
MB 160-596512/1-A	Method Blank	90.8	
Tracer/Carrier Legend			
U-232 = Uranium-232			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-597138/1-A
Matrix: Water
Analysis Batch: 597550

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597138

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.08553	U	0.604	0.604	3.00	1.11	pCi/L	01/17/23 09:22	01/19/23 20:42	1
Gross Beta	-0.06305	U	0.538	0.538	4.00	0.966	pCi/L	01/17/23 09:22	01/19/23 20:42	1

Lab Sample ID: LCS 160-597138/2-A
Matrix: Water
Analysis Batch: 597550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Gross Alpha	50.5	57.54		8.18	3.00	2.19	pCi/L	114	75 - 125

Lab Sample ID: LCSB 160-597138/3-A
Matrix: Water
Analysis Batch: 597550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Gross Beta	73.8	72.30		7.76	4.00	0.990	pCi/L	98	75 - 125

Lab Sample ID: 570-122390-2 MS
Matrix: Water
Analysis Batch: 597549

Client Sample ID: Outfall002_20230102_Comp
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Gross Alpha	1.45	U	50.5	40.54		6.39	3.00	2.57	pCi/L	77	60 - 140

Lab Sample ID: 570-122390-2 MSBT
Matrix: Water
Analysis Batch: 597549

Client Sample ID: Outfall002_20230102_Comp
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Gross Beta	3.81		73.8	77.63		8.31	4.00	0.941	pCi/L	100	60 - 140

Lab Sample ID: 570-122390-2 DU
Matrix: Water
Analysis Batch: 597549

Client Sample ID: Outfall002_20230102_Comp
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	1.45	U	3.137		1.53	3.00	1.89	pCi/L	0.56	1
Gross Beta	3.81		3.216		0.863	4.00	0.925	pCi/L	0.33	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-595846/1-A
Matrix: Water
Analysis Batch: 598374

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 595846

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	0.6309	U	13.1	13.1	20.0	17.3	pCi/L	01/06/23 10:05	01/26/23 02:55	1
Potassium-40	-72.62	U	163	163		237	pCi/L	01/06/23 10:05	01/26/23 02:55	1

Lab Sample ID: LCS 160-595846/2-A
Matrix: Water
Analysis Batch: 598374

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 595846

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	137000	120800		14400		249	pCi/L	88	75 - 125
Cesium-137	42600	38680		4610	20.0	124	pCi/L	91	75 - 125
Cobalt-60	18900	17410		2080		64.3	pCi/L	92	75 - 125

Lab Sample ID: 570-122390-2 DU
Matrix: Water
Analysis Batch: 598375

Client Sample ID: Outfall002_20230102_Comp
Prep Type: Total/NA
Prep Batch: 595846

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Cesium-137	4.92	U	4.599	U	10.1	20.0	12.2	pCi/L		0.02
Potassium-40	-29.6	U	-26.43	U	119		162	pCi/L		0.01

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-596127/1-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596127

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.0006334	U	0.0440	0.0440	1.00	0.0568	pCi/L	01/09/23 11:46	02/01/23 10:20	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.2		40 - 110	01/09/23 11:46	02/01/23 10:20	1

Lab Sample ID: LCS 160-596127/2-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596127

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	11.68		1.19	1.00	0.0520	pCi/L	103	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.5		40 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 160-48493-D-2-A DU
Matrix: Water
Analysis Batch: 598876

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596127

Analyte	Sample	Sample	DU		Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert.					
Radium-226	0.0121	U	0.04925	U	0.0844	1.00	0.146	pCi/L	0.25	1
DU DU										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	83.5		40 - 110							

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-596130/1-A
Matrix: Water
Analysis Batch: 597548

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596130

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert.	Uncert.						
Radium-228	0.4466		0.336	0.339	1.00	0.313	pCi/L	01/09/23 12:10	01/19/23 12:19	1
MB MB										
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	97.2		40 - 110				01/09/23 12:10	01/19/23 12:19	1	
Y Carrier	84.1		40 - 110				01/09/23 12:10	01/19/23 12:19	1	

Lab Sample ID: LCS 160-596130/2-A
Matrix: Water
Analysis Batch: 597548

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596130

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec
		Result	Qual	Uncert.					
Radium-228	8.26	10.28		1.38	1.00	0.299	pCi/L	124	75 - 125
LCS LCS									
Carrier	%Yield	Qualifier	Limits						
Ba Carrier	90.5		40 - 110						
Y Carrier	84.1		40 - 110						

Lab Sample ID: 160-48493-D-2-B DU
Matrix: Water
Analysis Batch: 597550

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596130

Analyte	Sample	Sample	DU		Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert.					
Radium-228	0.409	U	0.08084	U	0.355	1.00	0.639	pCi/L	0.37	1
DU DU										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	83.5		40 - 110							
Y Carrier	84.1		40 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-596504/1-A
Matrix: Water
Analysis Batch: 598066

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596504

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.08468	U	0.192	0.193	3.00	0.332	pCi/L	01/11/23 10:43	01/24/23 19:32	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier		Prepared	Analyzed					
Sr Carrier	80.2		40 - 110			01/11/23 10:43	01/24/23 19:32	1		
Y Carrier	86.4		40 - 110			01/11/23 10:43	01/24/23 19:32	1		

Lab Sample ID: LCS 160-596504/2-A
Matrix: Water
Analysis Batch: 598066

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596504

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Strontium-90	7.38	7.567		0.837	3.00	0.349	pCi/L	103	75 - 125
Carrier	LCS LCS		Limits			Prepared	Analyzed	Dil Fac	
	%Yield	Qualifier		Prepared	Analyzed				
Sr Carrier	86.3		40 - 110						
Y Carrier	86.0		40 - 110						

Lab Sample ID: 380-33412-A-1-B DU
Matrix: Water
Analysis Batch: 598066

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596504

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Strontium-90	0.336		-0.08960	U	0.224	3.00	0.418	pCi/L	1.02	1
Carrier	DU DU		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier		Prepared	Analyzed					
Sr Carrier	71.6		40 - 110							
Y Carrier	82.6		40 - 110							

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-597258/1-A
Matrix: Water
Analysis Batch: 597783

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597258

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-17.12	U	159	159	500	299	pCi/L	01/17/23 15:44	01/20/23 13:46	1

Lab Sample ID: LCS 160-597258/2-A
Matrix: Water
Analysis Batch: 597783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597258

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Tritium	2120	1984		385	500	299	pCi/L	94	75 - 125

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 160-48493-A-2-B MS
 Matrix: Water
 Analysis Batch: 597783

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 597258

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Tritium	1.80	U	2110	1844		381	500	316	pCi/L	87	60 - 140

Lab Sample ID: 160-48582-A-1-C DU
 Matrix: Water
 Analysis Batch: 597783

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 597258

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Tritium	-57.2	U	35.14	U	162	500	289	pCi/L	0.30	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-596512/1-A
 Matrix: Water
 Analysis Batch: 596962

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 596512

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.1953		0.152	0.152	1.00	0.171	pCi/L	01/11/23 12:14	01/13/23 14:11	1
<i>Tracer</i>	<i>%Yield</i>	<i>MB Qualifier</i>	<i>Limits</i>					<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	90.8		30 - 110					01/11/23 12:14	01/13/23 14:11	1

Lab Sample ID: LCS 160-596512/2-A
 Matrix: Water
 Analysis Batch: 596969

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 596512

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Uranium-234	12.7	12.40		1.47	1.00	0.154	pCi/L	97	75 - 125
Uranium-238	13.0	13.08		1.53	1.00	0.132	pCi/L	100	75 - 125
<i>Tracer</i>	<i>LCS %Yield</i>	<i>LCS Qualifier</i>	<i>Limits</i>						
Uranium-232	87.6		30 - 110						

Lab Sample ID: 160-48520-A-1-B DU
 Matrix: Water
 Analysis Batch: 597029

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 596512

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Total Uranium	0.159		0.07438	U	0.1125	1.00	0.163	pCi/L	0.35	1
<i>Tracer</i>	<i>DU %Yield</i>	<i>DU Qualifier</i>	<i>Limits</i>							
Uranium-232	80.9		30 - 110							

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Rad

Prep Batch: 595846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-595846/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-595846/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-122390-2 DU	Outfall002_20230102_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 596127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	PrecSep-21	
MB 160-596127/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-596127/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-48493-D-2-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 596130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	PrecSep_0	
MB 160-596130/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-596130/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-48493-D-2-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 596504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	PrecSep-7	
MB 160-596504/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-596504/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
380-33412-A-1-B DU	Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 596512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	ExtChrom	
MB 160-596512/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-596512/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
160-48520-A-1-B DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 597138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	Evaporation	
MB 160-597138/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-597138/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-597138/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-122390-2 MS	Outfall002_20230102_Comp	Total/NA	Water	Evaporation	
570-122390-2 MSBT	Outfall002_20230102_Comp	Total/NA	Water	Evaporation	
570-122390-2 DU	Outfall002_20230102_Comp	Total/NA	Water	Evaporation	

Prep Batch: 597258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122390-2	Outfall002_20230102_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-597258/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-597258/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
160-48493-A-2-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
160-48582-A-1-C DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Client Sample ID: Outfall002_20230102_Comp

Lab Sample ID: 570-122390-2

Date Collected: 01/02/23 09:15

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			199.99 mL	1.0 g	597138	01/17/23 09:22	MST	EET SL
Total/NA	Analysis	900.0		1			597549	01/19/23 21:00	SCB	EET SL
Instrument ID: GFPCORANGE										
Total/NA	Prep	Fill_Geo-0			500 mL	1.0 g	595846	01/06/23 10:05	JML	EET SL
Total/NA	Analysis	901.1		1			598374	01/26/23 11:39	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			492.35 mL	1.0 g	596127	01/09/23 11:46	DJP	EET SL
Total/NA	Analysis	903.0		1			598871	02/01/23 10:24	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			492.35 mL	1.0 g	596130	01/09/23 12:10	DJP	EET SL
Total/NA	Analysis	904.0		1			597548	01/19/23 12:20	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			751.61 mL	1.0 g	596504	01/11/23 10:43	DJP	EET SL
Total/NA	Analysis	905		1			598066	01/24/23 19:36	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			101.15 mL	1.0 g	597258	01/17/23 15:44	SEH	EET SL
Total/NA	Analysis	906.0		1			597783	01/20/23 15:12	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			302.85 mL	1.0 mL	596512	01/11/23 12:14	MAL	EET SL
Total/NA	Analysis	A-01-R		1			597033	01/16/23 22:24	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122390-2	Outfall002_20230102_Comp	Water	01/02/23 09:15	01/03/23 17:05

1

2

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12

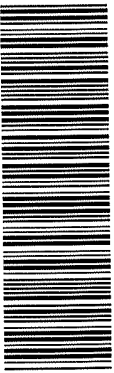
13

14

15

122390

Test America



570-122390 Chain of Custody

CHAIN OF CUSTODY FORM

Page 1 of 2

Client Name/Address:
 Haley & Aldrich
 5333 Mission Center Rd Suite 300
 San Diego, CA 92108

Project:
 Boeing-SSFL NPDES
 Permit 2023
 Annual Outfall [001_002_011_018]
 Outfall 002
 Comp

Field Manager: Mark Dominick
 978.234.5033, 818.589.0702 (cell)

Sample Matrix: WM

Sampling Date/Time: 1/2/2023 / 10:15

Sample I.D.: Outfall002_20230102_Comp_F

Container Type: 1 L Poly

Preservative: None

MSMSD: Yes

Boiler #: 190

Sample Matrix: WM

Sampling Date/Time: 1/2/2023 / 10:15

Sample I.D.: Outfall002_20230102_Comp

Container Type: borosilicate vials

Preservative: None

MSMSD: Yes

Boiler #: 320

Sample Matrix: WM

Sampling Date/Time: 1/2/2023 / 10:15

Sample I.D.: Outfall002_20230102_Comp_Extra

Container Type: 1 L Glass Amber

Preservative: HCl

MSMSD: No

Boiler #: 240

Sample Matrix: WM

Sampling Date/Time: 1/2/2023 / 10:15

Sample I.D.: Outfall002_20230102_Comp_Extra

Container Type: 1 L Glass Amber

Preservative: None

MSMSD: No

Boiler #: 255

ANALYSIS REQUIRED

Total Dissolved Metals (E245.1)

Cr (VI), Total (E218.6)

Monomethyl hydrazine (SW8315M/DV-WC-0077)

Total Organic Carbon (415.2 (SM 8310B))

1,4-Dioxane (E624 (SW8260M_SIM))

Sensitivity (EPA-821-R-02-013) ABC Labs in Ventura CA

Chronic Toxicity Selenium & Species CS-137 (E901.0 or E901.1)

Radium 226 (E904.0), Uranium (E908.0) K-40, Tritium (H-3) (E906.0) Sr-90 (E905.0), Total Gross Alpha (E900.0), Gross Beta (E900.0)

Cyanide (SM4500-CN-E / E935.2)

Zn Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Ti

Total Dissolved Metals (E200.7) As, Ba, B, Be, Co, Cr, Fe, Mn, Ni, V

Unfiltered and unpreserved analysis, Separate ROD into another workorder Analyze appropriate, not MSMSD. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA

Filter and preserve within 24hrs of receipt at lab. Outfall 018 analyze for AL.

Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.

Hold

Hold

Turn-around time: (Check)
 24 Hour _____ 72 Hour _____ 10 Day _____ X
 48 Hour _____ 5 Day _____ Normal _____

Sample Integrity: (Check)
 Inact: _____ On Ice: _____
 Store samples for 6 months.
 Data Requirements: (Check)
 No Level IV: _____ All Level IV: _____ X

Received By: *[Signature]* Date/Time: 1/3/23/1245 EC
 Received By: *[Signature]* Date/Time: 12/13/23 1705 EC
 Received By: *[Signature]* Date/Time: 01/03/23 1705 EC

Company: HA
 Company: EC
 Company: EC

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

2.3/2.3 2.6/2.6 2.1/2.1 1.2/1.2 1.3/1.3



CHAIN OF CUSTODY FORM

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 001 002, 011, 016 Outfall 002 Comp</p>		<p>R/A R R R R/A R R R A A R</p>									
<p>Test America Contact: Christian Bontoc 17461 Denan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)</p>		<p>ANALYSIS REQUIRED</p>									
<p>Test America's services under this CoC shall be performed in accordance with the T&Cs within Client Service Agreement #2019-22, TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories, Inc.</p>		<p>Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>Priority Pollutants-SVOCs (E25)</p>									
<p>Sampler: Adrien Mobeka</p>		<p>MS/MSD</p>		<p>Priority Pollutants-Pesticides+PCBs (E608)</p>									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	TSS (160.2 (SM2540D))	Ammonia-N (E30.2)	Priority Pollutants-SVOCs (E25)	Total Recoverable Metals, Mercury (E24.1)	<p>Comments</p>	
	Outfall002_20230102_Comp	1/2/2023 10:15	WM	500 mL Poly	3	HNO ₃	80						
			WM	1 L Glass Amber	2	None	110						
			WM	1 L Poly	1	None	115						
			WM	500 mL Poly	6	None	120						
			WM	500 mL Poly	6	None	125						
			WM	500 mL Poly	1	None	150						
			WM	500 mL Poly	3	H ₂ SO ₄	160						
			WM	1 L Glass Amber	6	None	250						
			WM	1 L Glass Amber	6	None	175						
			WM	1 L Poly	1	None	185						
			WM	1 L Glass Amber	2	None	110						
			WM	500 mL Poly	2	None	120						
			WM	500 mL Poly	2	None	125						
			WM	1 L Glass Amber	2	None	250						
			WM	1 L Glass Amber	2	None	175						
	Outfall002_20230102_Comp_Extra	1/2/2023 10:15	WM	500 mL Poly	2	None	125						
			WM	1 L Glass Amber	2	None	250						
			WM	1 L Glass Amber	2	None	175						

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>HA</i>	Date/Time: 1-3-23/1245	Received By: <i>EC</i>	Date/Time: 1/3/23/1245
Relinquished By: <i>EC</i>	Date/Time: 01/03/23 1705	Received By: <i>EC</i>	Date/Time: 1/3/23 1705
Relinquished By: <i>EC</i>	Date/Time: 01/03/23 1705	Received By: <i>EC</i>	Date/Time: 1/3/23 1705



ICOC No:
570-203234

Containers

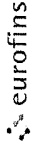
Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV needed
3	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine (Hold)	Level IV needed



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Carrier Tracking No(s): 570-203260 1																																																																						
Shipping/Receiving: Virendra Patel@et.eurofins.com		State of Origin: California	Page: Page 1 of 1																																																																						
Company: TestAmerica Laboratories Inc.		Accreditations Required (See note): State Program - California	Job #: 570-122390-1																																																																						
Address: 13715 Rider Trail North		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:																																																																							
City: Earth City		Analysis Requested <table border="1"> <thead> <tr> <th>Sample ID</th> <th>Sample Name</th> <th>Sample Type</th> <th>Sample Time</th> <th>Sample Date</th> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>900.0/Evaporation Gross Alpha/Beta</th> <th>906.0/LSC_Dist_Susp Tritium</th> <th>906.0/Presep_21 Radium-226</th> <th>904.0/Presep_0 Radium-228</th> <th>A01R_U/ExtChrom_Actin Total Uranium</th> <th>901.1_Cs/Fill_Geo_0 K-40 and Csium-137</th> <th>Total Number of Containers</th> </tr> </thead> <tbody> <tr> <td>Outfall002_20230102_Comp (570-122390-2)</td> <td></td> <td>Water</td> <td>09 15 Pacific</td> <td>1/2/23</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>6</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Sample ID	Sample Name	Sample Type	Sample Time	Sample Date	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	906.0/Presep_21 Radium-226	904.0/Presep_0 Radium-228	A01R_U/ExtChrom_Actin Total Uranium	901.1_Cs/Fill_Geo_0 K-40 and Csium-137	Total Number of Containers	Outfall002_20230102_Comp (570-122390-2)		Water	09 15 Pacific	1/2/23	X	X	X	X	X	X	X	X	6																																										
Sample ID	Sample Name			Sample Type	Sample Time	Sample Date	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	906.0/Presep_21 Radium-226	904.0/Presep_0 Radium-228	A01R_U/ExtChrom_Actin Total Uranium	901.1_Cs/Fill_Geo_0 K-40 and Csium-137	Total Number of Containers																																																										
Outfall002_20230102_Comp (570-122390-2)				Water	09 15 Pacific	1/2/23	X	X	X	X	X	X	X	X	6																																																										
State, Zip: MO, 63045		Special Instructions/Note: Boeing SSFL DO NOT FILTER, use prep date from preservation																																																																							
Phone: 314-298-8566(Tel) 314-298-8757(Fax)																																																																									
Email:																																																																									
Project Name: Boeing SSFL NPDES - Outfall 002 - COMP																																																																									
Site:																																																																									
Due Date Requested: 1/17/2023																																																																									
TAT Requested (days):																																																																									
PO #:																																																																									
WO #:																																																																									
Project #: 44024446																																																																									
SSOW#:																																																																									
Matrix (W=water, S=solid, O=wastewat, BT=Tissue, A=air)																																																																									
Sample Type (C=Comp, G=grab)																																																																									
Sample Time																																																																									
Sample Date																																																																									
Sample Identification - Client ID (Lab ID)																																																																									
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Total Number of Containers																																																																									

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2
 Empty Kit Relinquished by: [Signature]
 Relinquished by: [Signature] Date: 1/4/23 15:28 Company: Company
 Relinquished by: [Signature] Date/Time: [Signature] Date/Time: Company: Company
 Relinquished by: [Signature] Date/Time: [Signature] Date/Time: Company: Company
 Custody Seals Intact: Custody Seal No
 Δ Yes Δ No
 Cooler Temperature(s) °C and Other Remarks: Ver 06/08/2021



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122390-5

Login Number: 122390

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122390-5

Login Number: 122390

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 01/05/23 11:43 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	570-122390-BC-2 and BD-2 were received with a pH >2 SU.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 3/11/2023 3:16:21 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - COMP

JOB NUMBER

570-122390-6

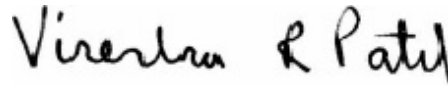
Job Notes

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender and destroy this report immediately. This report shall not be reproduced except in full, without prior express written approval by the laboratory.

The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
3/11/2023 3:16:21 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-122390-6

Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-6

Job ID: 570-122390-6

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122390-6

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.2° C, 1.3° C, 2.1° C, 2.3° C and 2.6° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method EPA 608.3 Low Level - Endrin Aldehyde only (ug/L units) - MDL(J): This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - COMP

Job ID: 570-122390-6

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122390-3	Outfall002_20230102_Comp_Extra	Water	01/02/23 09:15	01/03/23 17:05

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

Work Orders: 3B02112

Project: 570-122390-6

Attn: Virendra Patel

Client: Eurofins Calscience - Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Report Date: 3/09/2023

Received Date: 2/2/2023

Turnaround Time: Normal

Phones: (949) 261-1022

Fax: (949) 260-3297

P.O. #:

Billing Code:

Dear Virendra Patel,

Enclosed are the results of analyses for samples received 2/02/23 with the Chain-of-Custody document. The samples were received in good condition, at 1.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Outfall002_20230102_Comp_Extra (570-122390-3) Sampled: 01/02/23 9:15 by Client
3B02112-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 608.3			Instr: GC07				
Batch ID: W3B0658		Preparation: EPA 608/L-L SF			Prepared: 02/08/23 10:02		Analyst: RJG
Endrin aldehyde	ND	0.0019	0.0050	ug/l	1	03/02/23	O-09
<i>Surrogate(s)</i>							
Decachlorobiphenyl	77%		33-133	Conc: 0.0741		03/02/23	
Tetrachloro-meta-xylene	67%		32-130	Conc: 0.0643		03/02/23	

Quality Control Results

Chlorinated Pesticides and/or PCBs by GC/ECD

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Blank (W3B0658-BLK1)					Prepared: 02/08/23 Analyzed: 03/01/23						
Endrin aldehyde	ND	0.0019	0.0050	ug/l							
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0752			ug/l	0.100		75	33-133			
Tetrachloro-meta-xylene	0.0603			ug/l	0.100		60	32-130			
LCS (W3B0658-BS1)					Prepared: 02/08/23 Analyzed: 03/01/23						
Endrin aldehyde	0.0677	0.0019	0.0050	ug/l	0.100		68	18-130			
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0759			ug/l	0.100		76	33-133			
Tetrachloro-meta-xylene	0.0589			ug/l	0.100		59	32-130			
LCS Dup (W3B0658-BSD1)					Prepared: 02/08/23 Analyzed: 03/01/23						
Endrin aldehyde	0.0582	0.0019	0.0050	ug/l	0.100		58	18-130	15	30	
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0647			ug/l	0.100		65	33-133			
Tetrachloro-meta-xylene	0.0453			ug/l	0.100		45	32-130			

Notes and Definitions

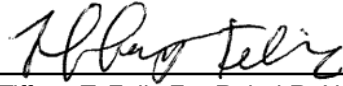
Item	Definition
O-09	This sample was received with the EPA recommended holding time expired.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:



Tiffany T. Felix For Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

301

ICOC No:
570-206007

Containers

Count 2 Container Type Amber Glass 1 liter - unpreserved Preservative None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
3	SUBCONTRACT	SUB (EPA 608.3 Low Level - Endrin Aldehyde only (ug/L units) - MDL(J))	Level IV, EQUIS 5C, MDL reporting w/J flag. Per ug/L



COC	COC matches sample labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Receipt Information	Sample Temperature		1.9°C	
	Samples received on ice?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Ice Type (Blue/Wet)		WET	
	All samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Sufficient sample volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sample Preservation Verification?	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Sample labels checked for correct preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	VOC Headspace: (No) none, If Yes (See comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	pH verified upon receipt?			
	Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 525.2<2; 6710B<2; 608.3 5-9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Free Chlorine Tested <0.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	O&G pH <2 verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	pH adjusted for O&G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

08

PM Comments

Sample Receipt Checklist Prepared by:

Signature: Lester Abad

Date: 02/02/23

QAF-006 V1.0 12/16/2021

F:\SC\ Resources\Forms\220509 Sample Receipt Checklist.docx[Type here]

122390

CHAIN OF CUSTODY FORM



570-122390 Chain of Custody

Test America

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108

Test America Contact: Christian Bondoc 17461 Dertian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218

Test America's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Adrien Mobeka

Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [001_002_011_018] Outfall 002 Comp

Project Manager: Katherine Miller 520.289.8606; 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033; 818.589.0702 (cell)

Table with columns: Sample Description, Sample Matrix, Sampling Date/Time, Container Type, # of Cont., Preservative, Bottle #, MSMSD, Total Dissolved Metals, Cyanide, Gross Alpha, Tritium, Radium, Chronic Toxicity, Total Organic Carbon, Cr(VI), Total Dissolved Metals, Comments.

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Administrative section with fields for Date/Time, Company, Received By, Retinquished By, Turn-around time, Sample Integrity, and Data Requirements.

Handwritten notes: 2.3/2.3 2.6/2.6 2.1/2.1 1.2/1.2 1.3/1.3



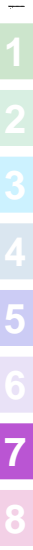
ICOC No:
570-203234

Containers

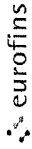
Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV needed
3	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine (Hold)	Level IV needed



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler		Lab PM: Virendra Patel		Carrier Tracking No(s): 570-203260 1	
Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofins.com <td colspan="2">State of Origin: California </td>		State of Origin: California	
Company: TestAmerica Laboratories Inc.		Due Date Requested: 1/17/2023		Accreditations Required (See note): State Program - California		Job #: 570-122390-1	
Address: 13715 Rider Trail North		TAT Requested (days):		Analysis Requested		Preservation Codes	
City: Earth City		PO #:		900.0/Evaporation Gross Alpha/Beta		A - HCL	
State, Zip: MO, 63045		WO #:		900.0/LSC_Dist_Susp Tritium		B - NaOH	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Project #:		904.0/Presep_21 Radium-226		C - Zn Acetate	
Email:		44024446		905.0/Presep_7 Radium-226		D - Nitric Acid	
Project Name: Boeing SSFL NPDES - Outfall 002 - COMP		SSOW#:		906.0/SC_Dist_Susp Tritium		E - NaHSO4	
Site:		Sample Date		900.0/Evaporation Gross Alpha/Beta		F - MeOH	
Sample Identification - Client ID (Lab ID)		Sample Time		Perform MS/MSD (Yes or No)		G - Amchlor	
Outfall002_20230102_Comp (570-122390-2)		09 15 Pacific		Field Filled Sample (Yes or No)		H - Ascorbic Acid	
Sample Date		1/2/23		Matrix		I - Ice	
Sample Time		09 15 Pacific		W-water, S-solid, O-wastewat, BT-Tissue, A-air		J - DI Water	
Sample Date		1/2/23		Preservation Code:		K - EDTA	
Sample Time		09 15 Pacific		Water		L - EDA	
Sample Date		1/2/23		Field Filled Sample (Yes or No)		Other:	
Sample Time		09 15 Pacific		Perform MS/MSD (Yes or No)		M - Hexane	
Sample Date		1/2/23		Field Filled Sample (Yes or No)		N - None	
Sample Time		09 15 Pacific		Perform MS/MSD (Yes or No)		O - AsNaO2	
Sample Date		1/2/23		Field Filled Sample (Yes or No)		P - Na2O4S	
Sample Time		09 15 Pacific		Perform MS/MSD (Yes or No)		Q - Na2SO3	
Sample Date		1/2/23		Field Filled Sample (Yes or No)		R - Na2S2O3	
Sample Time		09 15 Pacific		Perform MS/MSD (Yes or No)		S - H2SO4	
Sample Date		1/2/23		Field Filled Sample (Yes or No)		T - TSP Dodecahydrate	
Sample Time		09 15 Pacific		Perform MS/MSD (Yes or No)		U - Acetone	
Sample Date		1/2/23		Field Filled Sample (Yes or No)		V - MCAA	
Sample Time		09 15 Pacific		Perform MS/MSD (Yes or No)		W - pH 4.5	
Sample Date		1/2/23		Field Filled Sample (Yes or No)		Y - Trizma	
Sample Time		09 15 Pacific		Perform MS/MSD (Yes or No)		Z - other (specify)	
Sample Date		1/2/23		Field Filled Sample (Yes or No)		Total Number of containers	
Sample Time		09 15 Pacific		Perform MS/MSD (Yes or No)		6	
Sample Date		1/2/23		Field Filled Sample (Yes or No)		Special Instructions/Note:	
Sample Time		09 15 Pacific		Perform MS/MSD (Yes or No)		Boeing SSFL DO NOT FILTER, use prep date from preservation	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *[Signature]* Date: 1/4/23 1528 Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No _____
 Δ Yes Δ No Cooler Temperature(s) °C and Other Remarks: _____

Ver: 06/08/2021



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122390-6

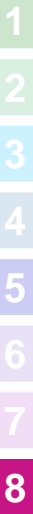
Login Number: 122390

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 1/19/2023 2:55:00 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002

JOB NUMBER

570-122425-1

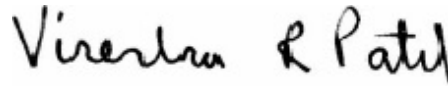
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
1/19/2023 2:55:00 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Case Narrative	5
Method Summary	6
Sample Summary	7
Subcontract Data	8
Chain of Custody	20

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122425-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122425-1

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Job ID: 570-122425-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122425-1

Comments

No additional comments.

Receipt

The sample was received on 1/3/2023 5:05 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122425-1

Method	Method Description	Protocol	Laboratory
1103.1	E. Coli	EPA	Enthalpy

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122425-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122425-1	Outfall002_20230103_Grab	Water	01/03/23 09:40	01/03/23 17:05

- 1
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Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 476417
Report Level: IV
Report Date: 01/18/2023

Microbiology Tests

Analytical Report *prepared for:*

Virendra Patel
Eurofins Calscience Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Project: BOEING NPDES SSFL - BOEING SSFL NPDES - Outfall 002

Authorized for release by:

Quynhgiao Le, Project Manager
714-7716900
quynhgiao.le@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105



Sample Summary

Virendra Patel	Lab Job #:	476417
Eurofins Calscience Tustin	Project No:	BOEING NPDES SSFL
2841 Dow Avenue, Suite 100	Location:	BOEING SSFL NPDES - Outfall 002
Tustin, CA 92780	Date Received:	01/03/23

Sample ID	Lab ID	Collected	Matrix
OUTFALL002_20230103_GRAB	476417-001	01/03/23 09:40	Water

Case Narrative

MICROBIOLOGY TESTS (SM 9223BB)

Eurofins Calscience Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Virendra Patel

Lab Job Number: 476417
Project No: BOEING NPDES SSFL
Location: BOEING SSFL NPDES - Outfall 002
Date Received: 01/03/23

This data package contains sample and QC results for one water sample, requested for the above referenced project on 01/03/23. See attached cooler receipt form for any sample receipt problems or discrepancies.

Chain of Custody

Quynhgiao Le

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com> on behalf of Virendra Patel
Sent: Thursday, January 12, 2023 11:42 AM
To: Quynhgiao Le
Subject: [EXTERNAL] FW: BOEING NPDES SSFL - Enthalpy Login Summary (476417)
Attachments: 476417_COC.pdf

Quynhgiao –

Please update the sample ID to “Outfall002_20230103_Grab” on ECI Job#570-122425

Please use this email as record for the change. Thank you!

Best Regards,

Virendra Patel
Project Manager

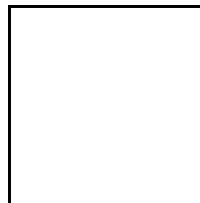
Eurofins Environment Testing Southwest, LLC
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895 5494
Direct: 657-210-6327
Mobile: 714-887-9901

Virendra.Patel@ET.EurofinsUS.com
www.EurofinsUS.com/Env

Follow Us! [Facebook](#) | [LinkedIn](#)

From: Enthalpy Orange Sample Control <sample.control.orange@enthalpy.com>
Sent: Wednesday, January 4, 2023 3:44 PM
To: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Subject: BOEING NPDES SSFL - Enthalpy Login Summary (476417)

EXTERNAL EMAIL*



Enthalpy Login Summary for 476417

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Project: BOEING NPDES SSFL
Site: BOEING SSFL NPDES - Outfall 002
Lab Login #: 476417
Report Level: IV
PO#: 44024446
Lab Proj Mgr: [Quynhgiao Le](#)
TAT: 10 business days

Report To: Eurofins Calscience Tustin
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 ATTN: Virendra Patel
 949-261-1022

Bill To: Eu
 28
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Client ID	Lab ID	Sampled	Received	COC #	Matrix	Analyses
OUTFALL 002 (570-122425-1)	001	01/03/23 09:40	01/03/23			
					Water	Total Coliform and E. coli Quanti-Tray
					Water	20% Surcharge for Level I Package
					Water	Each Additional Dilution

*Unless otherwise agreed in writing, these services are provided pursuant to the terms and conditions as set forth at [h and-conditions/](#).
 Enthalpy???'s acceptance of this order is expressly limited to these terms and conditions.*

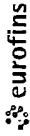
Email compiled and sent 01/04/23 03:43 PM.

* WARNING - EXTERNAL: This email originated from outside of Eurofins Environment Testing America. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tuslin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record

476417



Environment Testing

Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Center Tracking No(s):	
Client Contact: 2841 Dow Avenue, Suite 100, Tuslin, CA 92780, Phone: 714-895-5494		Patel, Virendra	570-203167.1	570-203167.1	
Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	Page: Page 1 of 1	Lab #: 570-122425-1	
Company: Enthalpy Analytical LLC		Accreditations Required (See note): State Program - California	Preservation Codes:		
Address: 931 W. Barkley Ave, Orange, CA, 92668		Due Date Requested: 1/17/2023	M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)		
City: Orange		TAT Requested (days):	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - NaOH G - Amelhor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		
State, Zip: CA, 92668		PO #:	Analysis Requested		
Phone:		WO #:	Total Number of Containers		
Email:		Project #: 44024446	Special Instructions/Note:		
Site: Boeing SSFL NPDES - Outfall 002		SSOW#:	10		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Oil, BT, Tissue, Air)
Outfall 002 (570-122425-1)		1/3/23	09:40 Pacific	Water	Water
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)	Sub (Quant-Tray - E, Coll - level & required - F, Coll - level & required)	Special Instructions/Note:	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	See Attached Instructions	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analysis & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>					
Possible Hazard Identification					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)					
Primary Deliverable Rank: 2					
Empty Kit Relinquished by:					
Relinquished by:					
Relinquished by:					
Relinquished by:					
Custody Seals Intact: Custody Seal No.:					
Δ Yes Δ No					
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements:					
Time:					
Date:					
Date/Time:					
Date/Time:					
Date/Time:					
Date/Time:					
Cooler Temperature(s) °C and Other Remarks:					





SAMPLE ACCEPTANCE CHECKLIST

Section 1
 Client: Eurofins Calscience Project: Boeing SSFL NPDES
 Date Received: 1/3/23 Sampler's Name Present: Yes No

Section 2
 Sample(s) received in a cooler? Yes, How many? 1 No (skip section 2) Sample Temp (°C) (No Cooler) : _____
 Sample Temp (°C), One from each cooler: #1: 7.8 #2: _____ #3: _____ #4: _____
(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)
 Shipping Information: _____

Section 3
 Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam
 Paper None Other _____
 Cooler Temp (°C): #1: 1.8 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	X		
Are sample IDs present?	X		
Are sampling dates & times present?	X		
Is a relinquished signature present?	X		
Are the tests required clearly indicated on the COC?	X		
Are custody seals present?		X	
If custody seals are present, were they intact?			X
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	X		
Did all samples arrive intact? If no, indicate in Section 4 below.	X		
Did all bottle labels agree with COC? (ID, dates and times)	X		
Were the samples collected in the correct containers for the required tests?	X		
Are the containers labeled with the correct preservatives?			X
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			X
Was a sufficient amount of sample submitted for the requested tests?	X		

AS 113

Section 5 Explanations/Comments

Section 6
 For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time _____
 Email (email sent to/on): _____ / _____
 Project Manager's response:

Completed By: [Signature] Date: 1/3/23



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Results & QC Summary

Total Coliform / E. coli by Quanti-Tray

Lab #: 476417	Project#: BOEING NPDES SSFL	
Client: Eurofins Calscience Tustin	Location: BOEING SSFL NPDES - Outfall 002	
Field ID: OUTFALL 002 (570-122425-1)	Batch#: 304527	Analyzed: 01/04/23 13:30
Lab ID: 476417-001	Sampled: 01/03/23 09:40	Prep:
Matrix: Water	Received: 01/03/23	Analysis: SM 9223Bb
Diln Fac: 1.000	Prepared: 01/03/23 16:51	Analyst: JAA

476417-001 Analyte	Result	RL	Units
Coliform, E. Coli	160	1.0	MPN/100ml

Legend
 RL: Reporting Limit

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SM 9223 B-b, Quanti-Tray

Prep Analyst: ST Prep Date/Time: 01/03/23 1051 QC Batch ID: 3045077 Batch Page 1 of 2
 Read Analyst: ST Read Date/Time: 01/04/23 1330 Media Lot #: EU896 Pipette Lot #: A103842 & A10394 1 A104116
 Monthly Quantitative Sealer Check: Collisure Colliert 24 Colliert 18 Colliert 24 * Quanti-Tray Sealer Check must be performed monthly
 Total and E. coli: Incubator ID: M4 Incubator In, Temp/Time: 17-24 35.3 Incubator Out, Temp/Time: 1330 35.2
 Fecal Coliform: Water Bath ID: NA Water Bath In, Temp/Time: NA Water Bath Out, Temp/Time: NA

Client	Client Sample ID	Enthalpy Sample ID	Dilution Factor	Total Coliform Counts		MPN Table Value	Final Result, MPN	E. coli Counts		MPN Table Value	Final Result, MPN	Fecal Coliform Counts (Colliert 18 only)		MPN Table Value	Final Result, MPN	Comments
				Large Wells	Small Wells			Large Wells	Small Wells			Large Wells	Small Wells			
		476424-001	1X	49	48	>2419.6	72400	49	26	488.4	490					EU
		↓	10X	49	48	>2419.6	>24000	31	2	49.5	500					
		↓	100X	49	21	365.4	36,000	9	0	9.8	980					
		476424-001	1X	49	48	>2419.6	72400	48	18	248.9	250					EA
		↓	10X	49	31	648.8	6500	21	1	27.9	280					
		↓	100X	35	1	58.6	5900	2	0	2.0	200					
		476419-001	1X	49	48	>2419.6	>2400	49	47	2419.6	2400					EC
		↓	10X	49	48	>2419.6	>24000	49	16	235.5	2800					
		↓	100X	49	28	547.5	55,000	18	2	24.3	2400					
		476417-001	1X	49	48	>2419.6	72400	48	7	159.7	160					CA
		↓	10X	49	48	>2419.6	>24000	11	1	13.4	130					
		↓	100X	49	10	204.6	20,000	4	0	4.1	410					
		476426-001	1X	49	48	>2419.6	72400	49	48	2419.6	22400		JA 01/4/23			AR
Quality Control		Culture ID														
	Positive +/- (E. Coli)	12/21/22		49	48	>2419.6	>24000	49	48	>2419.6	>2400					
	Positive +/- (K. Pneumonia)	↓		49	48	>2419.6	>24000	0	0	<1	<1					
	Negative +/- (P. Aeruginosa)	↓		0	0	<1	<1	0	0	<1	<1					

Data Entered By: JA 1/4/23 Data Reviewed By: _____
 63 of 100 SM 9223B-b, Quanti-Tray, Rev 3, 1/15/2019

SM 9223 B-b, Quanti-Tray

Prep Analyst: SL Prep Date/Time: 1/22/23 1651 QC Batch ID: 304527 Batch Page 2 of 2

Read Analyst: SL Read Date/Time: 1/12/23 1330 Media Lot #: EUB96 Pipette Lot #: see pg 63

Media Used (check one): Colisure Colilert 18 Colilert 24

Monthly Quanti-Tray Sealer Check: Did it Pass? Yes No Date of last check*: 2/12/23 * Quanti-Tray Sealer Check must be performed monthly

Total and E. coli: Incubator ID: NY Incubator In, Temp/Time: 1724 35-3 Incubator Out, Temp/Time: 1330 35-2

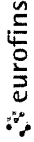
Fecal Coliform: Water Bath ID: NA Water Bath In, Temp/Time: NA Water Bath Out, Temp/Time: NA

Client	Client Sample ID	Enthalpy Sample ID	Dilution Factor	Total Coliform Counts		MPN Table Value	Final Result, MPN	E. coli Counts		MPN Table Value	Final Result, MPN	Fecal Coliform Counts (Colilert 18 only)		MPN Table Value	Final Result, MPN	Comments	
				Large Wells	Small Wells			Large Wells	Small Wells			Large Wells	Small Wells				
		470426-001	10X	49	48	>2449.6	>2400	49	48	>2449.6	>2400					AP	
		↓	100X	49	48	>2449.6	>24000	49	18	307.6	31,000						
JA 01/09/23																	
Quality Control																	
		Culture ID															
		Positive +/- (E. Coli)		49	48	>2449.6	>2400	49	48	>2449.6	>2400						
		Positive +/- (K. Pneumonia)		49	48	>2449.6	>2400	0	0	<1	<1						
		Negative +/- (P. Aeruginosa)		0	0	<1	<1	0	0	<1	<1						

Data Entered By: JA 1/9/23 Data Reviewed By: _____



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab Pkt: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-203167 1
Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1
Company: Enthalpy Analytical LLC		Accreditations Required (See note): State Program - California		Job #: 570-122425-1	
Address: 931 W Barkley Ave, City: Orange State, Zip: CA, 92868 Phone: Email:		Due Date Requested: 1/17/2023 TAT Requested (days):		Preservation Codes: A - HCL M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:	
Project Name: Boeing SSFL NPDES - Outfall 002 Site:		PO #:	WO #:	Analysis Requested	
Sample Identification - Client ID (Lab ID) Outfall 002 (570-122425-1)		Sample Date 1/3/23	Sample Time 09:40 Pacific	Sample Type (C=comp, G=grab)	Preservation Code: Water
Matrix (If water, specify, if not water, specify)		Field Filtered Sample (Yes or No)		Total Number of Containers	
SUB (Quant Tray - E, Coll - level 4 required - E, Coll - level 4 required)		Perform MS/MSD (Yes or No)		Special Instructions/Note: See Attached Instructions	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>		<p>Possible Hazard Identification</p> <p>Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)</p> <p>Primary Deliverable Rank: 2</p>		<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p>Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p> <p>Special Instructions/QC Requirements:</p>	
Empty Kit Relinquished by		Date:		Method of Shipment:	
Relinquished by:		Date/Time:	Company:	Date/Time:	Company:
Relinquished by:		Date/Time:	Company:	Date/Time:	Company:
Relinquished by:		Date/Time:	Company:	Date/Time:	Company:
Custody Seals Intact: A Yes A No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002

JOB NUMBER

570-122503-1

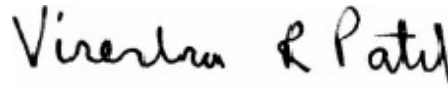
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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

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Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122503-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122503-1



Job ID: 570-122503-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122503-1

Comments

No additional comments.

Receipt

The sample was received on 1/4/2023 5:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122503-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122503-1	Outfall002_20230104_Grab	Water	01/04/23 10:00	01/04/23 17:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7



Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 476538
Report Level: IV
Report Date: 01/19/2023

Microbiology Tests

Analytical Report *prepared for:*

Virendra Patel
Eurofins Calscience Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Project: BOEING NPDES SSFL - Boeing SSFL NPDES - Outfall 002 - #44024446

Authorized for release by:

Quynhgiao Le, Project Manager
714-7716900
quynhgiao.le@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105



Sample Summary

Virendra Patel	Lab Job #:	476538
Eurofins	Project No:	BOEING NPDES SSFL
Calscience Tustin	Location:	Boeing SSFL NPDES - Outfall 002 - #44024446
2841 Dow Avenue,	Date Received:	01/04/23
Suite 100		
Tustin, CA 92780		

Sample ID	Lab ID	Collected	Matrix
OUTFALL002_20230104_GRAB	476538-001	01/04/23 10:00	Water

Case Narrative

MICROBIOLOGY TESTS (SM 9223BB)

Eurofins Calscience Tustin	Lab Job Number: 476538
2841 Dow Avenue, Suite 100	Project No: BOEING NPDES SSFL
Tustin, CA 92780	Location: Boeing SSFL NPDES - Outfall 002 - #44024446
Virendra Patel	Date Received: 01/04/23

This data package contains sample and QC results for one water sample, requested for the above referenced project on 01/04/23. See attached cooler receipt form for any sample receipt problems or discrepancies.

Chain of Custody

Quynhgiao Le

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com> on behalf of Virendra Patel
Sent: Thursday, January 12, 2023 9:43 AM
To: Quynhgiao Le
Subject: [EXTERNAL] FW: BOEING NPDES SSFL - Enthalpy Login Summary (476538)
Attachments: 476538_COC.pdf

Quynhgiao –

Please update the sample ID to “Outfall002_20230104_Grab” on ECI Job#570-122503

Please use this email as record for the change. Thank you!

Best Regards,

Virendra Patel
Project Manager

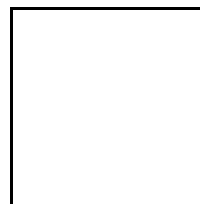
Eurofins Environment Testing Southwest, LLC
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895 5494
Direct: 657-210-6327
Mobile: 714-887-9901

Virendra.Patel@ET.EurofinsUS.com
www.EurofinsUS.com/Env

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From: Enthalpy Orange Sample Control <sample.control.orange@enthalpy.com>
Sent: Friday, January 6, 2023 10:48 AM
To: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Subject: BOEING NPDES SSFL - Enthalpy Login Summary (476538)

EXTERNAL EMAIL*



Enthalpy Login Summary for 476538

1
2
3
4
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7

Project: BOEING NPDES SSFL
Site: Boeing SSFL NPDES - Outfall 002 - #44024446
Lab Login #: 476538
Report Level: IV
PO#:
Lab Proj Mgr: [Quynhgiao Le](#)
TAT: 10 business days

Report To: Eurofins Calscience Tustin
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 ATTN: Virendra Patel
 949-261-1022

Client ID	Lab ID	Sampled	Received	COC #	Matrix	Analys
OUTFALL 002 (570-122503-1)	001	01/04/23 10:00	01/04/23			

Water **Total Coliform and E. coli**
 Water **20% Surcharge for Level I**
 Water **2x: Each Additional Diluti**

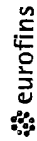
*Unless otherwise agreed in writing, these services are provided pursuant to the terms and conditions as set forth in the [conditions/](#).
 Enthalpy???'s acceptance of this order is expressly limited to these terms and conditions.*

Email compiled and sent 01/06/23 10:48 AM.

* WARNING - EXTERNAL: This email originated from outside of Eurofins Environment Testing America. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



Environment Testing



W76538

Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	GOC No:
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	State of Origin: California	570-203233.1
Company: Enthalpy Analytical LLC		Phone:	E-Mail: Virendra.Patel@eurofins.com	Page: Page 1 of 1	Job #: 570-122503-1
Address: 931 W. Barkley Ave, Orange State, Zip: CA, 92868 Phone: Email:		Due Date Requested: 1/18/2023	Accreditations Required (See note): Slate Program - California		
Project Name: Boeing SSFL NPDES - Outfall 002 Site:		TAT Requested (days):	Analysis Requested		
PO #:	WO #:		Preservation Codes: A - HCL M - Hexane N - None B - NaOH O - ASNaO2 C - Zn Acetate D - Nitric Acid G - Na2SO4 E - NaHSO4 F - MeOH R - Na2S2O3 S - H2SO4 H - Ascorbic Acid U - Acetone I - Ice J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify) Other:		
Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (Residue, Swab, Grab, etc.)	Preservation Code:	Special Instructions/Note: See Attached Instructions
1/4/23	10:00 Pacific		Water		
Sample Identification - Client ID (Lab ID) Outfall 002 (570-122503-1)					
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysts/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>					
<p>Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2 Empty Kit Relinquished by: _____ Relinquished by: _____ Relinquished by: _____ Relinquished by: _____ Custody Seals Intact: _____ Δ Yes Δ No Custody Seal No: _____</p>					
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:</p>					
<p>Received by: _____ Date/Time: 1-4-23 @ 1649 Company: EC Received by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____ Cooler Temperature(s) °C and Other Remarks:</p>					

ICOC No:
570-203233

Containers

Count 3 **Container Type** Plastic 120 mL - Sterile/Na2S2O3 **Preservative** Sodium Thiosulfate

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required)	E Coli (1x, 10x, 100x Dilutions) - 8 hour hold time - level 4





ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Eurofins Calscience

Project: Boeing SSFL NPDES-Outfall 002

Date Received: 01/04/2023

Sampler's Name Present: Yes No

Section 2

Sample(s) received in a cooler? Yes, How many? 1 No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 2.2 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam Paper None Other _____

Cooler Temp (°C): #1: 1.1 #2: _____ #3: _____ #4: _____

Section 4

	YES	NO	N/A
Was a COC received?	<input checked="" type="checkbox"/>		
Are sample IDs present?	<input checked="" type="checkbox"/>		
Are sampling dates & times present?	<input checked="" type="checkbox"/>		
Is a relinquished signature present?	<input checked="" type="checkbox"/>		
Are the tests required clearly indicated on the COC?	<input checked="" type="checkbox"/>		
Are custody seals present?		<input checked="" type="checkbox"/>	
If custody seals are present, were they intact?			<input checked="" type="checkbox"/>
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Did all samples arrive intact? If no, indicate in Section 4 below.	<input checked="" type="checkbox"/>		
Did all bottle labels agree with COC? (ID, dates and times)	<input checked="" type="checkbox"/>		
Were the samples collected in the correct containers for the required tests?	<input checked="" type="checkbox"/>		
Are the containers labeled with the correct preservatives?	<input checked="" type="checkbox"/>		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			<input checked="" type="checkbox"/>
Was a sufficient amount of sample submitted for the requested tests?	<input checked="" type="checkbox"/>		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time _____

Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: [Signature] Date: 1/4/23

Enthalpy Analytical, a subsidiary of Montrose Environmental Group, Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal

Sample Acceptance Checklist – Rev 4, 8/8/2017

Results & QC Summary

Total Coliform / E. coli by Quanti-Tray

Lab #: 476538	Project#: BOEING NPDES SSFL	
Client: Eurofins Calscience Tustin	Location: Boeing SSFL NPDES - Outfall 002 - ...	
Field ID: OUTFALL002_20230104_GRAB	Batch#: 304654	Analyzed: 01/05/23 15:27
Lab ID: 476538-001	Sampled: 01/04/23 10:00	Prep:
Matrix: Water	Received: 01/04/23	Analysis: SM 9223Bb
Diln Fac: 1.000	Prepared: 01/04/23 19:31	Analyst: JAA

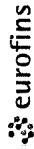
476538-001 Analyte	Result	RL	Units	Qual
Coliform, E. Coli	240	1.0	MPN/100ml	H

Legend

H: Holding time was exceeded
 RL: Reporting Limit



Chain of Custody Record



Environment Testing



Client Information (Sub Contract Lab)		Lab P.M. Patel, Virendra	Carrier Tracking No(s):	COC No: 570-203233-1
Client Contact: Shipping/Receiving		Phone: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1
Company: Enthalpy Analytical LLC		Accreditations Required (See note): Slate Program - California	Job #: 570-122503-1	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:
Address: 931 W Barkley Ave, City: Orange State, Zip: CA, 92868 Phone: Email:		Due Date Requested: 1/18/2023 TAT Requested (days):	Analysis Requested	
Project Name: Boeing SSFL NPDES - Outfall 002 Site:		PO #: WO #: Project #: 44024446 SSOW#:	Total Number of Containers: 3	
Sample Identification - Client ID (Lab ID) Outfall 002 (570-122503-1)		Sample Date 1/4/23	Sample Time 10:00 Pacific	Sample Type (C=comp, G=grab) Preservation Code: Water
Matrix (Water, Solids, Organics, BTEX, AAR)		Field Filtered Sample (Yes/No)	Sub (Quant-Tray - E, Coll - level & required - F, Coll - level & required)	Special Instructions/Note: See Attached Instructions
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.		Possible Hazard Identification Unconfirmed		
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2		
Empty Kit Relinquished by		Time: Method of Shipment:		
Relinquished by:	Date/Time: 1/4/23 1649	Received by: Virendra Patel	Date/Time: 1-4-23 @ 1649	Company: Enthalpy Analytical
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:		



Eurofins Calscience CHAIN OF CUSTODY FORM

Client Name/Address Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Outfall 002		Sampler: Adrian Mobeka		Project Manager: Katherine Miller		Comments			
Eurofins Calscience Project Manager Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel 714-895-5494 ECL Project #44024446		Phone Number (520) 289-8606, (520) 904-6944 (cell) Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)		Sample ID		Sampling Date/Time		Preservative		Bottle #	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sample ID	Sampling Date/Time	Preservative	Bottle #	Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions			
Outfall 002	W	125mL Sterile Poly	3	Outfall002_20230104_Grab	1/4/2023/1000	Na ₂ S ₂ O ₃	10				
Relinquished By <i>[Signature]</i>		Date/Time 1-4-2023/1055		Turn around Time (check) 24 Hours _____ 5 Days _____ 48 Hours _____ 10 Days _____ 72 Hours _____ Normal <input checked="" type="checkbox"/> _____		Sample Integrity (check) Intact _____ On Ice _____ Data Requirements (check) No Level IV <input checked="" type="checkbox"/> All Level IV _____		NPDES Level IV _____			
Relinquished By <i>[Signature]</i>		Date/Time 01/4/23 1055		Sample Integrity (check) Intact _____ On Ice _____ Data Requirements (check) No Level IV <input checked="" type="checkbox"/> All Level IV _____		NPDES Level IV _____					
Relinquished By <i>[Signature]</i>		Date/Time 1/4/23 1725		Sample Integrity (check) Intact _____ On Ice _____ Data Requirements (check) No Level IV <input checked="" type="checkbox"/> All Level IV _____		NPDES Level IV _____					



570-122503 Chain of Custody



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/1/2023 1:54:37 PM Revision 1

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002

JOB NUMBER

570-122671-1

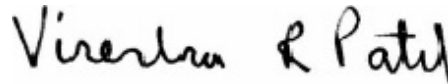
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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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3/1/2023 1:54:37 PM
Revision 1

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494

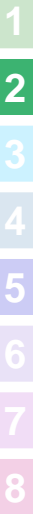


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Sample Summary	7
Subcontract Data	8
Chain of Custody	20

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122671-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122671-1

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- 2
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Job ID: 570-122671-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122671-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 1/18/2023. The report (revision 1) is being revised due to: The Enthalpy PDF was revised to correct the incorrect ECI job# reference error on the email to Enthalpy for the sample ID change..

Receipt

The sample was received on 1/5/2023 4:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122671-1

Method	Method Description	Protocol	Laboratory
1103.1	E. Coli	EPA	Enthalpy

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122671-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122671-1	Outfall002_20230104_Grab	Water	01/05/23 09:35	01/05/23 16:00

Correct sample ID is
Outfall002_20230105_Grab

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8



Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 476658
Report Level: IV
Report Date: 01/18/2023

Microbiology Tests

Analytical Report *prepared for:*

Virendra Patel
Eurofins Calscience Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Project: BOEING NPDES SSFL - Boeing SSFL NPDES - Outfall 002

Authorized for release by:

Quynhgiao Le, Project Manager
714-7716900
quynhgiao.le@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105



Sample Summary

Virendra Patel	Lab Job #:	476658
Eurofins Calscience Tustin	Project No:	BOEING NPDES SSFL
2841 Dow Avenue, Suite 100	Location:	Boeing SSFL NPDES - Outfall 002
Tustin, CA 92780	Date Received:	01/05/23

Sample ID	Lab ID	Collected	Matrix
OUTFALL02_20230104_GRAB	476658-001	01/05/23 09:35	Water

Correct sample ID is
Outfall002_20230105_Grab

Case Narrative

MICROBIOLOGY TESTS (SM 9223BB)

Eurofins Calscience Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Virendra Patel

Lab Job Number: 476658
Project No: BOEING NPDES SSFL
Location: Boeing SSFL NPDES - Outfall 002
Date Received: 01/05/23

This data package contains sample and QC results for one water sample, requested for the above referenced project on 01/05/23. See attached cooler receipt form for any sample receipt problems or discrepancies.

Chain of Custody

Quynhgiao Le

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com> on behalf of Virendra Patel
Sent: Thursday, January 12, 2023 9:47 AM
To: Quynhgiao Le
Subject: [EXTERNAL] FW: BOEING NPDES SSFL - Enthalpy Login Summary (476658)
Attachments: 476658_COC.pdf

Correct sample ID is
Outfall002_20230105_Grab

Quynhgiao –

Please update the sample ID to “Outfall002_20230104_Grab” on ECI Job#570-122671

Please use this email as record for the change. Thank you!

Best Regards,

Virendra Patel
Project Manager

Eurofins Environment Testing Southwest, LLC
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895 5494
Direct: 657-210-6327
Mobile: 714-887-9901

Virendra.Patel@ET.EurofinsUS.com
www.EurofinsUS.com/Env

Follow Us! [Facebook](#) | [LinkedIn](#)

From: Enthalpy Orange Sample Control <sample.control.orange@enthalpy.com>
Sent: Friday, January 6, 2023 2:01 PM
To: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Subject: BOEING NPDES SSFL - Enthalpy Login Summary (476658)

EXTERNAL EMAIL*



Enthalpy Login Summary for 476658

Project: BOEING NPDES SSFL
Site: Boeing SSFL NPDES - Outfall 002
Lab Login #: 476658
Report Level: IV
PO#: 44024446
Lab Proj Mgr: [Quynhgiao Le](#)
TAT: 7 business days

Report To: Eurofins Calscience Tustin
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 ATTN: Virendra Patel
 949-261-1022

Bill To: Eurofins
 2841
 Tustin
 ATTN: Virendra Patel
 949-261-1022

Client ID	Lab ID	Sampled	Received	COC #	Matrix	Analyses
OUTFALL 002 (570-122671-1)	001	01/05/23 09:35	01/05/23			
					Water	Total Coliform and E. coli Quanti-Tray
					Water	20% Surcharge for Level I Package
					Water	2x: Each Additional Dilution

Unless otherwise agreed in writing, these services are provided pursuant to the terms and conditions as set forth at [http://www.eurofins.com/terms-and-conditions/](#).

Your acceptance of this order is expressly limited to these terms and conditions.

Email compiled and sent 01/06/23 02:00 PM.

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2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895-5494

Chain of Custody Record

476659



Environment Testing

Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Center Tracking Note(s):	GOC No:
Client Contact:		Patel, Virendra	Patel, Virendra		570-203290.1
Shipping/Receiving		Phone:	E-Mail:	State of Origin:	Page:
Company:			Virendra.Patel@et.eurofins.com	California	Page 1 of 1
Enihealy Analytical LLC		Accreditations Required (See note):		Job #:	570-122671-1
Address:		Due Date Requested:		Preservation Codes:	
931 W. Barkley Ave.		1/19/2023		A - HCL M - Hexane N - None O - AsNaO2 P - Ni2OAS Q - Na2SO3 R - NaHSO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - NCA W - pH 4.5 Y - Trizma Z - other (specify)	
City:		TAT Requested (days):		B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amidlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
State, Zip:		PO #:		Analysis Requested	
CA, 92868		WO #:		Total Number of containers	
Phone:		Project #:		3	
Email:		44024446		Special Instructions/Note:	
Project Name:		SSOW#:		See Attached Instructions	
Boeing SSFL NPDES - Outfall 002		Site:			
Site:		Sample Identification - Client ID (Lab ID)			
		Outfall 002 (570-122671-1)			
		Sample Date			
		1/5/23			
		Sample Time			
		09:35 Pacific			
		Sample Type (C=comp, G=grab)			
		Water			
		Preservation Code:			
		Field Filtered Sample (Yes or No)			
		X			
		Sub (Quant-tray - E, Coll - level & required - E, Coll - level & required)			
		X			
		Matrix (W=water, S=solid, C=composite, BT=biomass, A=air)			

Note: Since laboratory accreditations are subject to change, Eurofins CalScience places the ownership of method, analyze & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analytical tests/matrix being analyzed, the samples must be shipped back to the Eurofins CalScience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins CalScience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins CalScience.

Possible Hazard Identification

Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____

Relinquished by: _____ Date/Time: 1/5/23 15:09 Company: EC

Relinquished by: _____ Date/Time: 1/5/23 15:09 Company: EC

Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No.: _____

Cooler Temperature(s) °C and Other Remarks:



ICOC No:
570-203290

Containers

Count 3
Container Type Plastic 120 mL - Sterile/Na2S2O3
Preservative Sodium Thiosulfate

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required)	E Coli (1x, 10x, 100x Dilutions) - 8 hour hold time - level 4



ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1
 Client: Eurofins Calscience Project: Boeing SSFL NPDES - Outfall 002
 Date Received: 01/05/2023 Sampler's Name Present: Yes No

Section 2
 Sample(s) received in a cooler? Yes, How many? 1 No (skip section 2) Sample Temp (°C) (No Cooler) : _____
 Sample Temp (°C), One from each cooler: #1: 5.4 #2: _____ #3: _____ #4: _____
(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)
 Shipping Information: _____

Section 3
 Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam
 Paper None Other _____
 Cooler Temp (°C): #1: 2.3 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	<input checked="" type="checkbox"/>		
Are sample IDs present?	<input checked="" type="checkbox"/>		
Are sampling dates & times present?	<input checked="" type="checkbox"/>		
Is a relinquished signature present?	<input checked="" type="checkbox"/>		
Are the tests required clearly indicated on the COC?	<input checked="" type="checkbox"/>		
Are custody seals present?		<input checked="" type="checkbox"/>	
If custody seals are present, were they intact?			<input checked="" type="checkbox"/>
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	<input checked="" type="checkbox"/>		
Did all samples arrive intact? If no, indicate in Section 4 below.	<input checked="" type="checkbox"/>		
Did all bottle labels agree with COC? (ID, dates and times)	<input checked="" type="checkbox"/>		
Were the samples collected in the correct containers for the required tests?	<input checked="" type="checkbox"/>		
Are the containers labeled with the correct preservatives?	<input checked="" type="checkbox"/>		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			<input checked="" type="checkbox"/>
Was a sufficient amount of sample submitted for the requested tests?	<input checked="" type="checkbox"/>		

Section 5 Explanations/Comments

Section 6
 For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time _____
 Email (email sent to/on): _____ / _____
 Project Manager's response:

Completed By: [Signature] Date: 1/05/23



Results & QC Summary

Total Coliform / E. coli by Quanti-Tray

Lab #: 476658	Project#: BOEING NPDES SSFL	
Client: Eurofins Calscience Tustin	Location: Boeing SSFL NPDES - Outfall 002	
Field ID: OUTFALL002_20230104_GRAB	Batch#: 304722	Analyzed: 01/06/23 11:58
Lab ID: 476658-001	Sampled: 01/05/23 09:35	Prep:
Matrix: Water	Received: 01/05/23	Analysis: SM 9223Bb
Diln Fac: 1.000	Prepared: 01/05/23 15:30	Analyst: PAS

476658-001 Analyte	Result	RL	Units
Coliform, E. Coli	520	1.0	MPN/100ml

Legend
 RL: Reporting Limit

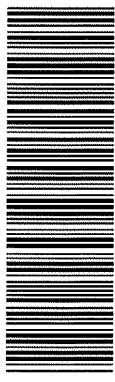
Correct sample ID is
 Outfall002_20230105_Grab

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- 7
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22671

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich, Inc. 5333 Mission Center Road, Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Outfall 002		Sampler: Adrian Mobeka		Project Manager: Katherine Miller		Phone Number: (520) 289-8606, (520) 904-6944 (cell)		Field Manager: Mark Dominick (978) 234-5033, (818) 599-0702 (cell)		Comments					
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel 714-895-5494 ECI Project #44024446		Sample Matrix: W		Container Type: 125mL Sterile Poly		# of Cont.: 3		Sample ID: Outfall002_20230105_Grab		Sampling Date/Time: 1/5/2023/0935		Preservative: Na ₂ S ₂ O ₃		Bottle #: 10		Deliver to lab ASAP 8 hr hold time, Need 1x, 10x, 100x dilutions	
Relinquished By: <i>[Signature]</i>		Date/Time: 1/8/23 1310		Turn around Time: (check) 24 Hours _____ 5 Days _____ 48 Hours _____ 10 Days _____ 72 Hours _____ Normal _____ X _____		Sample Integrity: (check) Intact _____ On Ice: _____		Data Requirements: (check) No Level IV _____ All Level IV _____		NPDES Level IV							
Relinquished By: <i>[Signature]</i>		Date/Time: 1/5/23 1606															



570-122671 Chain of Custody

1.9/1.9 2.8/2.8 2.9/2.9 1.8/1.8 5.11





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 1/23/2023 10:10:57 AM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - GRAB

JOB NUMBER

570-122949-1

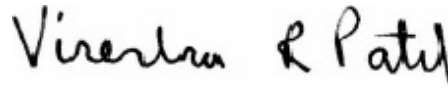
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
1/23/2023 10:10:57 AM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-122949-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

Job ID: 570-122949-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122949-1

Comments

No additional comments.

Receipt

The samples were received on 1/6/2023 6:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.8° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-294547. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 570-294315.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-294861.
Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-122949-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Client Sample ID: Outfall002_20230105_Grab

Lab Sample ID: 570-122949-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	130		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Settleable Solids	0.20		0.10	0.10	mL/L	1		SM 2540F	Total/NA

Client Sample ID: TB-20230105

Lab Sample ID: 570-122949-3

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230105_Grab
Date Collected: 01/05/23 10:55
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122949-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/09/23 18:10	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/09/23 18:10	1
Trichloroethene	ND		0.50	0.17	ug/L			01/09/23 18:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		60 - 140					01/09/23 18:10	1
Toluene-d8 (Surr)	100		60 - 140					01/09/23 18:10	1

Client Sample ID: TB-20230105
Date Collected: 01/05/23 10:55
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122949-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/09/23 17:02	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/09/23 17:02	1
Trichloroethene	ND		0.50	0.17	ug/L			01/09/23 17:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		60 - 140					01/09/23 17:02	1
Toluene-d8 (Surr)	98		60 - 140					01/09/23 17:02	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

General Chemistry

Client Sample ID: Outfall002_20230105_Grab

Date Collected: 01/05/23 10:55

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122949-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	ND		1.0	0.53	mg/L		01/10/23 14:49	01/11/23 16:29	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance (SM 2510B)	130		1.0	1.0	umhos/cm			01/19/23 19:40	1
Settleable Solids (SM 2540F)	0.20		0.10	0.10	mL/L			01/07/23 09:15	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL
		(60-140)	(60-140)
570-122949-1	Outfall002_20230105_Grab	98	100
570-122949-3	TB-20230105	95	98
LCS 570-294547/1003	Lab Control Sample	100	99
LCSD 570-294547/4	Lab Control Sample Dup	101	103
MB 570-294547/6	Method Blank	97	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-294547/6
Matrix: Water
Analysis Batch: 294547

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/09/23 16:40	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/09/23 16:40	1
Trichloroethene	ND		0.50	0.17	ug/L			01/09/23 16:40	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	97		60 - 140				01/09/23 16:40	1	
Toluene-d8 (Surr)	99		60 - 140				01/09/23 16:40	1	

Lab Sample ID: LCS 570-294547/1003
Matrix: Water
Analysis Batch: 294547

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
								1,1-Dichloroethene
1,2-Dichloroethane	10.0	9.48		ug/L		95	70 - 130	
Trichloroethene	10.0	9.38		ug/L		94	65 - 135	
Surrogate	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
4-Bromofluorobenzene (Surr)	100		60 - 140					
Toluene-d8 (Surr)	99		60 - 140					

Lab Sample ID: LCSD 570-294547/4
Matrix: Water
Analysis Batch: 294547

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane	10.0	9.74		ug/L		97	70 - 130	3	49
Trichloroethene	10.0	9.90		ug/L		99	65 - 135	5	48
Surrogate	LCSD	LCSD	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	101		60 - 140						
Toluene-d8 (Surr)	103		60 - 140						

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-294861/1-A
Matrix: Water
Analysis Batch: 295192

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294861

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HEM: Oil and Grease	ND		1.0	0.51	mg/L		01/10/23 14:49	01/11/23 16:29	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 570-294861/2-A
Matrix: Water
Analysis Batch: 295192

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294861

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	38.6		mg/L		97	78 - 114

Lab Sample ID: LCSD 570-294861/3-A
Matrix: Water
Analysis Batch: 295192

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294861

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	39.0		mg/L		98	78 - 114	1	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-297351/10
Matrix: Water
Analysis Batch: 297351

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			01/19/23 19:00	1

Lab Sample ID: 570-124593-F-2 DU
Matrix: Water
Analysis Batch: 297351

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	1300		1300		umhos/cm		0.5	25

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

GC/MS VOA

Analysis Batch: 294547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122949-1	Outfall002_20230105_Grab	Total/NA	Water	624.1	
570-122949-3	TB-20230105	Total/NA	Water	624.1	
MB 570-294547/6	Method Blank	Total/NA	Water	624.1	
LCS 570-294547/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-294547/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 294315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122949-1	Outfall002_20230105_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 294861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122949-1	Outfall002_20230105_Grab	Total/NA	Water	1664A	
MB 570-294861/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-294861/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-294861/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 295192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122949-1	Outfall002_20230105_Grab	Total/NA	Water	1664A	294861
MB 570-294861/1-A	Method Blank	Total/NA	Water	1664A	294861
LCS 570-294861/2-A	Lab Control Sample	Total/NA	Water	1664A	294861
LCSD 570-294861/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	294861

Analysis Batch: 297351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122949-1	Outfall002_20230105_Grab	Total/NA	Water	SM 2510B	
MB 570-297351/10	Method Blank	Total/NA	Water	SM 2510B	
570-124593-F-2 DU	Duplicate	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

Client Sample ID: Outfall002_20230105_Grab

Lab Sample ID: 570-122949-1

Date Collected: 01/05/23 10:55

Matrix: Water

Date Received: 01/06/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	294547	01/09/23 18:10	A1W	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			971 mL	1000 mL	294861	01/10/23 14:49	UWEZ	EET CAL 4
Total/NA	Analysis	1664A		1			295192	01/11/23 16:29	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			297351	01/19/23 19:40	UAPD	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	294315	01/07/23 09:15	ZVB7	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230105

Lab Sample ID: 570-122949-3

Date Collected: 01/05/23 10:55

Matrix: Water

Date Received: 01/06/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	294547	01/09/23 17:02	A1W	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-12-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

- 1664A = EPA-821-98-002
- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-122949-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122949-1	Outfall002_20230105_Grab	Water	01/05/23 10:55	01/06/23 18:15
570-122949-3	TB-20230105	Water	01/05/23 10:55	01/06/23 18:15

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Virendra Patel

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Monday, January 9, 2023 10:58 AM
To: Virendra Patel; Rapp, Kerry; Dallalah, Michelle
Subject: RE: <ON HOLD> Eurofins Calscience sample confirmation files from 570-122949-1 Boeing SSFL NPDES - Outfall 002 - GRAB

EXTERNAL EMAIL*

Please analyze these samples.

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Sent: Sunday, January 8, 2023 11:56 AM
To: Miller, Katherine <KMiller@haleyaldrich.com>; Rapp, Kerry <KRapp@haleyaldrich.com>; Dallalah, Michelle <MDallalah@haleyaldrich.com>; Patel Virendra <Virendra.Patel@et.eurofinsus.com>
Subject: <ON HOLD> Eurofins Calscience sample confirmation files from 570-122949-1 Boeing SSFL NPDES - Outfall 002 - GRAB
Importance: High

CAUTION: External Email

Hello,

Attached please find the sample confirmation files for job 570-122949-1; Boeing SSFL NPDES - Outfall 002 - GRAB

***ALL METHODS ARE ON HOLD PER COC**

Please feel free to contact me if you have any questions.

Thank you.

Virendra Patel
Project Manager

Eurofins Calscience
Phone: 714-895-5494
Mobile: 714-887-9901

E-mail: Virendra.Patel@et.eurofinsus.com

www.eurofinsus.com/env



Reference: [570-409965]
Attachments: 3

> > Bank information has changed, please refer to remittance information on invoice. < <

* WARNING - EXTERNAL: This email originated from outside of Eurofins Environment Testing America. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

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122949

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

HOLD ALL SAMPLES UNTIL FURTHER DIRECTION FROM CLIENT 1/6/2023 1100 MID

EDBPJOUX

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 018 Outfall 002 Grab		Field Readings (Include units) Time of Readings: 1055 DO: 15.51 mg/L pH: 7.37 pH unit Temp: 54.1 °C(°F)		Meter serial #									
Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC											
*TestAmerica's services under this CoC shall be performed in accordance with the TACs within Blanket Service Agreements #2019-22-TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Checked by: S. Schiller Date/Time: 1/5/2023/1055											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	OR & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Settleable Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120 1)	ANALYSIS REQUIRED	Field Readings	Meter serial #
Outfall 002	Outfall002_20230105 Grab	1/5/2023 1055	WM	1 L Glass Amber	2	HCl	15	No	X						
	Outfall002_20230105 Grab_Extra	1/5/2023 1055	WM	40 mL VOA	3	HCl	30	No		X					
	Trip Blanks TB-20230105	1/5/2023 1055	WQ	500 mL Poly	1	None	75	No			X				
				1 L Glass Amber	2	HCl	15	No	H						
				40 mL VOA	3	HCl	30	No	H						
				500 mL Poly	1	None	75	No							
				40 mL VOA	3	HCl	30	No	X						



570-122949 Chain of Custody

Relinquished By: <i>Mark Dominick</i>	Date/Time: 1-6-2023/1300	Company: HA	Received By: <i>Mark</i>	Date/Time: 1/6/23 1300	EC
Relinquished By: <i>Mark</i>	Date/Time: 1/6/23 1815	Company: EC	Received By: <i>Mark</i>	Date/Time: 1/6/23 1815	EC
Relinquished By: <i>Mark</i>	Date/Time: 1/6/23 1815	Company: EC	Received By: <i>Mark</i>	Date/Time: 1/6/23 1815	EC

1-818-5411



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122949-1

Login Number: 122949

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/4/2023 3:11:24 PM Revision 2

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-122959-1

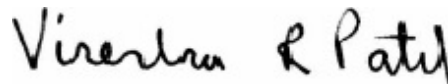
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Revision 2

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
PI	Primary and confirm results varied by > than 40% RPD

HPLC/IC

Qualifier	Qualifier Description
BU	Analyzed out of holding time

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Job ID: 570-122959-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-122959-1**

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 1/19/2023. The report (revision 2) is being revised due to: Narrative revised to remove 200.7 comment for Zinc..

Report revision history

Revision 1 - 2/7/2023 - Reason - Narrative revised to remove 200.7 comment for Zinc..

Receipt

The samples were received on 1/6/2023 6:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.5° C, 1.8° C and 2.6° C.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

Method 300.0: Dilutions were performed for the following samples due to sample matrix properties: Outfall002_20230106_Comp (570-122959-1).

Method 300.0: The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: Outfall002_20230106_Comp (570-122959-1).

Method 300.0: Dilutions were performed for the following samples due to sample matrix properties: Outfall002_20230106_Comp (570-122959-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 608.3: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-294695 and analytical batch 570-294966 recovered outside control limits for the following analytes: 4,4'-DDD. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 200.8: The method blank for preparation batch 570-295281 and analytical batch 570-295467 contained Copper and Lead above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-295281 and analytical batch 570-295467 were outside control limits for Iron. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230106_Comp_F (570-122959-3). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230106_Comp_F (570-122959-3). The sample(s) was filtered prior to analysis at the laboratory, and the results have been

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Job ID: 570-122959-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-294695. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 608LL

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-295604. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 625.1

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.1		5.0	1.8	mg/L	5		300.0	Total/NA
Nitrate as N	1.2	BU	0.50	0.098	mg/L	5		300.0	Total/NA
Sulfate	40		5.0	1.2	mg/L	5		300.0	Total/NA
Nitrate Nitrite as N	1.2		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	3.6	MB	2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	1.1	MB	1.0	0.12	ug/L	1		200.8	Total Recoverable
Iron	930		20	3.7	ug/L	1		200.8	Total Recoverable
Zinc	15	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Ammonia	0.038	J,DX	0.075	0.032	mg/L	1		350.1	Total/NA
Turbidity	29		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	170		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	23		2.0	1.7	mg/L	1		SM 2540D	Total/NA
MBAS	0.085	J,DX	0.30	0.054	mg/L	1		SM 5540C	Total/NA

Client Sample ID: Outfall002_20230106_Comp_F

Lab Sample ID: 570-122959-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	2.4	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.13	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Iron	65	BU	20	3.7	ug/L	1		200.8	Dissolved
Zinc	2.9	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved
Mercury	0.14	J,DX BU	0.20	0.12	ug/L	1		245.1	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.96	0.13	ug/L		01/13/23 05:33	01/13/23 20:10	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		01/13/23 05:33	01/13/23 20:10	1
Bis(2-ethylhexyl) phthalate	ND		4.8	3.4	ug/L		01/13/23 05:33	01/13/23 20:10	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		01/13/23 05:33	01/13/23 20:10	1
Pentachlorophenol	ND		0.96	0.81	ug/L		01/13/23 05:33	01/13/23 20:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	50		31 - 120	01/13/23 05:33	01/13/23 20:10	1
Phenol-d6 (Surr)	23		10 - 120	01/13/23 05:33	01/13/23 20:10	1
p-Terphenyl-d14 (Surr)	75		45 - 120	01/13/23 05:33	01/13/23 20:10	1
2,4,6-Tribromophenol	84		28 - 127	01/13/23 05:33	01/13/23 20:10	1
2-Fluorophenol	32		17 - 120	01/13/23 05:33	01/13/23 20:10	1
Nitrobenzene-d5	52		27 - 120	01/13/23 05:33	01/13/23 20:10	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 40CFR136A 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230106_Comp

Date Collected: 01/06/23 10:50

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		01/10/23 08:13	01/11/23 13:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Tetrachloro-m-xylene</i>	68	PI	20 - 139				01/10/23 08:13	01/11/23 13:39	1
<i>DCB Decachlorobiphenyl (Surr)</i>	33	PI	20 - 154				01/10/23 08:13	01/11/23 13:39	1

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- 11
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- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230106_Comp

Date Collected: 01/06/23 10:50

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.1		5.0	1.8	mg/L			01/10/23 00:08	5
Nitrite as N	ND	BU	0.50	0.22	mg/L			01/10/23 00:08	5
Nitrate as N	1.2	BU	0.50	0.098	mg/L			01/10/23 00:08	5
Sulfate	40		5.0	1.2	mg/L			01/10/23 00:08	5

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230106_Comp
Date Collected: 01/06/23 10:50
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/11/23 15:07	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.2		0.10	0.020	mg/L			01/13/23 11:53	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230106_Comp

Date Collected: 01/06/23 10:50

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		01/12/23 00:28	01/12/23 13:03	1
Copper	3.6	MB	2.0	0.32	ug/L		01/12/23 00:28	01/12/23 13:03	1
Lead	1.1	MB	1.0	0.12	ug/L		01/12/23 00:28	01/12/23 13:03	1
Selenium	ND		2.0	0.52	ug/L		01/12/23 00:28	01/12/23 13:03	1
Iron	930		20	3.7	ug/L		01/12/23 00:28	01/12/23 13:03	1
Zinc	15	J,DX	20	2.8	ug/L		01/12/23 00:28	01/12/23 13:03	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230106_Comp_F

Date Collected: 01/06/23 10:50

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	BU	1.0	0.13	ug/L			01/10/23 12:12	1
Copper	2.4	BU	2.0	0.32	ug/L			01/10/23 12:12	1
Lead	0.13	J,DX BU	1.0	0.12	ug/L			01/10/23 12:12	1
Selenium	ND	BU	2.0	0.52	ug/L			01/10/23 12:12	1
Iron	65	BU	20	3.7	ug/L			01/10/23 12:12	1
Zinc	2.9	J,DX BU	20	2.8	ug/L			01/10/23 12:12	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230106_Comp
Date Collected: 01/06/23 10:50
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/10/23 17:07	01/12/23 15:20	1

- 1
- 2
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- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230106_Comp_F
Date Collected: 01/06/23 10:50
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.14	J,DX BU	0.20	0.12	ug/L		01/10/23 17:32	01/12/23 15:02	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

General Chemistry

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.038	J,DX	0.075	0.032	mg/L		01/18/23 13:02	01/18/23 14:51	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/11/23 14:55	1
Turbidity (SM 2130B)	29		0.05	0.05	NTU			01/07/23 14:06	1
Total Dissolved Solids (SM 2540C)	170		10	8.7	mg/L			01/10/23 16:16	1
Total Suspended Solids (SM 2540D)	23		2.0	1.7	mg/L			01/11/23 13:16	1
MBAS (SM 5540C)	0.085	J,DX	0.30	0.054	mg/L		01/07/23 09:00	01/07/23 10:41	1
Biochemical Oxygen Demand (SM5210B)	ND		2.0	1.0	mg/L			01/07/23 13:31	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-122959-1	Outfall002_20230106_Comp	50	23	75	84	32	52
LCS 570-295604/2-A	Lab Control Sample	63	33	86	84	45	63
LCSD 570-295604/3-A	Lab Control Sample Dup	66	32	78	86	44	62
MB 570-295604/1-A	Method Blank	59	30	68	79	43	68

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 TBP = 2,4,6-Tribromophenol
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (20-139)	DCB2 (20-154)
570-122959-1	Outfall002_20230106_Comp	68 PI	33 PI

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (20-139)	DCB2 (20-154)
LCS 570-294695/2-A	Lab Control Sample	108	110
LCSD 570-294695/3-A	Lab Control Sample Dup	103	93
MB 570-294695/1-A	Method Blank	121	89

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-295604/1-A
Matrix: Water
Analysis Batch: 295532

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295604

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		01/13/23 05:33	01/13/23 17:44	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		01/13/23 05:33	01/13/23 17:44	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		01/13/23 05:33	01/13/23 17:44	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		01/13/23 05:33	01/13/23 17:44	1
Pentachlorophenol	ND		1.0	0.84	ug/L		01/13/23 05:33	01/13/23 17:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	59		31 - 120	01/13/23 05:33	01/13/23 17:44	1
Phenol-d6 (Surr)	30		10 - 120	01/13/23 05:33	01/13/23 17:44	1
p-Terphenyl-d14 (Surr)	68		45 - 120	01/13/23 05:33	01/13/23 17:44	1
2,4,6-Tribromophenol	79		28 - 127	01/13/23 05:33	01/13/23 17:44	1
2-Fluorophenol	43		17 - 120	01/13/23 05:33	01/13/23 17:44	1
Nitrobenzene-d5	68		27 - 120	01/13/23 05:33	01/13/23 17:44	1

Lab Sample ID: LCS 570-295604/2-A
Matrix: Water
Analysis Batch: 296124

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295604

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	17.0		ug/L		85	52 - 129
2,4-Dinitrotoluene	20.0	18.9		ug/L		95	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	18.7		ug/L		93	29 - 137
N-Nitrosodimethylamine	20.0	9.48		ug/L		47	20 - 120
Pentachlorophenol	20.0	16.3		ug/L		82	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	63		31 - 120
Phenol-d6 (Surr)	33		10 - 120
p-Terphenyl-d14 (Surr)	86		45 - 120
2,4,6-Tribromophenol	84		28 - 127
2-Fluorophenol	45		17 - 120
Nitrobenzene-d5	63		27 - 120

Lab Sample ID: LCSD 570-295604/3-A
Matrix: Water
Analysis Batch: 296124

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295604

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	17.1		ug/L		85	52 - 129	0	35
2,4-Dinitrotoluene	20.0	19.9		ug/L		99	48 - 127	5	25
Bis(2-ethylhexyl) phthalate	20.0	19.3		ug/L		97	29 - 137	3	50
N-Nitrosodimethylamine	20.0	9.54		ug/L		48	20 - 120	1	21
Pentachlorophenol	20.0	16.8		ug/L		84	38 - 152	3	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	66		31 - 120
Phenol-d6 (Surr)	32		10 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-295604/3-A
Matrix: Water
Analysis Batch: 296124

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295604

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
p-Terphenyl-d14 (Surr)	78		45 - 120
2,4,6-Tribromophenol	86		28 - 127
2-Fluorophenol	44		17 - 120
Nitrobenzene-d5	62		27 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-294695/1-A
Matrix: Water
Analysis Batch: 294966

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294695

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		01/10/23 08:13	01/11/23 10:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	121		20 - 139	01/10/23 08:13	01/11/23 10:57	1
DCB Decachlorobiphenyl (Surr)	89		20 - 154	01/10/23 08:13	01/11/23 10:57	1

Lab Sample ID: LCS 570-294695/2-A
Matrix: Water
Analysis Batch: 294966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294695

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0362		ug/L		108	37 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	108		20 - 139
DCB Decachlorobiphenyl (Surr)	110		20 - 154

Lab Sample ID: LCSD 570-294695/3-A
Matrix: Water
Analysis Batch: 294966

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294695

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	0.0333	0.0336		ug/L		101	37 - 140	7	36

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	103		20 - 139
DCB Decachlorobiphenyl (Surr)	93		20 - 154

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-294557/5
Matrix: Water
Analysis Batch: 294557

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			01/09/23 16:07	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 570-294557/5
Matrix: Water
Analysis Batch: 294557

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.24	mg/L			01/09/23 16:07	1

Lab Sample ID: LCS 570-294557/6
Matrix: Water
Analysis Batch: 294557

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.5		mg/L		101	90 - 110
Sulfate	50.0	50.0		mg/L		100	90 - 110

Lab Sample ID: LCSD 570-294557/7
Matrix: Water
Analysis Batch: 294557

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	50.5		mg/L		101	90 - 110	0	15
Sulfate	50.0	50.0		mg/L		100	90 - 110	0	15

Lab Sample ID: 570-122718-A-1 MS
Matrix: Water
Analysis Batch: 294557

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	8.0		50.0	61.4		mg/L		107	80 - 120
Sulfate	12		50.0	65.1		mg/L		107	80 - 120

Lab Sample ID: 570-122718-A-1 MSD
Matrix: Water
Analysis Batch: 294557

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	8.0		50.0	61.2		mg/L		106	80 - 120	0	20
Sulfate	12		50.0	65.0		mg/L		107	80 - 120	0	20

Lab Sample ID: MB 570-294558/5
Matrix: Water
Analysis Batch: 294558

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			01/09/23 16:07	1
Nitrate as N	ND		0.10	0.020	mg/L			01/09/23 16:07	1

Lab Sample ID: LCS 570-294558/6
Matrix: Water
Analysis Batch: 294558

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.51		mg/L		101	90 - 110
Nitrate as N	5.00	5.01		mg/L		100	90 - 110

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 570-294558/7
 Matrix: Water
 Analysis Batch: 294558

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.51		mg/L		101	90 - 110	0	15
Nitrate as N	5.00	5.02		mg/L		100	90 - 110	0	15

Lab Sample ID: 570-122718-A-1 MS
 Matrix: Water
 Analysis Batch: 294558

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	ND		2.50	2.63		mg/L		105	80 - 120
Nitrate as N	0.38		5.00	5.45		mg/L		101	80 - 120

Lab Sample ID: 570-122718-A-1 MSD
 Matrix: Water
 Analysis Batch: 294558

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	ND		2.50	2.64		mg/L		106	80 - 120	0	20
Nitrate as N	0.38		5.00	5.44		mg/L		101	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-295096/7
 Matrix: Water
 Analysis Batch: 295096

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/11/23 14:04	1

Lab Sample ID: LCS 570-295096/8
 Matrix: Water
 Analysis Batch: 295096

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	23.3		ug/L		93	85 - 115

Lab Sample ID: LCSD 570-295096/9
 Matrix: Water
 Analysis Batch: 295096

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	23.6		ug/L		95	85 - 115	2	15

Lab Sample ID: 570-123414-E-1 MS
 Matrix: Water
 Analysis Batch: 295096

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	ND		50.0	47.4		ug/L		95	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 570-123414-E-1 MSD
Matrix: Water
Analysis Batch: 295096

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	ND		50.0	47.1		ug/L		94	80 - 120	1	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-295281/1-A
Matrix: Water
Analysis Batch: 295467

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 295281

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		01/12/23 00:28	01/12/23 12:28	1
Copper	0.329	J,DX	2.0	0.32	ug/L		01/12/23 00:28	01/12/23 12:28	1
Lead	0.510	J,DX	1.0	0.12	ug/L		01/12/23 00:28	01/12/23 12:28	1
Selenium	ND		2.0	0.52	ug/L		01/12/23 00:28	01/12/23 12:28	1
Iron	ND		20	3.7	ug/L		01/12/23 00:28	01/12/23 12:28	1
Zinc	ND		20	2.8	ug/L		01/12/23 00:28	01/12/23 12:28	1

Lab Sample ID: LCS 570-295281/2-A
Matrix: Water
Analysis Batch: 295467

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 295281

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	84.7		ug/L		106	85 - 115
Copper	80.0	81.9		ug/L		102	85 - 115
Lead	80.0	82.2		ug/L		103	85 - 115
Selenium	80.0	84.6		ug/L		106	85 - 115
Iron	800	831		ug/L		104	85 - 115
Zinc	80.0	83.6		ug/L		104	85 - 115

Lab Sample ID: LCSD 570-295281/3-A
Matrix: Water
Analysis Batch: 295467

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 295281

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	85.5		ug/L		107	85 - 115	1	20
Copper	80.0	85.8		ug/L		107	85 - 115	5	20
Lead	80.0	81.9		ug/L		102	85 - 115	0	20
Selenium	80.0	84.4		ug/L		105	85 - 115	0	20
Iron	800	835		ug/L		104	85 - 115	0	20
Zinc	80.0	86.3		ug/L		108	85 - 115	3	20

Lab Sample ID: 570-122995-B-7-B MS
Matrix: Water
Analysis Batch: 295467

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 295281

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	84.8		ug/L		106	80 - 120
Copper	7.2	MB	80.0	87.7		ug/L		101	80 - 120
Lead	5.5	MB	80.0	86.8		ug/L		102	80 - 120
Selenium	ND		80.0	78.2		ug/L		98	80 - 120
Iron	2700		800	4200	LM	ug/L		184	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-122995-B-7-B MS
Matrix: Water
Analysis Batch: 295467

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 295281

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	19	J,DX	80.0	98.6		ug/L		100	80 - 120

Lab Sample ID: 570-122995-B-7-C MSD
Matrix: Water
Analysis Batch: 295467

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 295281

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	84.0		ug/L		105	80 - 120	1	20
Copper	7.2	MB	80.0	86.2		ug/L		99	80 - 120	2	20
Lead	5.5	MB	80.0	85.5		ug/L		100	80 - 120	1	20
Selenium	ND		80.0	77.8		ug/L		97	80 - 120	1	20
Iron	2700		800	4130	LM	ug/L		175	80 - 120	2	20
Zinc	19	J,DX	80.0	101		ug/L		103	80 - 120	2	20

Lab Sample ID: MB 570-294776/1-A
Matrix: Water
Analysis Batch: 294822

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			01/10/23 12:07	1
Copper	ND		2.0	0.32	ug/L			01/10/23 12:07	1
Lead	ND		1.0	0.12	ug/L			01/10/23 12:07	1
Selenium	ND		2.0	0.52	ug/L			01/10/23 12:07	1
Iron	ND		20	3.7	ug/L			01/10/23 12:07	1
Zinc	ND		20	2.8	ug/L			01/10/23 12:07	1

Lab Sample ID: LCS 570-294776/2-A
Matrix: Water
Analysis Batch: 294822

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	75.9		ug/L		95	85 - 115
Copper	80.0	76.3		ug/L		95	85 - 115
Lead	80.0	76.7		ug/L		96	85 - 115
Selenium	80.0	75.9		ug/L		95	85 - 115
Iron	800	786		ug/L		98	85 - 115
Zinc	80.0	75.0		ug/L		94	85 - 115

Lab Sample ID: LCSD 570-294776/3-A
Matrix: Water
Analysis Batch: 294822

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	75.0		ug/L		94	85 - 115	1	20
Copper	80.0	76.7		ug/L		96	85 - 115	0	20
Lead	80.0	75.5		ug/L		94	85 - 115	2	20
Selenium	80.0	72.7		ug/L		91	85 - 115	4	20
Iron	800	787		ug/L		98	85 - 115	0	20
Zinc	80.0	73.2		ug/L		91	85 - 115	2	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-122945-H-2-B MS
Matrix: Water
Analysis Batch: 294823

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	72.4		ug/L		90	80 - 120
Copper	2.1		80.0	73.7		ug/L		89	80 - 120
Lead	0.14	J,DX	80.0	70.2		ug/L		88	80 - 120
Selenium	ND		80.0	70.8		ug/L		89	80 - 120
Iron	77		800	801		ug/L		90	80 - 120
Zinc	3.9	J,DX	80.0	73.6		ug/L		87	80 - 120

Lab Sample ID: 570-122945-H-2-C MSD
Matrix: Water
Analysis Batch: 294823

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	73.8		ug/L		92	80 - 120	2	20
Copper	2.1		80.0	74.5		ug/L		90	80 - 120	1	20
Lead	0.14	J,DX	80.0	72.0		ug/L		90	80 - 120	3	20
Selenium	ND		80.0	71.5		ug/L		89	80 - 120	1	20
Iron	77		800	814		ug/L		92	80 - 120	2	20
Zinc	3.9	J,DX	80.0	74.4		ug/L		88	80 - 120	1	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-294903/1-A
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294903

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/10/23 17:07	01/12/23 15:05	1

Lab Sample ID: LCS 570-294903/2-A
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294903

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	7.61		ug/L		95	85 - 115

Lab Sample ID: LCSD 570-294903/3-A
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294903

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	7.83		ug/L		98	85 - 115	3	10

Lab Sample ID: 570-122945-K-1-B MS
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 294903

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.16	J,DX	8.00	7.80		ug/L		95	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-122945-K-1-C MSD
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 294903

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.16	J,DX	8.00	8.08		ug/L		99	85 - 115	4	10

Lab Sample ID: MB 570-294905/1-B
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 294909

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/10/23 17:32	01/12/23 15:29	1

Lab Sample ID: LCS 570-294905/2-B
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 294909

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	7.41		ug/L		93	85 - 115

Lab Sample ID: LCSD 570-294905/3-B
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 294909

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	7.63		ug/L		95	85 - 115	3	10

Lab Sample ID: 570-122945-D-2-E MS
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 294909

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	7.42		ug/L		93	85 - 115

Lab Sample ID: 570-122945-D-2-F MSD
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 294909

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	7.76		ug/L		97	85 - 115	4	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-296847/5-A
Matrix: Water
Analysis Batch: 296851

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296847

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		01/18/23 13:02	01/18/23 14:38	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 570-296847/6-A
Matrix: Water
Analysis Batch: 296851

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296847

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.471		mg/L		94	90 - 110

Lab Sample ID: LCSD 570-296847/7-A
Matrix: Water
Analysis Batch: 296851

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296847

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Ammonia	0.500	0.462		mg/L		92	90 - 110	2	20

Lab Sample ID: 380-33496-A-1-D MS
Matrix: Water
Analysis Batch: 296851

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 296847

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.036	J,DX	0.500	0.498		mg/L		92	90 - 110

Lab Sample ID: 380-33496-A-1-E MSD
Matrix: Water
Analysis Batch: 296851

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 296847

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Ammonia	0.036	J,DX	0.500	0.499		mg/L		93	90 - 110	0	25

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-295446/11
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			01/11/23 14:55	1

Lab Sample ID: LCS 570-295446/12
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	255		ug/L		102	90 - 110

Lab Sample ID: LCSD 570-295446/18
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Cyanide, Total	250	233		ug/L		93	90 - 110	9	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: MRL 570-295446/10
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	4.11	J,DX	ug/L		82	50 - 150

Lab Sample ID: 570-122475-D-1 MS
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	8.7		250	226		ug/L		87	70 - 130

Lab Sample ID: 570-122475-D-1 MSD
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	8.7		250	266		ug/L		103	70 - 130	16	30

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-294338/1
Matrix: Water
Analysis Batch: 294338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		100.1	99.0 - 101.0

Lab Sample ID: LCSSRM 570-294338/2
Matrix: Water
Analysis Batch: 294338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		101.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-294338/3
Matrix: Water
Analysis Batch: 294338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

Lab Sample ID: 570-123038-O-2 DU
Matrix: Water
Analysis Batch: 294338

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	0.55		0.50		NTU		6	25

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-294886/1
 Matrix: Water
 Analysis Batch: 294886

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			01/10/23 16:16	1

Lab Sample ID: LCS 570-294886/2
 Matrix: Water
 Analysis Batch: 294886

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	990		mg/L		99	84 - 108

Lab Sample ID: LCSD 570-294886/3
 Matrix: Water
 Analysis Batch: 294886

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1010		mg/L		101	84 - 108	2	10

Lab Sample ID: 570-122597-A-1 DU
 Matrix: Water
 Analysis Batch: 294886

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1900		1850		mg/L		0	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-295133/1
 Matrix: Water
 Analysis Batch: 295133

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			01/11/23 13:16	1

Lab Sample ID: LCS 570-295133/2
 Matrix: Water
 Analysis Batch: 295133

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	99.0		mg/L		99	77 - 116

Lab Sample ID: LCSD 570-295133/3
 Matrix: Water
 Analysis Batch: 295133

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	99.0		mg/L		99	77 - 116	0	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 570-122959-1 DU
 Matrix: Water
 Analysis Batch: 295133

Client Sample ID: Outfall002_20230106_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Suspended Solids	23		24.4		mg/L		5	10

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-294327/5-A
 Matrix: Water
 Analysis Batch: 294326

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 294327

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.30	0.054	mg/L		01/07/23 09:00	01/07/23 10:29	1

Lab Sample ID: LCS 570-294327/6-A
 Matrix: Water
 Analysis Batch: 294326

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 294327

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
MBAS	1.00	1.08		mg/L		108	85 - 111

Lab Sample ID: LCSD 570-294327/7-A
 Matrix: Water
 Analysis Batch: 294326

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 294327

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
MBAS	1.00	1.06		mg/L		106	85 - 111	2	7

Lab Sample ID: 570-123041-K-1-C MS
 Matrix: Water
 Analysis Batch: 294326

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 294327

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
MBAS	0.056	J,DX	1.00	1.20		mg/L		114	75 - 125

Lab Sample ID: 570-123041-K-1-D MSD
 Matrix: Water
 Analysis Batch: 294326

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 294327

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
MBAS	0.056	J,DX	1.00	1.21		mg/L		115	75 - 125	1	12

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 570-295469/2
 Matrix: Water
 Analysis Batch: 295469

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L			01/07/23 11:30	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 570-295469/4
Matrix: Water
Analysis Batch: 295469

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	189		mg/L		95	84.6 - 115.4

Lab Sample ID: 570-122916-A-1 DU
Matrix: Water
Analysis Batch: 295469

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	2300		2280		mg/L		2	25

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

GC/MS Semi VOA

Analysis Batch: 295532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	625.1 SIM	295604
MB 570-295604/1-A	Method Blank	Total/NA	Water	625.1 SIM	295604

Prep Batch: 295604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	625	
MB 570-295604/1-A	Method Blank	Total/NA	Water	625	
LCS 570-295604/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-295604/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 296124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-295604/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	295604
LCSD 570-295604/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	295604

GC Semi VOA

Prep Batch: 294695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	608	
MB 570-294695/1-A	Method Blank	Total/NA	Water	608	
LCS 570-294695/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-294695/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 294966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	608.3	294695
MB 570-294695/1-A	Method Blank	Total/NA	Water	608.3	294695
LCS 570-294695/2-A	Lab Control Sample	Total/NA	Water	608.3	294695
LCSD 570-294695/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	294695

HPLC/IC

Analysis Batch: 294557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	300.0	
MB 570-294557/5	Method Blank	Total/NA	Water	300.0	
LCS 570-294557/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-294557/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-122718-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-122718-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 294558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	300.0	
MB 570-294558/5	Method Blank	Total/NA	Water	300.0	
LCS 570-294558/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-294558/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-122718-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-122718-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

HPLC/IC

Analysis Batch: 295096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	314.0	
MB 570-295096/7	Method Blank	Total/NA	Water	314.0	
LCS 570-295096/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-295096/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-123414-E-1 MS	Matrix Spike	Total/NA	Water	314.0	
570-123414-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Analysis Batch: 295714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 294776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-3	Outfall002_20230106_Comp_F	Dissolved	Water	Filtration	
MB 570-294776/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-294776/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-294776/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-122945-H-2-B MS	Matrix Spike	Dissolved	Water	Filtration	
570-122945-H-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Analysis Batch: 294822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-294776/1-A	Method Blank	Dissolved	Water	200.8	294776
LCS 570-294776/2-A	Lab Control Sample	Dissolved	Water	200.8	294776
LCSD 570-294776/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	294776

Analysis Batch: 294823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-3	Outfall002_20230106_Comp_F	Dissolved	Water	200.8	294776
570-122945-H-2-B MS	Matrix Spike	Dissolved	Water	200.8	294776
570-122945-H-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	294776

Prep Batch: 294903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	245.1	
MB 570-294903/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-294903/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-294903/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-122945-K-1-B MS	Matrix Spike	Total/NA	Water	245.1	
570-122945-K-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Filtration Batch: 294905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-3	Outfall002_20230106_Comp_F	Dissolved	Water	Filtration	
MB 570-294905/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-294905/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-294905/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-122945-D-2-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-122945-D-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Metals

Prep Batch: 294909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-3	Outfall002_20230106_Comp_F	Dissolved	Water	245.1	294909
MB 570-294905/1-B	Method Blank	Dissolved	Water	245.1	294909
LCS 570-294905/2-B	Lab Control Sample	Dissolved	Water	245.1	294909
LCSD 570-294905/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	294909
570-122945-D-2-E MS	Matrix Spike	Dissolved	Water	245.1	294909
570-122945-D-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	294909

Prep Batch: 295281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total Recoverable	Water	200.8	
MB 570-295281/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-295281/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-295281/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-122995-B-7-B MS	Matrix Spike	Total Recoverable	Water	200.8	
570-122995-B-7-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	

Analysis Batch: 295467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total Recoverable	Water	200.8	295281
MB 570-295281/1-A	Method Blank	Total Recoverable	Water	200.8	295281
LCS 570-295281/2-A	Lab Control Sample	Total Recoverable	Water	200.8	295281
LCSD 570-295281/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	295281
570-122995-B-7-B MS	Matrix Spike	Total Recoverable	Water	200.8	295281
570-122995-B-7-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	295281

Analysis Batch: 295531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	245.1	294903
570-122959-3	Outfall002_20230106_Comp_F	Dissolved	Water	245.1	294909
MB 570-294903/1-A	Method Blank	Total/NA	Water	245.1	294903
MB 570-294905/1-B	Method Blank	Dissolved	Water	245.1	294909
LCS 570-294903/2-A	Lab Control Sample	Total/NA	Water	245.1	294903
LCS 570-294905/2-B	Lab Control Sample	Dissolved	Water	245.1	294909
LCSD 570-294903/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	294903
LCSD 570-294905/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	294909
570-122945-D-2-E MS	Matrix Spike	Dissolved	Water	245.1	294909
570-122945-D-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	294909
570-122945-K-1-B MS	Matrix Spike	Total/NA	Water	245.1	294903
570-122945-K-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	294903

General Chemistry

Analysis Batch: 294326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	SM 5540C	294327
MB 570-294327/5-A	Method Blank	Total/NA	Water	SM 5540C	294327
LCS 570-294327/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	294327
LCSD 570-294327/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	294327
570-123041-K-1-C MS	Matrix Spike	Total/NA	Water	SM 5540C	294327
570-123041-K-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	294327

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

General Chemistry

Prep Batch: 294327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	SM 5540C	
MB 570-294327/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-294327/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-294327/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-123041-K-1-C MS	Matrix Spike	Total/NA	Water	SM 5540C	
570-123041-K-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	

Analysis Batch: 294338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-294338/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-294338/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-294338/3	Lab Control Sample	Total/NA	Water	SM 2130B	
570-123038-O-2 DU	Duplicate	Total/NA	Water	SM 2130B	

Analysis Batch: 294886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	SM 2540C	
MB 570-294886/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-294886/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-294886/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-122597-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 295133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	SM 2540D	
MB 570-295133/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-295133/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-295133/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-122959-1 DU	Outfall002_20230106_Comp	Total/NA	Water	SM 2540D	

Analysis Batch: 295446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	Kelada 01	
MB 570-295446/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-295446/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-295446/18	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-295446/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-122475-D-1 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-122475-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 295469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	SM5210B	
USB 570-295469/2	Method Blank	Total/NA	Water	SM5210B	
LCS 570-295469/4	Lab Control Sample	Total/NA	Water	SM5210B	
570-122916-A-1 DU	Duplicate	Total/NA	Water	SM5210B	

Prep Batch: 296847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	Distill/Ammonia	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

General Chemistry (Continued)

Prep Batch: 296847 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-296847/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-296847/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-296847/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
380-33496-A-1-D MS	Matrix Spike	Total/NA	Water	Distill/Ammonia	
380-33496-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 296851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	350.1	296847
MB 570-296847/5-A	Method Blank	Total/NA	Water	350.1	296847
LCS 570-296847/6-A	Lab Control Sample	Total/NA	Water	350.1	296847
LCSD 570-296847/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	296847
380-33496-A-1-D MS	Matrix Spike	Total/NA	Water	350.1	296847
380-33496-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	296847

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1043.5 mL	2 mL	295604	01/13/23 05:33	H1SH	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	295532	01/13/23 20:10	ULLI	EET CAL 4
Instrument ID: GCMSJJJ										
Total/NA	Prep	608			1500 mL	1 mL	294695	01/10/23 08:13	OAJ3	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	294966	01/11/23 13:39	N5Y3	EET CAL 4
Instrument ID: GC52A										
Total/NA	Analysis	300.0		5	4 mL	4 mL	294557	01/10/23 00:08	PS	EET CAL 4
Instrument ID: IC15										
Total/NA	Analysis	300.0		5	4 mL	4 mL	294558	01/10/23 00:08	PS	EET CAL 4
Instrument ID: IC15										
Total/NA	Analysis	314.0		1	4 mL	4 mL	295096	01/11/23 15:07	PS	EET CAL 4
Instrument ID: IC13										
Total/NA	Analysis	NO2NO3 Calc		1			295714	01/13/23 11:53	WH6J	EET CAL 4
Instrument ID: NOEQUIP										
Total Recoverable	Prep	200.8			50 mL	50 mL	295281	01/12/23 00:28	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			295467	01/12/23 13:03	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Total/NA	Prep	245.1			25 mL	50 mL	294903	01/10/23 17:07	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			295531	01/12/23 15:20	C0YH	EET CAL 4
Instrument ID: HG8										
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	296847	01/18/23 13:02	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	296851	01/18/23 14:51	UXCH	EET CAL 4
Instrument ID: ACA2										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	295446	01/11/23 14:55	GG0B	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2130B		1			294338	01/07/23 14:06	ZVB7	EET CAL 4
Instrument ID: TUR4										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	294886	01/10/23 16:16	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	500 mL	1000 mL	295133	01/11/23 13:16	UWCT	EET CAL 4
Instrument ID: BAL62										
Total/NA	Prep	SM 5540C			100 mL	100 mL	294327	01/07/23 09:00	ZVB7	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	294326	01/07/23 10:41	ZVB7	EET CAL 4
Instrument ID: UV9										
Total/NA	Analysis	SM5210B		1			295469	01/07/23 13:31	U7UR	EET CAL 4
Instrument ID: BOD3										

Client Sample ID: Outfall002_20230106_Comp_F

Lab Sample ID: 570-122959-3

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	294776	01/10/23 11:06	ECX6	EET CAL 4
Dissolved	Analysis	200.8		1			294823	01/10/23 12:12	Y2WS	EET CAL 4
Instrument ID: ICPMS09										

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Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Client Sample ID: Outfall002_20230106_Comp_F

Lab Sample ID: 570-122959-3

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			25 mL	25 mL	294905	01/10/23 17:12	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	294909	01/10/23 17:32	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			295531	01/12/23 15:02	COYH	EET CAL 4

Instrument ID: HG8

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	40CFR136A	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
SM5210B	BOD, 5 Day	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	EET CAL 4
625	Liquid-Liquid Extraction	40CFR136A	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
 EPA = US Environmental Protection Agency
 None = None
 SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122959-1	Outfall002_20230106_Comp	Water	01/06/23 10:50	01/06/23 18:15
570-122959-3	Outfall002_20230106_Comp_F	Water	01/06/23 10:50	01/06/23 18:15

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Virendra Patel

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Monday, January 9, 2023 10:57 AM
To: Virendra Patel; Rapp, Kerry; Dallalah, Michelle
Subject: RE: <ON HOLD> Eurofins Calscience sample confirmation files from 570-122959-1 Boeing SSFL NPDES - Outfall 002 - Comp

EXTERNAL EMAIL*

Please analyze these samples.

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Sent: Sunday, January 8, 2023 12:16 PM
To: Miller, Katherine <KMiller@haleyaldrich.com>; Rapp, Kerry <KRapp@haleyaldrich.com>; Dallalah, Michelle <MDallalah@haleyaldrich.com>
Subject: <ON HOLD> Eurofins Calscience sample confirmation files from 570-122959-1 Boeing SSFL NPDES - Outfall 002 - Comp

CAUTION: External Email

Hello,

Attached please find the sample confirmation files for job 570-122959-1; Boeing SSFL NPDES - Outfall 002 - Comp

ALI METHODS ON HOLD PER COC

Please feel free to contact me if you have any questions.

Thank you.

Virendra Patel
Project Manager

Eurofins Calscience
Phone: 714-895-5494
Mobile: 714-887-9901

E-mail: Virendra.Patel@et.eurofinsus.com
www.eurofinsus.com/env



Reference: [570-409966]
Attachments: 3

> > Bank information has changed, please refer to remittance information on invoice. < <

* WARNING - EXTERNAL: This email originated from outside of Eurofins Environment Testing America. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122959-1

Login Number: 122959

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/6/2023 12:07:04 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-122959-2

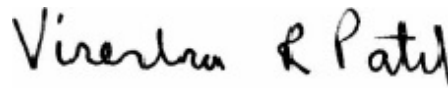
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
2/6/2023 12:07:04 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Job ID: 570-122959-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122959-2

Comments

No additional comments.

Receipt

The samples were received on 1/6/2023 6:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.5° C, 1.8° C and 2.6° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: (CCV 320-651542/2) and (MB 320-646691/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: Outfall002_20230106_Comp (570-122959-1) and (CCV 320-651543/2). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDD	0.00000051	J,DX MB	0.000051	0.0000002	ug/L	1		1613B	Total/NA
				5					
1,2,3,7,8-PeCDF	0.0000012	J,DX MB	0.000051	0.0000001	ug/L	1		1613B	Total/NA
				6					
2,3,4,7,8-PeCDF	0.00000040	J,DX MB q	0.000051	0.0000002	ug/L	1		1613B	Total/NA
				0					
1,2,3,4,7,8-HxCDD	0.0000028	J,DX MB	0.000051	0.0000005	ug/L	1		1613B	Total/NA
				6					
1,2,3,6,7,8-HxCDD	0.0000014	J,DX MB	0.000051	0.0000004	ug/L	1		1613B	Total/NA
				8					
1,2,3,7,8,9-HxCDD	0.0000016	J,DX MB q	0.000051	0.0000004	ug/L	1		1613B	Total/NA
				6					
1,2,3,4,7,8-HxCDF	0.00000077	J,DX MB q	0.000051	0.0000002	ug/L	1		1613B	Total/NA
				7					
1,2,3,6,7,8-HxCDF	0.00000060	J,DX MB q	0.000051	0.0000002	ug/L	1		1613B	Total/NA
				4					
1,2,3,7,8,9-HxCDF	0.0000028	J,DX MB	0.000051	0.0000001	ug/L	1		1613B	Total/NA
				8					
2,3,4,6,7,8-HxCDF	0.00000041	J,DX MB q	0.000051	0.0000001	ug/L	1		1613B	Total/NA
				7					
1,2,3,4,6,7,8-HpCDD	0.000051	MB	0.000051	0.0000018	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.000012	J,DX MB	0.000051	0.0000004	ug/L	1		1613B	Total/NA
				2					
1,2,3,4,7,8,9-HpCDF	0.0000013	J,DX MB q	0.000051	0.0000003	ug/L	1		1613B	Total/NA
				9					
OCDD	0.00048	MB	0.00010	0.0000027	ug/L	1		1613B	Total/NA
OCDF	0.000025	J,DX MB	0.00010	0.0000002	ug/L	1		1613B	Total/NA
				9					
Total TCDD	0.00000043	J,DX q	0.000010	0.0000002	ug/L	1		1613B	Total/NA
				6					
Total TCDF	0.00000094	J,DX MB q	0.000010	0.0000001	ug/L	1		1613B	Total/NA
				2					
Total PeCDD	0.00000051	J,DX MB	0.000051	0.0000002	ug/L	1		1613B	Total/NA
				5					
Total PeCDF	0.0000016	J,DX MB q	0.000051	0.0000001	ug/L	1		1613B	Total/NA
				6					
Total HxCDD	0.000014	J,DX MB q	0.000051	0.0000004	ug/L	1		1613B	Total/NA
				6					
Total HxCDF	0.0000078	J,DX MB q	0.000051	0.0000001	ug/L	1		1613B	Total/NA
				7					
Total HpCDD	0.000098	MB	0.000051	0.0000018	ug/L	1		1613B	Total/NA
Total HpCDF	0.000028	J,DX MB q	0.000051	0.0000003	ug/L	1		1613B	Total/NA
				9					

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000002	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,7,8-PeCDD	0.00000051	J,DX MB	0.000051	0.0000002	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,7,8-PeCDF	0.00000012	J,DX MB	0.000051	0.0000001	ug/L		01/13/23 05:53	01/28/23 10:03	1
2,3,4,7,8-PeCDF	0.00000040	J,DX MB q	0.000051	0.0000002	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,4,7,8-HxCDD	0.00000028	J,DX MB	0.000051	0.0000005	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,6,7,8-HxCDD	0.00000014	J,DX MB	0.000051	0.0000004	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,7,8,9-HxCDD	0.00000016	J,DX MB q	0.000051	0.0000004	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,4,7,8-HxCDF	0.00000077	J,DX MB q	0.000051	0.0000002	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,6,7,8-HxCDF	0.00000060	J,DX MB q	0.000051	0.0000002	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,7,8,9-HxCDF	0.00000028	J,DX MB	0.000051	0.0000001	ug/L		01/13/23 05:53	01/28/23 10:03	1
2,3,4,6,7,8-HxCDF	0.00000041	J,DX MB q	0.000051	0.0000001	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,4,6,7,8-HpCDD	0.000051	MB	0.000051	0.0000018	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,4,6,7,8-HpCDF	0.000012	J,DX MB	0.000051	0.0000004	ug/L		01/13/23 05:53	01/28/23 10:03	1
1,2,3,4,7,8,9-HpCDF	0.00000013	J,DX MB q	0.000051	0.0000003	ug/L		01/13/23 05:53	01/28/23 10:03	1
OCDD	0.00048	MB	0.00010	0.0000027	ug/L		01/13/23 05:53	01/28/23 10:03	1
OCDF	0.000025	J,DX MB	0.00010	0.0000002	ug/L		01/13/23 05:53	01/28/23 10:03	1
Total TCDD	0.00000043	J,DX q	0.000010	0.0000002	ug/L		01/13/23 05:53	01/28/23 10:03	1
Total TCDF	0.00000094	J,DX MB q	0.000010	0.0000001	ug/L		01/13/23 05:53	01/28/23 10:03	1
Total PeCDD	0.00000051	J,DX MB	0.000051	0.0000002	ug/L		01/13/23 05:53	01/28/23 10:03	1
Total PeCDF	0.00000016	J,DX MB q	0.000051	0.0000001	ug/L		01/13/23 05:53	01/28/23 10:03	1
Total HxCDD	0.000014	J,DX MB q	0.000051	0.0000004	ug/L		01/13/23 05:53	01/28/23 10:03	1
Total HxCDF	0.00000078	J,DX MB q	0.000051	0.0000001	ug/L		01/13/23 05:53	01/28/23 10:03	1
Total HpCDD	0.000098	MB	0.000051	0.0000018	ug/L		01/13/23 05:53	01/28/23 10:03	1
Total HpCDF	0.000028	J,DX MB q	0.000051	0.0000003	ug/L		01/13/23 05:53	01/28/23 10:03	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	73		25 - 164	01/13/23 05:53	01/28/23 10:03	1
13C-2,3,7,8-TCDF	77		24 - 169	01/13/23 05:53	01/28/23 10:03	1
13C-1,2,3,7,8-PeCDD	62		25 - 181	01/13/23 05:53	01/28/23 10:03	1
13C-1,2,3,7,8-PeCDF	67		24 - 185	01/13/23 05:53	01/28/23 10:03	1
13C-2,3,4,7,8-PeCDF	61		21 - 178	01/13/23 05:53	01/28/23 10:03	1
13C-1,2,3,4,7,8-HxCDD	52		32 - 141	01/13/23 05:53	01/28/23 10:03	1
13C-1,2,3,6,7,8-HxCDD	63		28 - 130	01/13/23 05:53	01/28/23 10:03	1
13C-1,2,3,4,7,8-HxCDF	46		26 - 152	01/13/23 05:53	01/28/23 10:03	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230106_Comp
Date Collected: 01/06/23 10:50
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,6,7,8-HxCDF	56		26 - 123	01/13/23 05:53	01/28/23 10:03	1
13C-1,2,3,7,8,9-HxCDF	77		29 - 147	01/13/23 05:53	01/28/23 10:03	1
13C-2,3,4,6,7,8-HxCDF	76		28 - 136	01/13/23 05:53	01/28/23 10:03	1
13C-1,2,3,4,6,7,8-HpCDD	66		23 - 140	01/13/23 05:53	01/28/23 10:03	1
13C-1,2,3,4,6,7,8-HpCDF	55		28 - 143	01/13/23 05:53	01/28/23 10:03	1
13C-1,2,3,4,7,8,9-HpCDF	71		26 - 138	01/13/23 05:53	01/28/23 10:03	1
13C-OCDD	84		17 - 157	01/13/23 05:53	01/28/23 10:03	1
13C-OCDF	77		17 - 157	01/13/23 05:53	01/28/23 10:03	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	91		35 - 197	01/13/23 05:53	01/28/23 10:03	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.000010	0.0000004	ug/L		01/13/23 05:53	02/03/23 16:30	1
				0					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	70		24 - 169				01/13/23 05:53	02/03/23 16:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	104		35 - 197				01/13/23 05:53	02/03/23 16:30	1

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- 14
- 15
- 16

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-122959-1	Outfall002_20230106_Comp	91
570-122959-1 - RA	Outfall002_20230106_Comp	104
MB 320-646691/1-A	Method Blank	90
MB 320-646691/1-A - RA	Method Blank	109

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-646691/2-A	Lab Control Sample	91
LCSD 320-646691/3-A	Lab Control Sample Dup	93

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-122959-1	Outfall002_20230106_Comp	73	77	62	67	61	52	63	46
570-122959-1 - RA	Outfall002_20230106_Comp		70						
MB 320-646691/1-A	Method Blank	74	76	56	61	52	41	51	35
MB 320-646691/1-A - RA	Method Blank		69						

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	¹³ CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-122959-1	Outfall002_20230106_Comp	56	77	76	66	55	71	84	77
570-122959-1 - RA	Outfall002_20230106_Comp								
MB 320-646691/1-A	Method Blank	45	78	72	65	46	72	85	77
MB 320-646691/1-A - RA	Method Blank								

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- ¹³CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-646691/2-A	Lab Control Sample	75	78	61	65	56	45	56	41
LCSD 320-646691/3-A	Lab Control Sample Dup	79	82	65	68	61	51	60	44

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	¹³ CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-646691/2-A	Lab Control Sample	48	80	75	69	52	75	90	83
LCSD 320-646691/3-A	Lab Control Sample Dup	53	85	81	73	56	79	96	87

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF

Eurofins Calscience

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-122959-2

Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

HxCDD = 13C-1,2,3,4,7,8-HxCDD

HxDD = 13C-1,2,3,6,7,8-HxCDD

HxCDF = 13C-1,2,3,4,7,8-HxCDF

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-646691/1-A
Matrix: Water
Analysis Batch: 650041

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 646691

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,4,7,8-PeCDF	52		21 - 178	01/13/23 05:53	01/28/23 03:52	1
13C-1,2,3,4,7,8-HxCDD	41		32 - 141	01/13/23 05:53	01/28/23 03:52	1
13C-1,2,3,6,7,8-HxCDD	51		28 - 130	01/13/23 05:53	01/28/23 03:52	1
13C-1,2,3,4,7,8-HxCDF	35		26 - 152	01/13/23 05:53	01/28/23 03:52	1
13C-1,2,3,6,7,8-HxCDF	45		26 - 123	01/13/23 05:53	01/28/23 03:52	1
13C-1,2,3,7,8,9-HxCDF	78		29 - 147	01/13/23 05:53	01/28/23 03:52	1
13C-2,3,4,6,7,8-HxCDF	72		28 - 136	01/13/23 05:53	01/28/23 03:52	1
13C-1,2,3,4,6,7,8-HpCDD	65		23 - 140	01/13/23 05:53	01/28/23 03:52	1
13C-1,2,3,4,6,7,8-HpCDF	46		28 - 143	01/13/23 05:53	01/28/23 03:52	1
13C-1,2,3,4,7,8,9-HpCDF	72		26 - 138	01/13/23 05:53	01/28/23 03:52	1
13C-OCDD	85		17 - 157	01/13/23 05:53	01/28/23 03:52	1
13C-OCDF	77		17 - 157	01/13/23 05:53	01/28/23 03:52	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	90		35 - 197	01/13/23 05:53	01/28/23 03:52	1

Lab Sample ID: LCS 320-646691/2-A
Matrix: Water
Analysis Batch: 650041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 646691

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000217	MB	ug/L		109	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00111	MB	ug/L		111	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00111	MB	ug/L		111	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00114	MB	ug/L		114	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00107	MB	ug/L		107	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00104	MB	ug/L		104	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00153	MB	ug/L		153	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00109	MB	ug/L		109	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00111	MB	ug/L		111	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00108	MB	ug/L		108	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00109	MB	ug/L		109	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00109	MB	ug/L		109	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00105	MB	ug/L		105	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00111	MB	ug/L		111	78 - 138
OCDD	0.00200	0.00201	MB	ug/L		100	78 - 144
OCDF	0.00200	0.00225	MB	ug/L		113	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	75		20 - 175
13C-2,3,7,8-TCDF	78		22 - 152
13C-1,2,3,7,8-PeCDD	61		21 - 227
13C-1,2,3,7,8-PeCDF	65		21 - 192
13C-2,3,4,7,8-PeCDF	56		13 - 328
13C-1,2,3,4,7,8-HxCDD	45		21 - 193
13C-1,2,3,6,7,8-HxCDD	56		25 - 163
13C-1,2,3,4,7,8-HxCDF	41		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-646691/2-A
Matrix: Water
Analysis Batch: 650041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 646691

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,6,7,8-HxCDF	48		21 - 159
13C-1,2,3,7,8,9-HxCDF	80		17 - 205
13C-2,3,4,6,7,8-HxCDF	75		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	69		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	52		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	75		20 - 186
13C-OCDD	90		13 - 199
13C-OCDF	83		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	91		31 - 191

Lab Sample ID: LCSD 320-646691/3-A
Matrix: Water
Analysis Batch: 650041

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 646691

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000211		ug/L		105	67 - 158	1	50	
2,3,7,8-TCDF	0.000200	0.000216	MB	ug/L		108	75 - 158	1	50	
1,2,3,7,8-PeCDD	0.00100	0.00109	MB	ug/L		109	70 - 142	1	50	
1,2,3,7,8-PeCDF	0.00100	0.00110	MB	ug/L		110	80 - 134	1	50	
2,3,4,7,8-PeCDF	0.00100	0.00112	MB	ug/L		112	68 - 160	2	50	
1,2,3,4,7,8-HxCDD	0.00100	0.00105	MB	ug/L		105	70 - 164	1	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00103	MB	ug/L		103	76 - 134	2	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00145	MB	ug/L		145	64 - 162	5	50	
1,2,3,4,7,8-HxCDF	0.00100	0.00108	MB	ug/L		108	72 - 134	1	50	
1,2,3,6,7,8-HxCDF	0.00100	0.00110	MB	ug/L		110	84 - 130	1	50	
1,2,3,7,8,9-HxCDF	0.00100	0.00107	MB	ug/L		107	78 - 130	1	50	
2,3,4,6,7,8-HxCDF	0.00100	0.00108	MB	ug/L		108	70 - 156	1	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00107	MB	ug/L		107	70 - 140	2	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00104	MB	ug/L		104	82 - 122	0	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00109	MB	ug/L		109	78 - 138	2	50	
OCDD	0.00200	0.00196	MB	ug/L		98	78 - 144	2	50	
OCDF	0.00200	0.00222	MB	ug/L		111	63 - 170	1	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	79		20 - 175
13C-2,3,7,8-TCDF	82		22 - 152
13C-1,2,3,7,8-PeCDD	65		21 - 227
13C-1,2,3,7,8-PeCDF	68		21 - 192
13C-2,3,4,7,8-PeCDF	61		13 - 328
13C-1,2,3,4,7,8-HxCDD	51		21 - 193
13C-1,2,3,6,7,8-HxCDD	60		25 - 163
13C-1,2,3,4,7,8-HxCDF	44		19 - 202
13C-1,2,3,6,7,8-HxCDF	53		21 - 159
13C-1,2,3,7,8,9-HxCDF	85		17 - 205
13C-2,3,4,6,7,8-HxCDF	81		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	73		26 - 166

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-646691/3-A
Matrix: Water
Analysis Batch: 650041

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 646691

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,4,6,7,8-HpCDF	56		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	79		20 - 186
13C-OCDD	96		13 - 199
13C-OCDF	87		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	93		31 - 191

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-646691/1-A
Matrix: Water
Analysis Batch: 651542

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 646691

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>EDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,3,7,8-TCDF - RA	ND		0.000010	0.0000004	ug/L		01/13/23 05:53	02/03/23 08:59	1

<i>Isotope Dilution</i>	<i>MB MB</i>		<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
13C-2,3,7,8-TCDF - RA	69		24 - 169	01/13/23 05:53	02/03/23 08:59	1

<i>Surrogate</i>	<i>MB MB</i>		<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
37Cl4-2,3,7,8-TCDD - RA	109		35 - 197	01/13/23 05:53	02/03/23 08:59	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Specialty Organics

Prep Batch: 646691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1 - RA	Outfall002_20230106_Comp	Total/NA	Water	1613B	
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	1613B	
MB 320-646691/1-A - RA	Method Blank	Total/NA	Water	1613B	
MB 320-646691/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-646691/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-646691/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 650041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	1613B	646691
MB 320-646691/1-A	Method Blank	Total/NA	Water	1613B	646691
LCS 320-646691/2-A	Lab Control Sample	Total/NA	Water	1613B	646691
LCSD 320-646691/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	646691

Analysis Batch: 651542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-646691/1-A - RA	Method Blank	Total/NA	Water	1613B	646691

Analysis Batch: 651543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1 - RA	Outfall002_20230106_Comp	Total/NA	Water	1613B	646691

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B	RA		989.2 mL	20.0 uL	646691	01/13/23 05:53	FC	EET SAC
Total/NA	Analysis	1613B	RA	1	1 uL	1 uL	651543	02/03/23 16:30	GRB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			989.2 mL	20.0 uL	646691	01/13/23 05:53	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	650041	01/28/23 10:03	GRB	EET SAC
Instrument ID: 12D5										

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23 *
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122959-1	Outfall002_20230106_Comp	Water	01/06/23 10:50	01/06/23 18:15

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- 16

Virendra Patel

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Monday, January 9, 2023 10:57 AM
To: Virendra Patel; Rapp, Kerry; Dallalah, Michelle
Subject: RE: <ON HOLD> Eurofins Calscience sample confirmation files from 570-122959-1 Boeing SSFL NPDES - Outfall 002 - Comp

EXTERNAL EMAIL*

Please analyze these samples.

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Sent: Sunday, January 8, 2023 12:16 PM
To: Miller, Katherine <KMiller@haleyaldrich.com>; Rapp, Kerry <KRapp@haleyaldrich.com>; Dallalah, Michelle <MDallalah@haleyaldrich.com>
Subject: <ON HOLD> Eurofins Calscience sample confirmation files from 570-122959-1 Boeing SSFL NPDES - Outfall 002 - Comp

CAUTION: External Email

Hello,

Attached please find the sample confirmation files for job 570-122959-1; Boeing SSFL NPDES - Outfall 002 - Comp

ALI METHODS ON HOLD PER COC

Please feel free to contact me if you have any questions.

Thank you.

Virendra Patel
Project Manager

Eurofins Calscience
Phone: 714-895-5494
Mobile: 714-887-9901

E-mail: Virendra.Patel@et.eurofinsus.com
www.eurofinsus.com/env



Reference: [570-409966]
Attachments: 3

> > Bank information has changed, please refer to remittance information on invoice. < <

* WARNING - EXTERNAL: This email originated from outside of Eurofins Environment Testing America. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

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122959

CHAIN OF CUSTODY FORM

HOLD ALL SAMPLES UNTIL FURTHER DIRECTION FROM CLIENT

1/6/2023 1100 JMD

Eurofins Calscience Irvine

Haley & Aldrich

5333 Mission Center Rd Suite 300 San Diego, CA 92108

Eurofins Calscience Irvine Contact: Christian Bondoc

17461 Denian Ave Suite #100 Irvine CA 92614

Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Bracket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Adrian Mobeka

Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall #001, 002, 011, 018J Outfall 002 Comp

Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)

Table with columns: Sample Description, Sample I.D., Sampling Date/Time, Sample Matrix, Container Type, # of Cont., Preservative, Bottle #, MS/MSD, Total Recoverable Metals, TCDD, BOD5, Surfactants, Cl- SO4 Nitrate-N Nitrite-N NO3+NO2-N, Turbidity TDS, TSS, Ammonia-N, alpha-BHC, 2,4,6-TCP, SVOCs, Total Recoverable Metals, Comments.

Legend C=Conditional, R=Routine. Received By, Date/Time, Relinquished By, Date/Time, Turn-around time, Sample Integrity, Store samples for 6 months, Data Requirements, All Level IV.



570-122959 Chain of Custody

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM: Patel, Virendra		Carrier Tracking No(s): 570-203580 1		
Client Contact: Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et-eurofins.com		Page: Page 1 of 1		
Company: Eurofins Environment Testing Northern Ca		Address: 880 Riverside Parkway, West Sacramento State, Zip: CA, 95605		State of Origin: California		Job #: 570-122959-2	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		PO #:	TAT Requested (days)		Preservation Codes		M - Hexane N - None O - As/NaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:
Email:		WO #:	Due Date Requested 1/24/2023		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA		
Project #: Boeing SSFL NPDES - Outfall 002 - Comp		SSOW#:	Project #: 44024446		Total Number of Containers 2 See QAS: Boeing_w/u to zero ug/L Use Boeing glassware 2 See QAS: Boeing_w/u to zero, ug/L, Use Boeing glassware		Special Instructions/Note: See QAS: Boeing_w/u to zero ug/L Use Boeing glassware 2 See QAS: Boeing_w/u to zero, ug/L, Use Boeing glassware
Site:		Sample Date 1/6/23 10:50 Pacific 1/6/23 10:50 Pacific		Perform MS/MSD (Yes or No) 1613B/1613B_Sox_Sep_P Standard List w/ Totals X (Hold) 1613B/1613B_Sox_Sep_P Standard List w/ Totals X			
Sample Identification - Client ID (Lab ID) Outfall002_20230106_Comp (570-122959-1) Outfall002_20230106_Comp_Extra (570-122959-2)		Sample Time 10:50 Pacific 10:50 Pacific		Field Filtered Sample (Yes or No) X 1613B/1613B_Sox_Sep_P Standard List w/ Totals X		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) Water Water	
Possible Hazard Identification Unconfirmed Deliverable Requested I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements:	
Relinquished by Date/Time: 1/9/23 1552		Date/Time: 1/9/23 1552		Received by Company: EC		Date/Time:	
Relinquished by Date/Time:		Date/Time:		Received by Company:		Date/Time:	
Relinquished by Date/Time:		Date/Time:		Received by Company:		Date/Time:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks:		Ver 06/08/2021	



Chain of Custody Record



Client Information (Sub Contract Lab)
 Client Contact: Patel, Viyendra
 Shipping/Receiving: Viyendra.Patel@et.eurofins.com
 Company: Eurofins Environment Testing Northern Ca
 Address: 880 Riverside Parkway, West Sacramento, CA, 95605
 Phone: 916-373-5600(Tel) 916-372-1059(Fax)
 Email: [Redacted]
 Project Name: Boeing SSFL NPDES - Outfall 002 - Comp
 Site: [Redacted]

Sampler: Patel, Viyendra
 Lab PM: Patel, Viyendra
 E-Mail: Viyendra.Patel@et.eurofins.com
 State of Origin: California
 Carrier Tracking No(s): [Redacted]
 COC No: 570-203580.1
 Page: Page 1 of 1
 Job #: 570-122959-2

Due Date Requested: 1/24/2023
TAT Requested (days): [Redacted]
PO #: [Redacted]
WO #: [Redacted]
Project #: 44024446
SSOW#: [Redacted]

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, M=metals, B=biomass, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		1613B/1613B_Sox_Sep_P Standard List w/ Totals		1613B/1613B_Sox_Sep_P Standard List w/ Totals		Total Number of Containers	Special Instructions/Note:
						Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)		
Outfall002_20230106_Comp (570-122959-1)	1/6/23	10:50 Pacific		Water		X		X						2	See QAS, Boeig_wtu to zero, ug/L; Use Boeig glassware.
Outfall002_20230106_Comp_Extra (570-122959-2)	1/6/23	10:50 Pacific		Water				X						2	See QAS, Boeig_wtu to zero, ug/L; Use Boeig glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) [Redacted]
 Primary Deliverable Rank: 2
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For [Redacted] Months
 Special Instructions/QC Requirements:

Empty Kit Relinquished by: [Redacted] Date: [Redacted]
 Relinquished by: [Redacted] Date/Time: 1/19/23 1552 Company: EC
 Relinquished by: [Redacted] Date/Time: [Redacted] Company: [Redacted]
 Relinquished by: [Redacted] Date/Time: [Redacted] Company: [Redacted]
 Custody Seals Intact: [Redacted] Custody Seal No.: [Redacted]
 Cooler Temperature(s) °C and Other Remarks: 3.6C

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122959-2

Login Number: 122959

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Virendra

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122959-2

Login Number: 122959

List Number: 3

Creator: Guzman, Juan

List Source: Eurofins Sacramento

List Creation: 01/10/23 04:14 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-122959-3

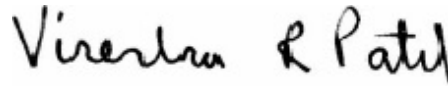
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Qualifiers

Rad

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Job ID: 570-122959-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122959-3

Comments

No additional comments.

Receipt

The samples were received on 1/6/2023 6:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.5° C, 1.8° C and 2.6° C.

Receipt Exceptions

The reference method requires samples to be preserved to a pH of <2 SU. The following samples were received with insufficient preservation at a pH of >2 SU: Outfall002_20230106_Comp (570-122959-1), Outfall002_20230106_Comp_Extra (570-122959-2) and Outfall002_20230106_Comp_F (570-122959-3). 570-122959-T-1. The sample was preserved to the appropriate pH in the laboratory.

RAD

Method 900.0: Gross Alpha Beta prep batch 160-597281:

The matrix spike (MS) recoveries for gross alpha were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits. (570-123038-A-2-E MS)

Method 900.0: Gross Alpha Beta prep batch 160-597281:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230106_Comp (570-122959-1), (LCS 160-597281/2-A), (LCSB 160-597281/3-A), (MB 160-597281/1-A), (570-123038-A-2-D), (570-123038-A-2-G DU), (570-123038-A-2-E MS) and (570-123038-A-2-F MSBT)

Method 901.1: Gamma Prep Batch 160-596761

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Job ID: 570-122959-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Th-227 Pb-211
Bi-214 Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230106_Comp (570-122959-1), (570-122687-U-1-D) and (570-122687-U-1-J DU)

Methods 903.0, 9315: Radium-226 batch 596421

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230106_Comp (570-122959-1), (LCS 160-596421/2-A), (LCSD 160-596421/3-A) and (MB 160-596421/1-A)

Methods 904.0, 9320: Radium-228 prep batch 160-596471:

The Ra-228 laboratory control sample (LCS) associated with the following samples recovered at 128%: (LCS 160-596471/2-A). The limits in our LIMS system at (75-125%) reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS is within criteria and no further action is required.

Method 904.0: Radium-228 prep batch 160-596471:

The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative.

Outfall002_20230106_Comp (570-122959-1)

Methods 904.0, 9320: Radium-228 prep batch 160-596471:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230106_Comp (570-122959-1), (LCS 160-596471/2-A), (LCSD 160-596471/3-A) and (MB 160-596471/1-A)

Method 905: Strontium-90 prep batch 160-596746:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230106_Comp (570-122959-1), (LCS 160-596746/2-A), (LCSD 160-596746/3-A), (MB 160-596746/1-A) and (570-122687-U-1-C)

Method 906.0: Tritium 597258

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230106_Comp (570-122959-1), (LCS 160-597258/2-A), (MB 160-597258/1-A), (160-48493-A-2-A), (160-48493-A-2-B MS), (160-48582-A-1-A) and (160-48582-A-1-C DU)

Method A-01-R: Isotopic Uranium batch 597259

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Job ID: 570-122959-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

applied as the Activity Reference Date.

Outfall002_20230106_Comp (570-122959-1), (LCS 160-597259/2-A), (MB 160-597259/1-A), (570-123038-A-2-B) and (570-123038-A-2-C DU)

Method ExtChrom: Uranium Prep Batch 160-597259

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall002_20230106_Comp (570-122959-1).

Method PrecSep_0: Radium-228 Prep Batch 160-596471

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230106_Comp (570-122959-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-596421

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230106_Comp (570-122959-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-7: Strontium 90 Prep Batch 160-596746

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230106_Comp (570-122959-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230106_Comp
 Date Collected: 01/06/23 10:50
 Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.749	U	1.08	1.08	3.00	2.22	pCi/L	01/18/23 10:03	02/02/23 18:50	1
Gross Beta	3.58		0.765	0.845	4.00	0.840	pCi/L	01/18/23 10:03	02/02/23 18:50	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230106_Comp
Date Collected: 01/06/23 10:50
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-1.88	U	8.10	8.10	20.0	9.86	pCi/L	01/12/23 14:04	01/27/23 15:16	1
Potassium-40	-30.0	U	99.0	99.1		126	pCi/L	01/12/23 14:04	01/27/23 15:16	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230106_Comp
Date Collected: 01/06/23 10:50
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.114	U	0.136	0.137	1.00	0.223	pCi/L	01/11/23 09:34	02/02/23 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	47.2		40 - 110					01/11/23 09:34	02/02/23 09:47	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230106_Comp
Date Collected: 01/06/23 10:50
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.96	G	1.28	1.30	1.00	1.91	pCi/L	01/11/23 10:20	01/20/23 12:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	47.2		40 - 110					01/11/23 10:20	01/20/23 12:14	1
Y Carrier	62.4		40 - 110					01/11/23 10:20	01/20/23 12:14	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230106_Comp
 Date Collected: 01/06/23 10:50
 Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.296	U	0.388	0.389	3.00	0.646	pCi/L	01/12/23 11:13	01/27/23 18:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	87.5		40 - 110					01/12/23 11:13	01/27/23 18:50	1
Y Carrier	85.6		40 - 110					01/12/23 11:13	01/27/23 18:50	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230106_Comp
Date Collected: 01/06/23 10:50
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	27.9	U	165	165	500	298	pCi/L	01/17/23 15:44	01/20/23 19:13	1

- 1
- 2
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- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230106_Comp
 Date Collected: 01/06/23 10:50
 Date Received: 01/06/23 18:15

Lab Sample ID: 570-122959-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.462		0.300	0.301	1.00	0.305	pCi/L	01/17/23 16:09	01/25/23 14:42	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	78.3		30 - 110					01/17/23 16:09	01/25/23 14:42	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
570-122959-1	Outfall002_20230106_Comp	47.2	
LCS 160-596421/2-A	Lab Control Sample	91.6	
LCSD 160-596421/3-A	Lab Control Sample Dup	99.4	
MB 160-596421/1-A	Method Blank	97.5	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
570-122959-1	Outfall002_20230106_Comp	47.2	62.4
LCS 160-596471/2-A	Lab Control Sample	91.6	77.0
LCSD 160-596471/3-A	Lab Control Sample Dup	99.4	84.1
MB 160-596471/1-A	Method Blank	97.5	82.6
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (40-110)	Y (40-110)
570-122959-1	Outfall002_20230106_Comp	87.5	85.6
LCS 160-596746/2-A	Lab Control Sample	88.4	89.0
LCSD 160-596746/3-A	Lab Control Sample Dup	85.9	91.6
MB 160-596746/1-A	Method Blank	87.7	74.4
Tracer/Carrier Legend			
Sr = Sr Carrier			
Y = Y Carrier			

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
570-122959-1	Outfall002_20230106_Comp	78.3	
570-123038-A-2-C DU	Duplicate	86.2	
LCS 160-597259/2-A	Lab Control Sample	87.1	
MB 160-597259/1-A	Method Blank	85.3	
Tracer/Carrier Legend			
U-232 = Uranium-232			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-597281/1-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597281

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.3178	U	0.498	0.499	3.00	0.856	pCi/L	01/18/23 10:03	02/01/23 19:04	1
Gross Beta	-0.4920	U	0.450	0.452	4.00	0.892	pCi/L	01/18/23 10:03	02/01/23 19:04	1

Lab Sample ID: LCS 160-597281/2-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597281

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Gross Alpha	50.5	47.50		7.10	3.00	2.60	pCi/L	94	75 - 125

Lab Sample ID: LCSB 160-597281/3-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597281

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Gross Beta	73.7	65.09		7.04	4.00	0.936	pCi/L	88	75 - 125

Lab Sample ID: 570-123038-A-2-E MS
Matrix: Water
Analysis Batch: 599058

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 597281

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec
						Uncert. (2σ+/-)					Limits
Gross Alpha	1.45	U	50.5	20.83	F1	3.86	3.00	1.88	pCi/L	38	60 - 140

Lab Sample ID: 570-123038-A-2-F MSBT
Matrix: Water
Analysis Batch: 599058

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 597281

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec
						Uncert. (2σ+/-)					Limits
Gross Beta	2.09		73.7	68.81		7.42	4.00	0.924	pCi/L	91	60 - 140

Lab Sample ID: 570-123038-A-2-G DU
Matrix: Water
Analysis Batch: 599058

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597281

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER
					Uncert. (2σ+/-)					Limit
Gross Alpha	1.45	U	1.117	U	1.34	3.00	2.19	pCi/L	0.12	1
Gross Beta	2.09		2.039		0.737	4.00	0.937	pCi/L	0.03	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-596761/1-A
Matrix: Water
Analysis Batch: 598464

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596761

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	0.3405	U	6.22	6.22	20.0	7.49	pCi/L	01/12/23 14:04	01/27/23 09:19	1
Potassium-40	-26.73	U	74.0	74.1		112	pCi/L	01/12/23 14:04	01/27/23 09:19	1

Lab Sample ID: LCS 160-596761/2-A
Matrix: Water
Analysis Batch: 598468

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596761

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	135000	135600		15900		323	pCi/L	100	75 - 125
Cesium-137	41000	41980		4940	20.0	82.6	pCi/L	102	75 - 125
Cobalt-60	18200	18860		2220		68.1	pCi/L	104	75 - 125

Lab Sample ID: 570-122687-U-1-J DU
Matrix: Water
Analysis Batch: 598468

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596761

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Cesium-137	2.96	U	4.522	U	4.76	20.0	5.51	pCi/L		0.15
Potassium-40	-80.4	U	23.29	U	81.8		108	pCi/L		0.54

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-596421/1-A
Matrix: Water
Analysis Batch: 599059

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596421

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.02900	U	0.0421	0.0422	1.00	0.0719	pCi/L	01/11/23 09:34	02/02/23 09:40	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	97.5		40 - 110				01/11/23 09:34	02/02/23 09:40	1	

Lab Sample ID: LCS 160-596421/2-A
Matrix: Water
Analysis Batch: 599059

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596421

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	10.48		1.08	1.00	0.0823	pCi/L	92	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	91.6		40 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-596421/3-A
Matrix: Water
Analysis Batch: 599059

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 596421

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
									Limits	RER		
Radium-226	11.3	10.98		1.12	1.00	0.0883	pCi/L	97	75 - 125	0.23		1
Carrier		LCS	LCS									
	%Yield	Qualifier	Limits									
Ba Carrier	99.4											

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-596471/1-A
Matrix: Water
Analysis Batch: 597712

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596471

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
								Prepared	Analyzed	Prepared	Analyzed	
Radium-228	-0.04645	U	0.259	0.259	1.00	0.502	pCi/L	01/11/23 10:20	01/20/23 12:06			1
Carrier		MB	Limits									
	%Yield	Qualifier	Limits									
Ba Carrier	97.5		40 - 110					01/11/23 10:20	01/20/23 12:06			1
Y Carrier	82.6		40 - 110					01/11/23 10:20	01/20/23 12:06			1

Lab Sample ID: LCS 160-596471/2-A
Matrix: Water
Analysis Batch: 597712

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596471

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
									Limits	RER		
Radium-228	8.26	10.58		1.44	1.00	0.643	pCi/L	128	75 - 125			
Carrier		LCS	LCS									
	%Yield	Qualifier	Limits									
Ba Carrier	91.6											
Y Carrier	77.0											

Lab Sample ID: LCSD 160-596471/3-A
Matrix: Water
Analysis Batch: 597712

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 596471

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
									Limits	RER		
Radium-228	8.26	9.293		1.25	1.00	0.462	pCi/L	112	75 - 125	0.48		1
Carrier		LCS	LCS									
	%Yield	Qualifier	Limits									
Ba Carrier	99.4											
Y Carrier	84.1											

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-596746/1-A
Matrix: Water
Analysis Batch: 598557

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596746

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	-0.1133	U	0.196	0.196	3.00	0.373	pCi/L	01/12/23 11:13	01/27/23 18:47	1
Carrier	MB MB		Limits					Prepared	Analyzed	Dil Fac
	%Yield	Qualifier								
Sr Carrier	87.7		40 - 110					01/12/23 11:13	01/27/23 18:47	1
Y Carrier	74.4		40 - 110					01/12/23 11:13	01/27/23 18:47	1

Lab Sample ID: LCS 160-596746/2-A
Matrix: Water
Analysis Batch: 598557

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596746

Analyte		Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	RER	Limit
			Result	Qual	Uncert. (2σ+/-)					Limits		
Strontium-90		7.38	7.183		0.793	3.00	0.290	pCi/L	97	75 - 125		
Carrier	LCS LCS		Limits									
	%Yield	Qualifier										
Sr Carrier	88.4		40 - 110									
Y Carrier	89.0		40 - 110									

Lab Sample ID: LCSD 160-596746/3-A
Matrix: Water
Analysis Batch: 598557

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 596746

Analyte		Spike Added	LCSD	LCSD	Total	RL	MDC	Unit	%Rec	%Rec	RER	Limit
			Result	Qual	Uncert. (2σ+/-)					Limits		
Strontium-90		7.38	6.876		0.769	3.00	0.301	pCi/L	93	75 - 125	0.20	1
Carrier	LCSD LCSD		Limits									
	%Yield	Qualifier										
Sr Carrier	85.9		40 - 110									
Y Carrier	91.6		40 - 110									

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-597258/1-A
Matrix: Water
Analysis Batch: 597783

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597258

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-17.12	U	159	159	500	299	pCi/L	01/17/23 15:44	01/20/23 13:46	1

Lab Sample ID: LCS 160-597258/2-A
Matrix: Water
Analysis Batch: 597783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597258

Analyte		Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	RER	Limit
			Result	Qual	Uncert. (2σ+/-)					Limits		
Tritium		2120	1984		385	500	299	pCi/L	94	75 - 125		

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 160-48493-A-2-B MS
Matrix: Water
Analysis Batch: 597783

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 597258

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Tritium	1.80	U	2110	1844		381	500	316	pCi/L	87	60 - 140	

Lab Sample ID: 160-48582-A-1-C DU
Matrix: Water
Analysis Batch: 597783

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597258

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Tritium	-57.2	U	35.14	U	162	500	289	pCi/L	0.30	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-597259/1-A
Matrix: Water
Analysis Batch: 598217

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597259

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.05873	U	0.09433	0.09455	1.00	0.172	pCi/L	01/17/23 16:09	01/25/23 14:42	1
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	85.3		30 - 110					01/17/23 16:09	01/25/23 14:42	1

Lab Sample ID: LCS 160-597259/2-A
Matrix: Water
Analysis Batch: 598218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597259

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Uranium-234	12.7	12.19		1.46	1.00	0.151	pCi/L	96	75 - 125	
Uranium-238	13.0	13.33		1.56	1.00	0.135	pCi/L	102	75 - 125	
Tracer	LCS %Yield	LCS Qualifier	Limits							
Uranium-232	87.1		30 - 110							

Lab Sample ID: 570-123038-A-2-C DU
Matrix: Water
Analysis Batch: 598230

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597259

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Total Uranium	0.128		0.07847	U	0.1118	1.00	0.163	pCi/L	0.22	1
Tracer	DU %Yield	DU Qualifier	Limits							
Uranium-232	86.2		30 - 110							

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

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Prep Batch: 596421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	PrecSep-21	
MB 160-596421/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-596421/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-596421/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 596471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	PrecSep_0	
MB 160-596471/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-596471/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-596471/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 596746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	PrecSep-7	
MB 160-596746/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-596746/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-596746/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 596761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-596761/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-596761/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-122687-U-1-J DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 597258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-597258/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-597258/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
160-48493-A-2-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
160-48582-A-1-C DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 597259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	ExtChrom	
MB 160-597259/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-597259/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-123038-A-2-C DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 597281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122959-1	Outfall002_20230106_Comp	Total/NA	Water	Evaporation	
MB 160-597281/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-597281/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-597281/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-123038-A-2-E MS	Matrix Spike	Total/NA	Water	Evaporation	
570-123038-A-2-F MSBT	Matrix Spike	Total/NA	Water	Evaporation	
570-123038-A-2-G DU	Duplicate	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Client Sample ID: Outfall002_20230106_Comp

Lab Sample ID: 570-122959-1

Date Collected: 01/06/23 10:50

Matrix: Water

Date Received: 01/06/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.01 mL	1.0 g	597281	01/18/23 10:03	MST	EET SL
Total/NA	Analysis	900.0		1			599058	02/02/23 18:50	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	596761	01/12/23 14:04	SAC	EET SL
Total/NA	Analysis	901.1		1			598468	01/27/23 15:16	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			746.28 mL	1.0 g	596421	01/11/23 09:34	DJP	EET SL
Total/NA	Analysis	903.0		1			598940	02/02/23 09:47	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			746.28 mL	1.0 g	596471	01/11/23 10:20	DJP	EET SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	597614	01/20/23 12:14	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			500.02 mL	1.0 g	596746	01/12/23 11:13	DJP	EET SL
Total/NA	Analysis	905		1			598557	01/27/23 18:50	SCB	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			99.01 mL	1.0 g	597258	01/17/23 15:44	SEH	EET SL
Total/NA	Analysis	906.0		1			597783	01/20/23 19:13	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			250.59 mL	1.0 mL	597259	01/17/23 16:09	SAC	EET SL
Total/NA	Analysis	A-01-R		1			598221	01/25/23 14:42	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	02-09-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-122959-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122959-1	Outfall002_20230106_Comp	Water	01/06/23 10:50	01/06/23 18:15

1

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Virendra Patel

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Monday, January 9, 2023 10:57 AM
To: Virendra Patel; Rapp, Kerry; Dallalah, Michelle
Subject: RE: <ON HOLD> Eurofins Calscience sample confirmation files from 570-122959-1 Boeing SSFL NPDES - Outfall 002 - Comp

EXTERNAL EMAIL*

Please analyze these samples.

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Sent: Sunday, January 8, 2023 12:16 PM
To: Miller, Katherine <KMiller@haleyaldrich.com>; Rapp, Kerry <KRapp@haleyaldrich.com>; Dallalah, Michelle <MDallalah@haleyaldrich.com>
Subject: <ON HOLD> Eurofins Calscience sample confirmation files from 570-122959-1 Boeing SSFL NPDES - Outfall 002 - Comp

CAUTION: External Email

Hello,

Attached please find the sample confirmation files for job 570-122959-1; Boeing SSFL NPDES - Outfall 002 - Comp

ALI METHODS ON HOLD PER COC

Please feel free to contact me if you have any questions.

Thank you.

Virendra Patel
Project Manager

Eurofins Calscience
Phone: 714-895-5494
Mobile: 714-887-9901

E-mail: Virendra.Patel@et.eurofinsus.com
www.eurofinsus.com/env



Reference: [570-409966]
Attachments: 3

> > Bank information has changed, please refer to remittance information on invoice. < <

* WARNING - EXTERNAL: This email originated from outside of Eurofins Environment Testing America. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

- 1
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- 15

122959

CHAIN OF CUSTODY FORM

HOLD ALL SAMPLES UNTIL FURTHER DIRECTION FROM CLIENT

1/6/2023 1100 JMD

Eurofins Calscience Irvine

Client Name/Address: Haley & Aldrich

5633 Mission Center Rd Suite 300 San Diego, CA 92108

Eurofins Calscience Irvine Contact: Christian Bondoc

17461 Derian Ave Suite #100 Irvine CA 92614

Tel: 949-260-3218

Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 018J Outfall 002 Comp

Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)

Sample I.D. Outfall002_20230105_Comp 1443

Sample Matrix: WM

Sampling Date/Time: 1/6/2023 10:50 AM

Container Type: 500 mL Poly

of Cont.: 1

Preservative: HNO3

Bottle #: 90

MS/MSD: No

Table with columns for ANALYSIS REQUIRED (Total Recoverable Metals, Surfactants, etc.) and Comments.

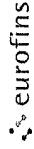
Legend C=Conditional, R=Routine. Received By, Date/Time, Relinquished By, Date/Time.



570-122959 Chain of Custody

2.6/2.6 1.8/1.8 1.5/1.5 sc11

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s):		COC No:
Client Contact:		Patel, Virendra	Virendra	State of Origin:		570-203546 1
Shipping/Receiving		Phone:	E-Mail:	California		Page:
Company:		Virendra.Patel@et.eurofins.com		Page 1 of 1		Job #:
TestAmerica Laboratories, Inc.		Accreditations Required (See note):		State Program - California		570-122959-3
Address:		Due Date Requested		Analysis Requested		Preservation Codes
13715 Rider Trail North		2/8/2023		Total Number of Containers		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)
City:		TAT Requested (days):		Analysis Requested		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:
State, Zip:		PO #:		Analysis Requested		
MO 63045		WO #:		Analysis Requested		
Phone:		Project #:		Analysis Requested		
314-298-8566(Tel) 314-298-8757(Fax)		44024446		Analysis Requested		
Email:		SSOW#:		Analysis Requested		
Project Name:		Sample Date		Analysis Requested		
Boeing SSFL NPDES - Outfall 002 - Comp		1/6/23		Analysis Requested		
Site:		Sample Time		Analysis Requested		
Outfall002_20230106_Comp (570-122959-1)		10:50 Pacific		Analysis Requested		
Sample Identification - Client ID (Lab ID)		Sample Type (C=Comp, G=grab)		Analysis Requested		
Outfall002_20230106_Comp (570-122959-1)		Water		Analysis Requested		
Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=alk)		Preservation Code:		Analysis Requested		
		Water		Analysis Requested		
Field Filtered Sample (Yes or No)		Field Filled Sample (Yes or No)		Analysis Requested		
X		X		Analysis Requested		
Perform MS/MSD (Yes or No)		901 Cs/Fill_Geo_0 K-40 and Cesium-137		Analysis Requested		
X		X		Analysis Requested		
900.0/Evaporation Gross Alpha/Beta		X		Analysis Requested		
903.0/Presep_21 Radium-226		X		Analysis Requested		
904.0/Presep_0 Radium-228		X		Analysis Requested		
905.5/90/Presep_7 Strontium-90		X		Analysis Requested		
906.0/LSC_Dist_Susp Tritium		X		Analysis Requested		
Special Instructions/Note:		Boeing SSFL, DO NOT FILTER, use prep date from preservation		Analysis Requested		

Note: Since laboratory accreditations are subject to change Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately if all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV Other (specify) _____

Special Instructions/QC Requirements: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Empty Kit Relinquished by:	Date:	Time:
Relinquished by:	1/9/23	1417
Relinquished by:		
Relinquished by:		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Cooler Temperature(s) °C and Other Remarks:	



Chain of Custody Record



Client Information (Sub Contract Lab) Client Contact: 880 Riverside Parkway, West Sacramento, CA 95605 Shipping/Receiving: Eurofins Environment Testing Northern Ca Address: 880 Riverside Parkway, West Sacramento, CA 95605 City: West Sacramento State: CA, Zip: 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		Lab P.M. Patel, Virendra Patel, Virendra E-Mail: Virendra.Patel@eurofins.com State of Origin: California		Carrier Tracking No(s): 570-203580 1 Page: Page 1 of 1 Job #: 570-122959-2	
Due Date Requested: 1/24/2023 TAT Requested (days): PO #: WO #: Project #: 44024446 SOW#:		Accreditations Required (See note) State Program - California		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Sample Date: 1/6/23 Sample Time: 10:50 Pacific Sample Type (C=Comp, G=grab): Preservation Code: Water MATRIX (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Perform MS/MSD (Yes or No): Field Filtered Sample (Yes or No): 1613B/1613B_Sox_Sep_P Standard List w/ Totals: X 1613B/1613B_Sox_Sep_P Standard List w/ Totals: X		Analysis Requested: Total Number of Containers: 2 Special Instructions/Note: See QAS Boeing_wtu to zero ug/L Use Boeing glassware See QAS Boeing_wtu to zero, ug/L, Use Boeing glassware	
Sample Identification - Client ID (Lab ID) Outfall002_20230106_Comp (570-122959-1) Outfall002_20230106_Comp_Extra (570-122959-2)		Sample Date: 1/6/23 Sample Time: 10:50 Pacific Sample Type (C=Comp, G=grab): Preservation Code: Water		Special Instructions/Note: See QAS Boeing_wtu to zero ug/L Use Boeing glassware See QAS Boeing_wtu to zero, ug/L, Use Boeing glassware	
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.					
Possible Hazard Identification Unconfirmed Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank: 2					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date: 1/19/23 1552 Company: EC		Method of Shipment:	
Relinquished by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks:	



Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



Environmental Testing

Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s)		COC No:										
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	State of Origin California		570-203546.1										
Company: TestAmerica Laboratories, Inc.		E-Mail: Virendra.Patel@et.eurofins.com	E-Mail: Virendra.Patel@et.eurofins.com	State Program - California		Page 1 of 1										
Address: 13715 Rider Trail North,		Accreditations Required (See note) State Program - California		Job #: 570-122959-3												
City: Earth City	State: MO, 63045	PO #:	Analysis Requested													
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	WO #:															
Email:	Project #: 44024446															
Project Name: Boeing SSFL NPDES - Outfall 002 - Comp	SSOW#:															
Site:																
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (Water, Soil, Sewage, BIA-Tissue, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901_Cs/Th,U,Geo,K-40 and Csium-137	A01R_UExtChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
Outfall002_20230106_Comp (570-122959-1)	1/6/23	10:50 Pacific	Water	Water		X	X	X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis in the matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>																
Possible Hazard Identification																
Unconfirmed																
Deliverable Requested: I, II, III, IV, Other (specify) _____																
Empty Kit Relinquished by: _____ Date: _____																
Relinquished by: _____ Date: 1/9/23 1417 _____ Company: EC																
Relinquished by: FEDEX _____ Date/Time: _____ Company: _____																
Relinquished by: _____ Date/Time: _____ Company: _____																
Custody Seals Intact: _____ Custody Seal No.: _____																
<input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temperature(s) °C and Other Remarks:																
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:																
Received by: _____ Date/Time: _____ Received by: _____ Date/Time: JAN 10 2023 0846 Received by: _____ Date/Time: _____ Company: ETSJL Received by: _____ Date/Time: _____ Company: _____																
Method of Shipment: _____ Date: _____ Primary Deliverable Rank: 2																



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122959-3

Login Number: 122959

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122959-3

Login Number: 122959

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 01/10/23 12:51 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	570-122959-T-1 was received with a pH >2 SU.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 1/21/2023 11:38:44 AM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002

JOB NUMBER

570-122986-1

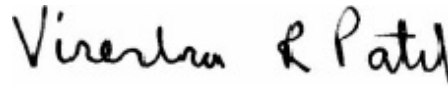
Job Notes

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender and destroy this report immediately. This report shall not be reproduced except in full, without prior express written approval by the laboratory.

The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
1/21/2023 11:38:44 AM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Method Summary	6
Sample Summary	7
Subcontract Data	8
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122986-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122986-1

Job ID: 570-122986-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122986-1

Comments

No additional comments.

Receipt

The sample was received on 1/6/2023 6:15 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122986-1

Method	Method Description	Protocol	Laboratory
1103.1	E. Coli	EPA	Enthalpy

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002

Job ID: 570-122986-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122986-1	Outfall002_20230106_Grab	Water	01/06/23 10:50	01/06/23 18:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8



Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 476773
Report Level: IV
Report Date: 01/19/2023

Microbiology Tests

Analytical Report *prepared for:*

Virendra Patel
Eurofins Calscience Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Project: BOEING NPDES SSFL - Boeing SSFL NPDES - Outfall 002, 44024446

Authorized for release by:

Quynhgiao Le, Project Manager
714-7716900
quynhgiao.le@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105



Sample Summary

Virendra Patel	Lab Job #:	476773
Eurofins Calscience	Project No:	BOEING NPDES SSFL
Tustin	Location:	Boeing SSFL NPDES - Outfall 002, 44024446
2841 Dow Avenue,	Date Received:	01/06/23
Suite 100		
Tustin, CA 92780		

Sample ID	Lab ID	Collected	Matrix
OUTFALL002_20230106_GRAB	476773-001	01/06/23 10:50	Water

Case Narrative

MICROBIOLOGY TESTS (SM 9223BB)

Eurofins Calscience Tustin	Lab Job Number: 476773
2841 Dow Avenue, Suite 100	Project No: BOEING NPDES SSFL
Tustin, CA 92780	Location: Boeing SSFL NPDES - Outfall 002, 44024446
Virendra Patel	Date Received: 01/06/23

This data package contains sample and QC results for one water sample, requested for the above referenced project on 01/06/23. See attached cooler receipt form for any sample receipt problems or discrepancies.

Chain of Custody

Quynhgiao Le

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com> on behalf of Virendra Patel
Sent: Thursday, January 12, 2023 9:50 AM
To: Quynhgiao Le
Subject: [EXTERNAL] FW: BOEING NPDES SSFL - Enthalpy Login Summary (476773)
Attachments: 476773_COC.pdf

Quynhgiao –

Please update the sample ID to “Outfall002_20230106_Grab” on ECI Job#570-122986

Please use this email as record for the change. Thank you!

Best Regards,

Virendra Patel
Project Manager

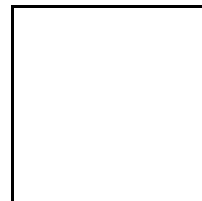
Eurofins Environment Testing Southwest, LLC
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895 5494
Direct: 657-210-6327
Mobile: 714-887-9901

Virendra.Patel@ET.EurofinsUS.com
www.EurofinsUS.com/Env

Follow Us! [Facebook](#) | [LinkedIn](#)

From: Enthalpy Orange Sample Control <sample.control.orange@enthalpy.com>
Sent: Tuesday, January 10, 2023 2:30 PM
To: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Subject: BOEING NPDES SSFL - Enthalpy Login Summary (476773)

EXTERNAL EMAIL*



Enthalpy Login Summary for 476773

1
2
3
4
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6
7
8

Project: BOEING NPDES SSFL
Site: Boeing SSFL NPDES - Outfall 002, 44024446
Lab Login #: 476773
Report Level: IV
PO#:
Lab Proj Mgr: [Quynhgiao Le](#)
TAT: 9 business days

Report To: Eurofins Calscience Tustin
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 ATTN: Virendra Patel
 949-261-1022

Client ID	Lab ID	Sampled	Received	COC #	Matrix	Analyses
OUTFALL 002 (570-122986-1)	001	01/06/23 10:50	01/06/23			
					Water	Total Coliform and E. coli
						Tray
					Water	20% Surcharge for Level I
						Package
					Water	2x: Each Additional Dilutio

*Unless otherwise agreed in writing, these services are provided pursuant to the terms and conditions as set forth at [conditions/](#).
 Enthalpy???'s acceptance of this order is expressly limited to these terms and conditic*

Email compiled and sent 01/10/23 02:29 PM.

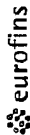
* WARNING - EXTERNAL: This email originated from outside of Eurofins Environment Testing America. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-985-5494

36
 AS 103.045.7

Chain of Custody Record

476773



Environment Testing



Client Information (Sub Contract Lab)		Lab Pk#: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-203899.1
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1
Company: Enthalpy Analytical LLC		Accreditations Required (See note): State Program - California		
Address: 891 W. Barkley Ave, Orange, CA, 92668		Job #: 570-122986-1		
City: Orange		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylsulfate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify)		
State, Zip: CA, 92668		Analysis Requested		
Phone:		Due Date Requested: 1/19/2023		
PO #:		TAT Requested (days):		
WO #:		Field Filtered Sample (Yes or No)		
Project #: Boeing SSFL NPDES - Outfall 002		SUB (Quant-Try - F, Coll - level & required)		
Site:		Perform MSA/MSD (Yes or No)		
Matrix (Water, Swab, OPWast/oli, BT-Tissue, A-AN)		Total Number of Containers		
Sample Identification - Client ID (Lab ID)	Sample Time	Sample Date	Sample Time	Preservation Code
Outfall 002 (570-122986-1)	10:50 Pacific	1/6/23	10:50 Pacific	Water
Special Instructions/Note: See Attached Instructions				
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:				
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2 Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____ Relinquished by: _____ Date/Time: 1/6/23 17:33 Company: EC Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____ Custody Seals Intact: _____ Custody Seal No.: _____ Δ Yes Δ No				

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

ICOC No:
570-203399

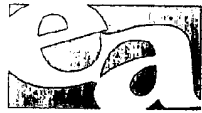
Containers

Count 3 **Container Type** Plastic 120 mL - Sterile/Na₂S₂O₃ **Preservative** Sodium Thiosulfate

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required)	E Coli (1x, 10x, 100x Dilutions) - 8 hour hold time - level 4





ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Eurofins Calscience Project: Boeing SSFL NPDES - Outfall 002
 Date Received: 01/06/2023 Sampler's Name Present: Yes No

Section 2

Sample(s) received in a cooler? Yes, How many? 1 No (skip section 2) Sample Temp (°C) (No Cooler): _____
 Sample Temp (°C), One from each cooler: #1: 5.7 #2: _____ #3: _____ #4: _____
(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)
 Shipping Information: _____

Section 3

Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam
 Paper None Other _____
 Cooler Temp (°C): #1: 3.6 #2: _____ #3: _____ #4: _____

Section 4

	YES	NO	N/A
Was a COC received?	<input checked="" type="checkbox"/>		
Are sample IDs present?	<input checked="" type="checkbox"/>		
Are sampling dates & times present?	<input checked="" type="checkbox"/>		
Is a relinquished signature present?	<input checked="" type="checkbox"/>		
Are the tests required clearly indicated on the COC?	<input checked="" type="checkbox"/>		
Are custody seals present?		<input checked="" type="checkbox"/>	
If custody seals are present, were they intact?			<input checked="" type="checkbox"/>
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	<input checked="" type="checkbox"/>		
Did all samples arrive intact? If no, indicate in Section 4 below.	<input checked="" type="checkbox"/>		
Did all bottle labels agree with COC? (ID, dates and times)	<input checked="" type="checkbox"/>		
Were the samples collected in the correct containers for the required tests?	<input checked="" type="checkbox"/>		
Are the containers labeled with the correct preservatives?	<input checked="" type="checkbox"/>		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			<input checked="" type="checkbox"/>
Was a sufficient amount of sample submitted for the requested tests?	<input checked="" type="checkbox"/>		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time _____
 Email (email sent to/on): _____ / _____
 Project Manager's response:

Completed By: [Signature] Date: 1/6/2023

Results & QC Summary

Total Coliform / E. coli by Quanti-Tray

Lab #: 476773	Project#: BOEING NPDES SSFL	
Client: Eurofins Calscience Tustin	Location: Boeing SSFL NPDES - Outfall 002, 4...	
Field ID: OUTFALL002_20230106_GRAB	Batch#: 304794	Analyzed: 01/07/23 12:40
Lab ID: 476773-001	Sampled: 01/06/23 10:50	Prep:
Matrix: Water	Received: 01/06/23	Analysis: SM 9223Bb
Diln Fac: 1.000	Prepared: 01/06/23 18:04	Analyst: PAS

476773-001 Analyte	Result	RL	Units
Coliform, E. Coli	93	1.0	MPN/100ml

Legend
 RL: Reporting Limit





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 1/23/2023 2:09:25 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 Grab

JOB NUMBER

570-123264-1

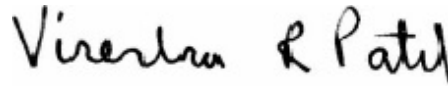
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
1/23/2023 2:09:25 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Job ID: 570-123264-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123264-1

Comments

No additional comments.

Receipt

The samples were received on 1/9/2023 5:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.5° C and 1.9° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-294547. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-295550.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Client Sample ID: Outfall002_20230109_Grab

Lab Sample ID: 570-123264-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	1.4		0.50	0.17	ug/L	1		624.1	Total/NA
Specific Conductance	360		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: TB-20230109

Lab Sample ID: 570-123264-3

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230109_Grab

Date Collected: 01/09/23 09:25

Date Received: 01/09/23 17:15

Lab Sample ID: 570-123264-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/09/23 22:41	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/09/23 22:41	1
Trichloroethene	1.4		0.50	0.17	ug/L			01/09/23 22:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		60 - 140		01/09/23 22:41	1
Toluene-d8 (Surr)	99		60 - 140		01/09/23 22:41	1

Client Sample ID: TB-20230109

Date Collected: 01/09/23 09:25

Date Received: 01/09/23 17:15

Lab Sample ID: 570-123264-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/09/23 21:12	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/09/23 21:12	1
Trichloroethene	ND		0.50	0.17	ug/L			01/09/23 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		60 - 140		01/09/23 21:12	1
Toluene-d8 (Surr)	97		60 - 140		01/09/23 21:12	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

General Chemistry

Client Sample ID: Outfall002_20230109_Grab
Date Collected: 01/09/23 09:25
Date Received: 01/09/23 17:15

Lab Sample ID: 570-123264-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		1.0	0.52	mg/L		01/12/23 18:34	01/13/23 16:10	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance (SM 2510B)	360		1.0	1.0	umhos/cm			01/19/23 20:59	1
Settleable Solids (SM 2540F)	ND		0.10	0.10	mL/L			01/10/23 14:44	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL
		(60-140)	(60-140)
570-123264-1	Outfall002_20230109_Grab	100	99
570-123264-3	TB-20230109	95	97
LCS 570-294547/1003	Lab Control Sample	100	99
LCSD 570-294547/4	Lab Control Sample Dup	101	103
MB 570-294547/6	Method Blank	97	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-294547/6
Matrix: Water
Analysis Batch: 294547

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/09/23 16:40	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/09/23 16:40	1
Trichloroethene	ND		0.50	0.17	ug/L			01/09/23 16:40	1
Surrogate	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	97		60 - 140					01/09/23 16:40	1
Toluene-d8 (Surr)	99		60 - 140					01/09/23 16:40	1

Lab Sample ID: LCS 570-294547/1003
Matrix: Water
Analysis Batch: 294547

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene	10.0	9.10		ug/L		91	50 - 150		
1,2-Dichloroethane	10.0	9.48		ug/L		95	70 - 130		
Trichloroethene	10.0	9.38		ug/L		94	65 - 135		
Surrogate	LCS	LCS	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	100		60 - 140						
Toluene-d8 (Surr)	99		60 - 140						

Lab Sample ID: LCSD 570-294547/4
Matrix: Water
Analysis Batch: 294547

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	10.0	9.16		ug/L		92	50 - 150	1	32
1,2-Dichloroethane	10.0	9.74		ug/L		97	70 - 130	3	49
Trichloroethene	10.0	9.90		ug/L		99	65 - 135	5	48
Surrogate	LCSD	LCSD	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	101		60 - 140						
Toluene-d8 (Surr)	103		60 - 140						

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-295550/1-A
Matrix: Water
Analysis Batch: 295796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295550

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		01/12/23 18:34	01/13/23 16:10	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 570-295550/2-A
 Matrix: Water
 Analysis Batch: 295796

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 295550

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	37.6		mg/L		94	78 - 114

Lab Sample ID: LCSD 570-295550/3-A
 Matrix: Water
 Analysis Batch: 295796

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 295550

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	36.8		mg/L		92	78 - 114	2	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-297351/10
 Matrix: Water
 Analysis Batch: 297351

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			01/19/23 19:00	1

Lab Sample ID: 570-124593-F-2 DU
 Matrix: Water
 Analysis Batch: 297351

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	1300		1300		umhos/cm		0.5	25

Method: SM 2540F - Solids, Settleable

Lab Sample ID: 570-123302-A-1 DU
 Matrix: Water
 Analysis Batch: 294859

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Settleable Solids	ND		ND		mL/L		NC	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

GC/MS VOA

Analysis Batch: 294547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123264-1	Outfall002_20230109_Grab	Total/NA	Water	624.1	
570-123264-3	TB-20230109	Total/NA	Water	624.1	
MB 570-294547/6	Method Blank	Total/NA	Water	624.1	
LCS 570-294547/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-294547/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 294859

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123264-1	Outfall002_20230109_Grab	Total/NA	Water	SM 2540F	
570-123302-A-1 DU	Duplicate	Total/NA	Water	SM 2540F	

Prep Batch: 295550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123264-1	Outfall002_20230109_Grab	Total/NA	Water	1664A	
MB 570-295550/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-295550/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-295550/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 295796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123264-1	Outfall002_20230109_Grab	Total/NA	Water	1664A	295550
MB 570-295550/1-A	Method Blank	Total/NA	Water	1664A	295550
LCS 570-295550/2-A	Lab Control Sample	Total/NA	Water	1664A	295550
LCSD 570-295550/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	295550

Analysis Batch: 297351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123264-1	Outfall002_20230109_Grab	Total/NA	Water	SM 2510B	
MB 570-297351/10	Method Blank	Total/NA	Water	SM 2510B	
570-124593-F-2 DU	Duplicate	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Client Sample ID: Outfall002_20230109_Grab

Lab Sample ID: 570-123264-1

Date Collected: 01/09/23 09:25

Matrix: Water

Date Received: 01/09/23 17:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	294547	01/09/23 22:41	A1W	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			973 mL	1000 mL	295550	01/12/23 18:34	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			295796	01/13/23 16:10	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			297351	01/19/23 20:59	UAPD	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	294859	01/10/23 14:44	GG0B	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230109

Lab Sample ID: 570-123264-3

Date Collected: 01/09/23 09:25

Matrix: Water

Date Received: 01/09/23 17:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	294547	01/09/23 21:12	A1W	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-12-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

- 1664A = EPA-821-98-002
- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 Grab

Job ID: 570-123264-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123264-1	Outfall002_20230109_Grab	Water	01/09/23 09:25	01/09/23 17:15
570-123264-3	TB-20230109	Water	01/09/23 09:25	01/09/23 17:15

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123264

CHAIN OF CUSTODY FORM



570-123264 Chain of Custody

Eurofins Calscience Irvine

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 018 Outfall 002 Grab		Field Readings (Include units) Time of Readings: 0925 DO 13.92mg/L pH 8.21 pH unit Temp 51.1 °C(°F)		Meter serial # 12AEFT9B							
Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC Checked by: <i>[Signature]</i> Date/Time: 1-9-2023/0925									
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement 2019-22, TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Settleable Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120.1)	Comments
Outfall 002	Outfall002_20230109_Grab	1/9/2023 10:05	WM	1 L Glass Amber	2	HCl	15	No	X	X			
	Outfall002_20230109_Grab_Extra	1/9/2023 10:05	WM	40 mL VOA	3	HCl	30	No					
Trip Blanks	TB-20230109	1/9/2023 10:05	WQ	500 mL Poly	1	None	75	No		X			
				1 L Glass Amber	2	HCl	15	No	H				Hold
				40 mL VOA	3	HCl	30	No	H				Hold
				500 mL Poly	1	None	75	No		X			Hold
				40 mL VOA	3	HCl	30	No					

Legend: R=Routine

Relinquished By: <i>[Signature]</i>	Date/Time: 1-9-2023 1315 H, A	Company: <i>[Signature]</i>	Date/Time: 1/9/23 1315 EC
Relinquished By: <i>[Signature]</i>	Date/Time: 1/9/23 1715 EC	Company: <i>[Signature]</i>	Date/Time: 1/9/23 1715
Relinquished By: <i>[Signature]</i>	Date/Time: 1-5/15 1-9/1-9 5-11	Company: <i>[Signature]</i>	Date/Time: 1-5/15 1-9/1-9 5-11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123264-1

Login Number: 123264

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/7/2023 12:56:15 PM Revision 1

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-123414-1

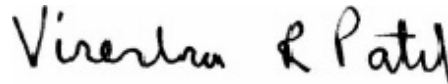
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Revision 1

Authorized for release by
Virendra Patel, Project Manager I
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(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
PI	Primary and confirm results varied by > than 40% RPD

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Job ID: 570-123414-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123414-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 1/24/2023. The report (revision 1) is being revised due to: The metals reporting was adjusted to report all elements by EPA 200.8..

Receipt

The samples were received on 1/10/2023 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.9° C and 2.1° C.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230110_Comp_F (570-123414-3) and (570-123414-C-3 MSD). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230110_Comp_F (570-123414-3). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-295632. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 608LL

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-296386. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Method 625.1 Sim

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.9		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrite as N	0.094	J,DX	0.10	0.043	mg/L	1		300.0	Total/NA
Nitrate as N	1.1		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate - DL	92		10	2.4	mg/L	10		300.0	Total/NA
Nitrate Nitrite as N	1.2		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	2.1		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.27	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Iron	140		20	3.7	ug/L	1		200.8	Total Recoverable
Zinc	7.8	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Turbidity	4.7		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	240		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	5.2		2.0	1.7	mg/L	1		SM 2540D	Total/NA
MBAS	0.27	J,DX	0.30	0.054	mg/L	1		SM 5540C	Total/NA

Client Sample ID: Outfall002_20230110_Comp_F

Lab Sample ID: 570-123414-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.3	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Iron	16	J,DX BU	20	3.7	ug/L	1		200.8	Dissolved
Zinc	5.8	J,DX BU MB	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

Date Collected: 01/10/23 10:20

Matrix: Water

Date Received: 01/10/23 17:55

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.94	0.13	ug/L		01/17/23 10:37	01/18/23 12:22	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		01/17/23 10:37	01/18/23 12:22	1
Bis(2-ethylhexyl) phthalate	ND		4.7	3.4	ug/L		01/17/23 10:37	01/18/23 12:22	1
N-Nitrosodimethylamine	ND		0.19	0.17	ug/L		01/17/23 10:37	01/18/23 12:22	1
Pentachlorophenol	ND		0.94	0.79	ug/L		01/17/23 10:37	01/18/23 12:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	56		31 - 120	01/17/23 10:37	01/18/23 12:22	1
Phenol-d6 (Surr)	19		10 - 120	01/17/23 10:37	01/18/23 12:22	1
p-Terphenyl-d14 (Surr)	60		45 - 120	01/17/23 10:37	01/18/23 12:22	1
2,4,6-Tribromophenol	73		28 - 127	01/17/23 10:37	01/18/23 12:22	1
2-Fluorophenol	28		17 - 120	01/17/23 10:37	01/18/23 12:22	1
Nitrobenzene-d5	67		27 - 120	01/17/23 10:37	01/18/23 12:22	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 40CFR136A 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230110_Comp

Date Collected: 01/10/23 10:20

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		01/13/23 08:26	01/16/23 16:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Tetrachloro-m-xylene</i>	43	PI	20 - 139				01/13/23 08:26	01/16/23 16:46	1
<i>DCB Decachlorobiphenyl (Surr)</i>	27		20 - 154				01/13/23 08:26	01/16/23 16:46	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230110_Comp

Date Collected: 01/10/23 10:20

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.9		1.0	0.36	mg/L			01/11/23 09:58	1
Nitrite as N	0.094	J,DX	0.10	0.043	mg/L			01/11/23 09:58	1
Nitrate as N	1.1		0.10	0.020	mg/L			01/11/23 09:58	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: EPA 300.0 - Anions, Ion Chromatography - DL

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

Date Collected: 01/10/23 10:20

Matrix: Water

Date Received: 01/10/23 17:55

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	92		10	2.4	mg/L			01/11/23 11:39	10

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230110_Comp
Date Collected: 01/10/23 10:20
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/11/23 16:10	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

Date Collected: 01/10/23 10:20

Matrix: Water

Date Received: 01/10/23 17:55

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.2		0.10	0.020	mg/L			01/13/23 11:53	1

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230110_Comp

Date Collected: 01/10/23 10:20

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		01/13/23 08:13	01/13/23 13:57	1
Copper	2.1		2.0	0.32	ug/L		01/13/23 08:13	01/13/23 13:57	1
Lead	0.27	J,DX	1.0	0.12	ug/L		01/13/23 08:13	01/13/23 13:57	1
Selenium	ND		2.0	0.52	ug/L		01/13/23 08:13	01/13/23 13:57	1
Iron	140		20	3.7	ug/L		01/13/23 08:13	01/13/23 13:57	1
Zinc	7.8	J,DX	20	2.8	ug/L		01/13/23 08:13	01/13/23 13:57	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230110_Comp_F

Date Collected: 01/10/23 10:20

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	BU	1.0	0.13	ug/L			01/13/23 13:35	1
Copper	1.3	J,DX BU	2.0	0.32	ug/L			01/13/23 13:35	1
Lead	ND	BU	1.0	0.12	ug/L			01/13/23 13:35	1
Selenium	ND	BU	2.0	0.52	ug/L			01/13/23 13:35	1
Iron	16	J,DX BU	20	3.7	ug/L			01/13/23 13:35	1
Zinc	5.8	J,DX BU	20	2.8	ug/L			01/13/23 13:35	1
		MB							

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230110_Comp
Date Collected: 01/10/23 10:20
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/12/23 18:36	01/13/23 15:18	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230110_Comp_F
Date Collected: 01/10/23 10:20
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/11/23 18:15	01/16/23 17:58	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

General Chemistry

Client Sample ID: Outfall002_20230110_Comp

Date Collected: 01/10/23 10:20

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		01/20/23 12:20	01/20/23 14:18	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/11/23 14:55	1
Turbidity (SM 2130B)	4.7		0.05	0.05	NTU			01/11/23 16:07	1
Total Dissolved Solids (SM 2540C)	240		10	8.7	mg/L			01/13/23 19:50	1
Total Suspended Solids (SM 2540D)	5.2		2.0	1.7	mg/L			01/13/23 14:53	1
MBAS (SM 5540C)	0.27	J,DX	0.30	0.054	mg/L		01/10/23 21:00	01/10/23 22:08	1
Biochemical Oxygen Demand (SM5210B)	ND		2.0	1.0	mg/L			01/11/23 15:54	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-123414-1	Outfall002_20230110_Comp	56	19	60	73	28	67
LCS 570-296386/2-A	Lab Control Sample	75	29	84	95	42	76
LCSD 570-296386/3-A	Lab Control Sample Dup	66	26	78	90	37	68
MB 570-296386/1-A	Method Blank	52	20	72	65	29	60

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
PHL6 = Phenol-d6 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX1 (20-139)	DCB1 (20-154)
570-123414-1	Outfall002_20230110_Comp	43 PI	27
LCSD 570-295632/3-A	Lab Control Sample Dup	55 PI	64
MB 570-295632/1-A	Method Blank	59 PI	59

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX2 (20-139)	DCB2 (20-154)
LCS 570-295632/2-A	Lab Control Sample	90	64

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-296386/1-A
Matrix: Water
Analysis Batch: 296692

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296386

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		01/17/23 10:37	01/18/23 10:57	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		01/17/23 10:37	01/18/23 10:57	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		01/17/23 10:37	01/18/23 10:57	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		01/17/23 10:37	01/18/23 10:57	1
Pentachlorophenol	ND		1.0	0.84	ug/L		01/17/23 10:37	01/18/23 10:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	52		31 - 120	01/17/23 10:37	01/18/23 10:57	1
Phenol-d6 (Surr)	20		10 - 120	01/17/23 10:37	01/18/23 10:57	1
p-Terphenyl-d14 (Surr)	72		45 - 120	01/17/23 10:37	01/18/23 10:57	1
2,4,6-Tribromophenol	65		28 - 127	01/17/23 10:37	01/18/23 10:57	1
2-Fluorophenol	29		17 - 120	01/17/23 10:37	01/18/23 10:57	1
Nitrobenzene-d5	60		27 - 120	01/17/23 10:37	01/18/23 10:57	1

Lab Sample ID: LCS 570-296386/2-A
Matrix: Water
Analysis Batch: 296692

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296386

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	19.4		ug/L		97	52 - 129
2,4-Dinitrotoluene	20.0	18.1		ug/L		90	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	16.9		ug/L		84	29 - 137
N-Nitrosodimethylamine	20.0	13.8		ug/L		69	20 - 120
Pentachlorophenol	20.0	20.1		ug/L		100	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	75		31 - 120
Phenol-d6 (Surr)	29		10 - 120
p-Terphenyl-d14 (Surr)	84		45 - 120
2,4,6-Tribromophenol	95		28 - 127
2-Fluorophenol	42		17 - 120
Nitrobenzene-d5	76		27 - 120

Lab Sample ID: LCSD 570-296386/3-A
Matrix: Water
Analysis Batch: 296692

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296386

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	17.6		ug/L		88	52 - 129	10	35
2,4-Dinitrotoluene	20.0	16.5		ug/L		82	48 - 127	9	25
Bis(2-ethylhexyl) phthalate	20.0	16.0		ug/L		80	29 - 137	5	50
N-Nitrosodimethylamine	20.0	11.3		ug/L		57	20 - 120	20	21
Pentachlorophenol	20.0	19.0		ug/L		95	38 - 152	6	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	66		31 - 120
Phenol-d6 (Surr)	26		10 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-296386/3-A
 Matrix: Water
 Analysis Batch: 296692

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 296386

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
p-Terphenyl-d14 (Surr)	78		45 - 120
2,4,6-Tribromophenol	90		28 - 127
2-Fluorophenol	37		17 - 120
Nitrobenzene-d5	68		27 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-295632/1-A
 Matrix: Water
 Analysis Batch: 296152

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 295632

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		01/13/23 08:26	01/16/23 15:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	59	PI	20 - 139	01/13/23 08:26	01/16/23 15:12	1
DCB Decachlorobiphenyl (Surr)	59		20 - 154	01/13/23 08:26	01/16/23 15:12	1

Lab Sample ID: LCS 570-295632/2-A
 Matrix: Water
 Analysis Batch: 296152

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 295632

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0233		ug/L		70	37 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	90		20 - 139
DCB Decachlorobiphenyl (Surr)	64		20 - 154

Lab Sample ID: LCSD 570-295632/3-A
 Matrix: Water
 Analysis Batch: 296152

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 295632

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
alpha-BHC	0.0333	0.0226		ug/L		68	37 - 140	3	36

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	55	PI	20 - 139
DCB Decachlorobiphenyl (Surr)	64		20 - 154

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-294998/5
 Matrix: Water
 Analysis Batch: 294998

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			01/11/23 07:57	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 570-294998/5
Matrix: Water
Analysis Batch: 294998

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.10	0.020	mg/L			01/11/23 07:57	1

Lab Sample ID: LCS 570-294998/6
Matrix: Water
Analysis Batch: 294998

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.59		mg/L		104	90 - 110
Nitrate as N	5.00	4.91		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-294998/7
Matrix: Water
Analysis Batch: 294998

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.59		mg/L		104	90 - 110	0	15
Nitrate as N	5.00	4.92		mg/L		98	90 - 110	0	15

Lab Sample ID: 570-123391-K-2 MS
Matrix: Water
Analysis Batch: 294998

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	0.15		2.50	2.75		mg/L		104	80 - 120
Nitrate as N	1.3		5.00	6.54		mg/L		104	80 - 120

Lab Sample ID: 570-123391-K-2 MSD
Matrix: Water
Analysis Batch: 294998

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	0.15		2.50	2.74		mg/L		103	80 - 120	0	20
Nitrate as N	1.3		5.00	6.52		mg/L		104	80 - 120	0	20

Lab Sample ID: MB 570-294999/5
Matrix: Water
Analysis Batch: 294999

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			01/11/23 07:57	1
Sulfate	ND		1.0	0.24	mg/L			01/11/23 07:57	1

Lab Sample ID: LCS 570-294999/6
Matrix: Water
Analysis Batch: 294999

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.3		mg/L		99	90 - 110
Sulfate	50.0	49.1		mg/L		98	90 - 110

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 570-294999/7
 Matrix: Water
 Analysis Batch: 294999

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.3		mg/L		99	90 - 110	0	15
Sulfate	50.0	49.2		mg/L		98	90 - 110	0	15

Lab Sample ID: 570-123391-K-2 MS
 Matrix: Water
 Analysis Batch: 294999

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30		50.0	87.5		mg/L		116	80 - 120
Sulfate	10		50.0	63.3		mg/L		106	80 - 120

Lab Sample ID: 570-123391-K-2 MSD
 Matrix: Water
 Analysis Batch: 294999

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	30		50.0	87.5		mg/L		116	80 - 120	0	20
Sulfate	10		50.0	63.2		mg/L		106	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-295096/7
 Matrix: Water
 Analysis Batch: 295096

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/11/23 14:04	1

Lab Sample ID: LCS 570-295096/8
 Matrix: Water
 Analysis Batch: 295096

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	23.3		ug/L		93	85 - 115

Lab Sample ID: LCSD 570-295096/9
 Matrix: Water
 Analysis Batch: 295096

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	23.6		ug/L		95	85 - 115	2	15

Lab Sample ID: 570-123414-1 MS
 Matrix: Water
 Analysis Batch: 295096

Client Sample ID: Outfall002_20230110_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	ND		50.0	47.4		ug/L		95	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 570-123414-1 MSD
 Matrix: Water
 Analysis Batch: 295096

Client Sample ID: Outfall002_20230110_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	ND		50.0	47.1		ug/L		94	80 - 120	1	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-295623/1-A
 Matrix: Water
 Analysis Batch: 295781

Client Sample ID: Method Blank
 Prep Type: Total Recoverable
 Prep Batch: 295623

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		01/13/23 08:13	01/13/23 13:51	1
Copper	ND		2.0	0.32	ug/L		01/13/23 08:13	01/13/23 13:51	1
Lead	ND		1.0	0.12	ug/L		01/13/23 08:13	01/13/23 13:51	1
Selenium	ND		2.0	0.52	ug/L		01/13/23 08:13	01/13/23 13:51	1
Iron	ND		20	3.7	ug/L		01/13/23 08:13	01/13/23 13:51	1
Zinc	ND		20	2.8	ug/L		01/13/23 08:13	01/13/23 13:51	1

Lab Sample ID: LCS 570-295623/2-A
 Matrix: Water
 Analysis Batch: 295781

Client Sample ID: Lab Control Sample
 Prep Type: Total Recoverable
 Prep Batch: 295623

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	100	99.9		ug/L		100	85 - 115
Copper	100	107		ug/L		107	85 - 115
Lead	100	101		ug/L		101	85 - 115
Selenium	100	99.1		ug/L		99	85 - 115
Iron	100	107		ug/L		107	85 - 115
Zinc	100	102		ug/L		102	85 - 115

Lab Sample ID: LCSD 570-295623/3-A
 Matrix: Water
 Analysis Batch: 295781

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total Recoverable
 Prep Batch: 295623

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	100	103		ug/L		103	85 - 115	3	20
Copper	100	107		ug/L		107	85 - 115	0	20
Lead	100	104		ug/L		104	85 - 115	3	20
Selenium	100	102		ug/L		102	85 - 115	3	20
Iron	100	113		ug/L		113	85 - 115	6	20
Zinc	100	103		ug/L		103	85 - 115	2	20

Lab Sample ID: 570-123414-1 MS
 Matrix: Water
 Analysis Batch: 295781

Client Sample ID: Outfall002_20230110_Comp
 Prep Type: Total Recoverable
 Prep Batch: 295623

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		100	96.7		ug/L		97	80 - 120
Copper	2.1		100	105		ug/L		103	80 - 120
Lead	0.27	J,DX	100	98.3		ug/L		98	80 - 120
Selenium	ND		100	91.7		ug/L		92	80 - 120
Iron	140		100	237		ug/L		93	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-123414-1 MS
Matrix: Water
Analysis Batch: 295781

Client Sample ID: Outfall002_20230110_Comp
Prep Type: Total Recoverable
Prep Batch: 295623

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	7.8	J,DX	100	104		ug/L		96	80 - 120

Lab Sample ID: 570-123414-1 MSD
Matrix: Water
Analysis Batch: 295781

Client Sample ID: Outfall002_20230110_Comp
Prep Type: Total Recoverable
Prep Batch: 295623

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		100	97.5		ug/L		97	80 - 120	1	20
Copper	2.1		100	102		ug/L		100	80 - 120	3	20
Lead	0.27	J,DX	100	98.7		ug/L		98	80 - 120	0	20
Selenium	ND		100	96.9		ug/L		97	80 - 120	6	20
Iron	140		100	243		ug/L		99	80 - 120	3	20
Zinc	7.8	J,DX	100	102		ug/L		94	80 - 120	2	20

Lab Sample ID: MB 570-295400/1-A
Matrix: Water
Analysis Batch: 295684

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			01/13/23 10:03	1
Copper	ND		2.0	0.32	ug/L			01/13/23 10:03	1
Lead	ND		1.0	0.12	ug/L			01/13/23 10:03	1
Selenium	ND		2.0	0.52	ug/L			01/13/23 10:03	1
Iron	ND		20	3.7	ug/L			01/13/23 10:03	1
Zinc	2.95	J,DX	20	2.8	ug/L			01/13/23 10:03	1

Lab Sample ID: LCS 570-295400/2-A
Matrix: Water
Analysis Batch: 295684

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	80.8		ug/L		101	85 - 115
Copper	80.0	82.0		ug/L		102	85 - 115
Lead	80.0	80.6		ug/L		101	85 - 115
Selenium	80.0	77.7		ug/L		97	85 - 115
Iron	800	813		ug/L		102	85 - 115
Zinc	80.0	79.0		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-295400/3-A
Matrix: Water
Analysis Batch: 295684

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	80.9		ug/L		101	85 - 115	0	20
Copper	80.0	83.1		ug/L		104	85 - 115	1	20
Lead	80.0	82.7		ug/L		103	85 - 115	3	20
Selenium	80.0	77.3		ug/L		97	85 - 115	1	20
Iron	800	813		ug/L		102	85 - 115	0	20
Zinc	80.0	79.0		ug/L		99	85 - 115	0	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-123391-C-1-C MS
Matrix: Water
Analysis Batch: 295684

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		40.0	39.1		ug/L		98	80 - 120
Copper	5.9		40.0	45.8		ug/L		100	80 - 120
Lead	ND		40.0	39.6		ug/L		99	80 - 120
Selenium	0.65	J,DX	40.0	38.2		ug/L		94	80 - 120
Iron	53		40.0	92.9		ug/L		100	80 - 120
Zinc	13	J,DX MB	40.0	49.8		ug/L		93	80 - 120

Lab Sample ID: 570-123391-C-1-D MSD
Matrix: Water
Analysis Batch: 295684

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		40.0	38.2		ug/L		96	80 - 120	2	20
Copper	5.9		40.0	44.8		ug/L		97	80 - 120	2	20
Lead	ND		40.0	38.5		ug/L		96	80 - 120	3	20
Selenium	0.65	J,DX	40.0	37.1		ug/L		91	80 - 120	3	20
Iron	53		40.0	88.4		ug/L		88	80 - 120	5	20
Zinc	13	J,DX MB	40.0	47.3		ug/L		87	80 - 120	5	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-295551/1-A
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295551

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/12/23 18:36	01/13/23 14:46	1

Lab Sample ID: LCS 570-295551/2-A
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295551

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	6.98		ug/L		87	85 - 115

Lab Sample ID: LCSD 570-295551/3-A
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295551

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	7.17		ug/L		90	85 - 115	3	10

Lab Sample ID: 570-123324-H-1-D MS
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 295551

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.06		ug/L		101	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-123324-H-1-E MSD
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 295551

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	7.98		ug/L		100	85 - 115	1	10

Lab Sample ID: MB 570-295217/1-B
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 295283

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/11/23 18:15	01/16/23 17:29	1

Lab Sample ID: LCS 570-295217/2-B
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 295283

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.65		ug/L		108	85 - 115

Lab Sample ID: LCSD 570-295217/3-B
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 295283

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.54		ug/L		107	85 - 115	1	10

Lab Sample ID: 570-123377-B-1-E MS
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 295283

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.08		ug/L		101	85 - 115

Lab Sample ID: 570-123377-B-1-F MSD
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 295283

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.45		ug/L		106	85 - 115	4	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-297466/5-A
Matrix: Water
Analysis Batch: 297482

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 297466

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		01/20/23 12:20	01/20/23 14:06	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 570-297466/6-A
Matrix: Water
Analysis Batch: 297482

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 297466

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.492		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-297466/7-A
Matrix: Water
Analysis Batch: 297482

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 297466

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.497		mg/L		99	90 - 110	1	20

Lab Sample ID: 380-33593-B-1-A MS
Matrix: Water
Analysis Batch: 297482

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 297466

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.041	J,DX	0.500	0.526		mg/L		97	90 - 110

Lab Sample ID: 380-33593-B-1-B MSD
Matrix: Water
Analysis Batch: 297482

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 297466

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.041	J,DX	0.500	0.515		mg/L		95	90 - 110	2	25

Lab Sample ID: 570-123567-G-2-C DU
Matrix: Water
Analysis Batch: 297482

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 297466

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.085			0.0827		mg/L				2	25

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-295446/11
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			01/11/23 14:55	1

Lab Sample ID: LCS 570-295446/12
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	255		ug/L		102	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: LCSD 570-295446/18
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	233		ug/L		93	90 - 110	9	20

Lab Sample ID: MRL 570-295446/10
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	5.00	4.11	J,DX	ug/L		82	50 - 150		

Lab Sample ID: 570-122475-D-1 MS
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	8.7		250	226		ug/L		87	70 - 130		

Lab Sample ID: 570-122475-D-1 MSD
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	8.7		250	266		ug/L		103	70 - 130	16	30

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-295186/1
Matrix: Water
Analysis Batch: 295186

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Turbidity	1000	1000		NTU		100.2	99.0 - 101.0		

Lab Sample ID: LCSSRM 570-295186/2
Matrix: Water
Analysis Batch: 295186

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Turbidity	10.0	10		NTU		101.0	99.0 - 101.0		

Lab Sample ID: LCSSRM 570-295186/3
Matrix: Water
Analysis Batch: 295186

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0		

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: SM 2130B - Turbidity (Continued)

Lab Sample ID: 570-123414-1 DU
 Matrix: Water
 Analysis Batch: 295186

Client Sample ID: Outfall002_20230110_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	4.7		4.7		NTU		0.2	25

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-295879/1
 Matrix: Water
 Analysis Batch: 295879

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			01/13/23 19:50	1

Lab Sample ID: LCS 570-295879/2
 Matrix: Water
 Analysis Batch: 295879

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1010		mg/L		101	84 - 108

Lab Sample ID: LCSD 570-295879/3
 Matrix: Water
 Analysis Batch: 295879

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1030		mg/L		103	84 - 108	2	10

Lab Sample ID: 570-123290-K-2 DU
 Matrix: Water
 Analysis Batch: 295879

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	220		208		mg/L		7	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-295772/1
 Matrix: Water
 Analysis Batch: 295772

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			01/13/23 14:53	1

Lab Sample ID: LCS 570-295772/2
 Matrix: Water
 Analysis Batch: 295772

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	105		mg/L		105	77 - 116

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCSD 570-295772/3
 Matrix: Water
 Analysis Batch: 295772

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	106		mg/L		106	77 - 116	1	10

Lab Sample ID: 570-123462-I-5 DU
 Matrix: Water
 Analysis Batch: 295772

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	70		70.0		mg/L		0.4	10

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-295142/5-A
 Matrix: Water
 Analysis Batch: 294924

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 295142

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.30	0.054	mg/L		01/10/23 15:00	01/10/23 16:43	1

Lab Sample ID: LCS 570-295142/6-A
 Matrix: Water
 Analysis Batch: 294924

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 295142

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	1.00	1.05		mg/L		105	85 - 111

Lab Sample ID: LCSD 570-295142/7-A
 Matrix: Water
 Analysis Batch: 294924

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 295142

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	1.00	1.02		mg/L		102	85 - 111	3	7

Lab Sample ID: 570-123251-A-1-B MS
 Matrix: Water
 Analysis Batch: 294924

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 295142

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	0.12	J,DX	1.00	1.35		mg/L		124	75 - 125

Lab Sample ID: 570-123251-A-1-C MSD
 Matrix: Water
 Analysis Batch: 294924

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 295142

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	0.12	J,DX	1.00	1.36		mg/L		124	75 - 125	0	12

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 570-296379/2
Matrix: Water
Analysis Batch: 296379

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L			01/11/23 08:04	1

Lab Sample ID: LCS 570-296379/4
Matrix: Water
Analysis Batch: 296379

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	176		mg/L		89	84.6 - 115.4

Lab Sample ID: 570-123605-A-1 DU
Matrix: Water
Analysis Batch: 296379

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	1900		1990		mg/L		6	25

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

GC/MS Semi VOA

Prep Batch: 296386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	625	
MB 570-296386/1-A	Method Blank	Total/NA	Water	625	
LCS 570-296386/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-296386/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 296692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	625.1 SIM	296386
MB 570-296386/1-A	Method Blank	Total/NA	Water	625.1 SIM	296386
LCS 570-296386/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	296386
LCSD 570-296386/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	296386

GC Semi VOA

Prep Batch: 295632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	608	
MB 570-295632/1-A	Method Blank	Total/NA	Water	608	
LCS 570-295632/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-295632/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 296152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	608.3	295632
MB 570-295632/1-A	Method Blank	Total/NA	Water	608.3	295632
LCS 570-295632/2-A	Lab Control Sample	Total/NA	Water	608.3	295632
LCSD 570-295632/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	295632

HPLC/IC

Analysis Batch: 294998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	300.0	
MB 570-294998/5	Method Blank	Total/NA	Water	300.0	
LCS 570-294998/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-294998/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123391-K-2 MS	Matrix Spike	Total/NA	Water	300.0	
570-123391-K-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 294999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	300.0	
570-123414-1 - DL	Outfall002_20230110_Comp	Total/NA	Water	300.0	
MB 570-294999/5	Method Blank	Total/NA	Water	300.0	
LCS 570-294999/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-294999/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123391-K-2 MS	Matrix Spike	Total/NA	Water	300.0	
570-123391-K-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 295096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	314.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

HPLC/IC (Continued)

Analysis Batch: 295096 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-295096/7	Method Blank	Total/NA	Water	314.0	
LCS 570-295096/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-295096/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-123414-1 MS	Outfall002_20230110_Comp	Total/NA	Water	314.0	
570-123414-1 MSD	Outfall002_20230110_Comp	Total/NA	Water	314.0	

Analysis Batch: 295714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 295217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-3	Outfall002_20230110_Comp_F	Dissolved	Water	Filtration	
MB 570-295217/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-295217/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-295217/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-123377-B-1-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-123377-B-1-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Prep Batch: 295283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-3	Outfall002_20230110_Comp_F	Dissolved	Water	245.1	295217
MB 570-295217/1-B	Method Blank	Dissolved	Water	245.1	295217
LCS 570-295217/2-B	Lab Control Sample	Dissolved	Water	245.1	295217
LCSD 570-295217/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	295217
570-123377-B-1-E MS	Matrix Spike	Dissolved	Water	245.1	295217
570-123377-B-1-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	295217

Filtration Batch: 295400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-3	Outfall002_20230110_Comp_F	Dissolved	Water	Filtration	
MB 570-295400/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-295400/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-295400/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-123391-C-1-C MS	Matrix Spike	Dissolved	Water	Filtration	
570-123391-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Prep Batch: 295551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	245.1	
MB 570-295551/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-295551/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-295551/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-123324-H-1-D MS	Matrix Spike	Total/NA	Water	245.1	
570-123324-H-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Prep Batch: 295623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total Recoverable	Water	200.8	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Metals (Continued)

Prep Batch: 295623 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-295623/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-295623/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-295623/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-123414-1 MS	Outfall002_20230110_Comp	Total Recoverable	Water	200.8	
570-123414-1 MSD	Outfall002_20230110_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 295684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-295400/1-A	Method Blank	Dissolved	Water	200.8	295400
LCS 570-295400/2-A	Lab Control Sample	Dissolved	Water	200.8	295400
LCSD 570-295400/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	295400
570-123391-C-1-C MS	Matrix Spike	Dissolved	Water	200.8	295400
570-123391-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	295400

Analysis Batch: 295760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-3	Outfall002_20230110_Comp_F	Dissolved	Water	200.8	295400

Analysis Batch: 295765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	245.1	295551
MB 570-295551/1-A	Method Blank	Total/NA	Water	245.1	295551
LCS 570-295551/2-A	Lab Control Sample	Total/NA	Water	245.1	295551
LCSD 570-295551/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	295551
570-123324-H-1-D MS	Matrix Spike	Total/NA	Water	245.1	295551
570-123324-H-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	295551

Analysis Batch: 295781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total Recoverable	Water	200.8	295623
MB 570-295623/1-A	Method Blank	Total Recoverable	Water	200.8	295623
LCS 570-295623/2-A	Lab Control Sample	Total Recoverable	Water	200.8	295623
LCSD 570-295623/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	295623
570-123414-1 MS	Outfall002_20230110_Comp	Total Recoverable	Water	200.8	295623
570-123414-1 MSD	Outfall002_20230110_Comp	Total Recoverable	Water	200.8	295623

Analysis Batch: 296261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-3	Outfall002_20230110_Comp_F	Dissolved	Water	245.1	295283
MB 570-295217/1-B	Method Blank	Dissolved	Water	245.1	295283
LCS 570-295217/2-B	Lab Control Sample	Dissolved	Water	245.1	295283
LCSD 570-295217/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	295283
570-123377-B-1-E MS	Matrix Spike	Dissolved	Water	245.1	295283
570-123377-B-1-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	295283

General Chemistry

Analysis Batch: 294924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	SM 5540C	295142
MB 570-295142/5-A	Method Blank	Total/NA	Water	SM 5540C	295142

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

General Chemistry (Continued)

Analysis Batch: 294924 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-295142/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	295142
LCSD 570-295142/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	295142
570-123251-A-1-B MS	Matrix Spike	Total/NA	Water	SM 5540C	295142
570-123251-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	295142

Prep Batch: 295142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	SM 5540C	
MB 570-295142/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-295142/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-295142/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-123251-A-1-B MS	Matrix Spike	Total/NA	Water	SM 5540C	
570-123251-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	

Analysis Batch: 295186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-295186/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-295186/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-295186/3	Lab Control Sample	Total/NA	Water	SM 2130B	
570-123414-1 DU	Outfall002_20230110_Comp	Total/NA	Water	SM 2130B	

Analysis Batch: 295446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	Kelada 01	
MB 570-295446/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-295446/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-295446/18	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-295446/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-122475-D-1 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-122475-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 295772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	SM 2540D	
MB 570-295772/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-295772/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-295772/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-123462-I-5 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 295879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	SM 2540C	
MB 570-295879/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-295879/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-295879/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-123290-K-2 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 296379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	SM5210B	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

General Chemistry (Continued)

Analysis Batch: 296379 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
USB 570-296379/2	Method Blank	Total/NA	Water	SM5210B	
LCS 570-296379/4	Lab Control Sample	Total/NA	Water	SM5210B	
570-123605-A-1 DU	Duplicate	Total/NA	Water	SM5210B	

Prep Batch: 297466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-297466/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-297466/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-297466/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
380-33593-B-1-A MS	Matrix Spike	Total/NA	Water	Distill/Ammonia	
380-33593-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/Ammonia	
570-123567-G-2-C DU	Duplicate	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 297482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	350.1	297466
MB 570-297466/5-A	Method Blank	Total/NA	Water	350.1	297466
LCS 570-297466/6-A	Lab Control Sample	Total/NA	Water	350.1	297466
LCSD 570-297466/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	297466
380-33593-B-1-A MS	Matrix Spike	Total/NA	Water	350.1	297466
380-33593-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	297466
570-123567-G-2-C DU	Duplicate	Total/NA	Water	350.1	297466

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

Date Collected: 01/10/23 10:20

Matrix: Water

Date Received: 01/10/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1067.8 mL	2 mL	296386	01/17/23 10:37	H1SH	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	296692	01/18/23 12:22	ULLI	EET CAL 4
Instrument ID: GCMSEEE										
Total/NA	Prep	608			1500 mL	1 mL	295632	01/13/23 08:26	OAJ3	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	296152	01/16/23 16:46	N5Y3	EET CAL 4
Instrument ID: GC52A										
Total/NA	Analysis	300.0		1	4 mL	4 mL	294998	01/11/23 09:58	PS	EET CAL 4
Instrument ID: IC9										
Total/NA	Analysis	300.0		1	4 mL	4 mL	294999	01/11/23 09:58	PS	EET CAL 4
Instrument ID: IC9										
Total/NA	Analysis	300.0	DL	10	4 mL	4 mL	294999	01/11/23 11:39	PS	EET CAL 4
Instrument ID: IC9										
Total/NA	Analysis	314.0		1	4 mL	4 mL	295096	01/11/23 16:10	PS	EET CAL 4
Instrument ID: IC13										
Total/NA	Analysis	NO2NO3 Calc		1			295714	01/13/23 11:53	WH6J	EET CAL 4
Instrument ID: NOEQUIP										
Total Recoverable	Prep	200.8			50 mL	50 mL	295623	01/13/23 08:13	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			295781	01/13/23 13:57	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Total/NA	Prep	245.1			25 mL	50 mL	295551	01/12/23 18:36	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			295765	01/13/23 15:18	C0YH	EET CAL 4
Instrument ID: HG8										
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	297466	01/20/23 12:20	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	297482	01/20/23 14:18	UXCH	EET CAL 4
Instrument ID: ACA2										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	295446	01/11/23 14:55	GG0B	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2130B		1			295186	01/11/23 16:07	TXA8	EET CAL 4
Instrument ID: TUR4										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	295879	01/13/23 19:50	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	500 mL	1000 mL	295772	01/13/23 14:53	UWCT	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Prep	SM 5540C			100 mL	100 mL	295142	01/10/23 21:00	ZVB7	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	294924	01/10/23 22:08	ZVB7	EET CAL 4
Instrument ID: UV9										
Total/NA	Analysis	SM5210B		1			296379	01/11/23 15:54	W0EF	EET CAL 4
Instrument ID: BOD3										

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Client Sample ID: Outfall002_20230110_Comp_F

Lab Sample ID: 570-123414-3

Date Collected: 01/10/23 10:20

Matrix: Water

Date Received: 01/10/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	295400	01/12/23 15:37	W1BQ	EET CAL 4
Dissolved	Analysis	200.8		1			295760	01/13/23 13:35	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Dissolved	Filtration	Filtration			25 mL	50 mL	295217	01/11/23 17:44	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	295283	01/11/23 18:15	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			296261	01/16/23 17:58	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	40CFR136A	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
SM5210B	BOD, 5 Day	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	EET CAL 4
625	Liquid-Liquid Extraction	40CFR136A	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
 EPA = US Environmental Protection Agency
 None = None
 SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123414-1	Outfall002_20230110_Comp	Water	01/10/23 10:20	01/10/23 17:55
570-123414-3	Outfall002_20230110_Comp_F	Water	01/10/23 10:20	01/10/23 17:55

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CHAIN OF CUSTODY FORM

Revised COC received from Mark Dominick (H&A) on 01/11/23 @ 05:18am. - Virendra (ECI)

Eurofins Calsciencia Irvine

Client Name/Address: Hailey & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calsciencia Irvine Contact: Christian Bondoc 17461 Derrilan Ave Suite #100 Irvine CA 92614 Tel: 949-280-3218		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 018 Outfall 002 Comp		Project Manager: Katherine Miller 520.289.8606, 520.504.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.589.0702 (cell)		Sample ID: Outfall002_20230110_Comp_F		Sample Matrix: WM		Sample Date/Time: 1/10/2023		Container Type: 1L Poly		Preservative: None		Bottle #: 200		M5AMSD: No		Comments: Filter and preserve with 20% of receipt at lab. Outfall 002 Analyze for Fe. Outfall 002 Analyze for Fe.			
Sample Description: Outfall 002		Outfall002_20230110_Comp_F		1/10/2023		1L Poly		None		200		No		X		Total Dissolved Metals (E200.7)		X		Total Dissolved Metals (E200.7)		X	
Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Radium 226 (E904.0), Uranium (E908.0, K-40, CS-137 (E907.0 or E907.1)		Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Radium 226 (E904.0), Uranium (E908.0, K-40, CS-137 (E907.0 or E907.1)		None		None		None		200		No		X		Total Dissolved Metals (E200.7); Zn (E200.8); Cd, Pb, Cu, Se (E200.9)		X		Total Dissolved Metals (E200.7); Arsenic (E200.8); Mercury (E200.9)		X	
Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Unfiltered and unpreserved samples. Separate RAD into another vial/container. Analyze duplicate, not M5AMSD. Only test if first or second run events of the year. Deliver to ABC Labs in Ventura, CA.																							

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRS=Quarterly Receiving Water, S=Seal-Annual
 Received By: [Signature] Date/Time: 1/10/23 12:35 EC
 Received By: [Signature] Date/Time: 1/10/23 12:35 EC
 Received By: [Signature] Date/Time: [Blank] [Blank]

* Hand-delivered to ABC Labs with copy of COC



Chain of Custody Record



Sampler		Lab PM: Patel Virendra		Camer Tracking No(s): 570-203785.1	
Client Information (Sub Contract Lab)		E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	
Shipping/Receiving		Accreditations Required (See note): State Program California		Job #: 570-123414-3	
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 2/10/2023		Preservation Codes:	
Address: 13715 Rider Trail North,		TAT Requested (days):		A HCL	
City: Earth City		PO #:		M Hexane	
State, Zip: MO, 63045		WC #:		N None	
Phone: 314-298-8666(Tel) 314-298-8757(Fax)		Project #: 44024446		O AsNaO2	
Email:		SSOW#:		P Na2O4S	
Project Name: Boeing SSFL NPDES Outfall 002 Comp		Sample Date: 1/10/23		Q Na2SO3	
Site:		Sample Time: 17:55 Pacific		R Na2SO4	
Sample Identification - Client ID (Lab ID)		Sample Type (C=Comp, G=grab)		S H2SO4	
Outfall002_20230110_Comp (570-123414-1)		Matrix (W=water, S=solid, O=water/oil, BT=Tissue, A=Air)		T TSP Dodecahydrate	
		Preservation Code: Water		U Acetone	
		Field Filtered Sample (Yes or No)		V MCAA	
		Perform MS/MSD (Yes or No)		W PH 4-5	
		Analysis Requested		X EDTA	
		901.1_CsFill_Geo_0-K-40 and Cesium-137		L EDA	
		A01R_W/ExChrom_Actin Total Uranium		Z other (specify)	
		900.0/Evaporation Gross Alpha/Beta		Other	
		903.0/PreSep_21 Radium-226			
		904.0/PreSep_0 Radium-226			
		905.5r90/PreSep_7 Strontium-90			
		906.0/LSC_Diet_Susp Tritium			
		Total Number of Containers		Special Instructions/Note:	
		2		Boeing SSFL, DO NOT FILTER; use prep date from preservation	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date/Time: 01/11/23 12:39 PM Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No

Method of Shipment: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Cooler Temperature(s) °C and Other Remarks: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:



ICOC No
570-203785

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123414-1

Login Number: 123414

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/6/2023 12:44:34 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-123414-2

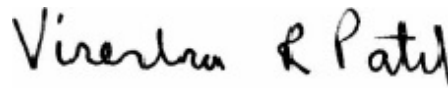
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
2/6/2023 12:44:34 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Job ID: 570-123414-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123414-2

Comments

No additional comments.

Receipt

The samples were received on 1/10/2023 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.9° C and 2.1° C.

Dioxin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000015	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				68					
1,2,3,6,7,8-HxCDD	0.00000043	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				83					
1,2,3,7,8,9-HxCDF	0.00000039	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				59					
1,2,3,4,6,7,8-HpCDD	0.0000040	J,DX MB	0.000048	0.00000011	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.0000022	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				96					
OCDD	0.000054	J,DX MB	0.000096	0.0000002	ug/L	1		1613B	Total/NA
				3					
OCDF	0.0000042	J,DX MB	0.000096	0.0000002	ug/L	1		1613B	Total/NA
				2					
Total HxCDD	0.0000020	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				68					
Total HxCDF	0.00000039	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				54					
Total HpCDD	0.0000076	J,DX MB q	0.000048	0.00000011	ug/L	1		1613B	Total/NA
Total HpCDF	0.0000036	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				94					

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

Date Collected: 01/10/23 10:20

Matrix: Water

Date Received: 01/10/23 17:55

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000096	0.0000004	ug/L		01/19/23 11:44	01/31/23 19:42	1
2,3,7,8-TCDF	ND		0.0000096	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000001	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,7,8-PeCDF	ND		0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,4,7,8-HxCDD	0.0000015	J,DX MB q	0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,6,7,8-HxCDD	0.0000043	J,DX MB q	0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,7,8,9-HxCDD	ND		0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,4,7,8-HxCDF	ND		0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,6,7,8-HxCDF	ND		0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,7,8,9-HxCDF	0.0000039	J,DX MB q	0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
2,3,4,6,7,8-HxCDF	ND		0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,4,6,7,8-HpCDD	0.0000040	J,DX MB	0.000048	0.00000011	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,4,6,7,8-HpCDF	0.0000022	J,DX MB q	0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
OCDD	0.000054	J,DX MB	0.000096	0.0000002	ug/L		01/19/23 11:44	01/31/23 19:42	1
OCDF	0.0000042	J,DX MB	0.000096	0.0000002	ug/L		01/19/23 11:44	01/31/23 19:42	1
Total TCDD	ND		0.0000096	0.0000004	ug/L		01/19/23 11:44	01/31/23 19:42	1
Total TCDF	ND		0.0000096	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
Total PeCDD	ND		0.000048	0.0000001	ug/L		01/19/23 11:44	01/31/23 19:42	1
Total PeCDF	ND		0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
Total HxCDD	0.0000020	J,DX MB q	0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
Total HxCDF	0.0000039	J,DX MB q	0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
Total HpCDD	0.0000076	J,DX MB q	0.000048	0.00000011	ug/L		01/19/23 11:44	01/31/23 19:42	1
Total HpCDF	0.0000036	J,DX MB q	0.000048	0.0000000	ug/L		01/19/23 11:44	01/31/23 19:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	73		25 - 164				01/19/23 11:44	01/31/23 19:42	1
13C-2,3,7,8-TCDF	68		24 - 169				01/19/23 11:44	01/31/23 19:42	1
13C-1,2,3,7,8-PeCDD	83		25 - 181				01/19/23 11:44	01/31/23 19:42	1
13C-1,2,3,7,8-PeCDF	86		24 - 185				01/19/23 11:44	01/31/23 19:42	1
13C-2,3,4,7,8-PeCDF	81		21 - 178				01/19/23 11:44	01/31/23 19:42	1
13C-1,2,3,4,7,8-HxCDD	101		32 - 141				01/19/23 11:44	01/31/23 19:42	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230110_Comp
Date Collected: 01/10/23 10:20
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,6,7,8-HxCDD	80		28 - 130	01/19/23 11:44	01/31/23 19:42	1
13C-1,2,3,4,7,8-HxCDF	108		26 - 152	01/19/23 11:44	01/31/23 19:42	1
13C-1,2,3,6,7,8-HxCDF	105		26 - 123	01/19/23 11:44	01/31/23 19:42	1
13C-1,2,3,7,8,9-HxCDF	104		29 - 147	01/19/23 11:44	01/31/23 19:42	1
13C-2,3,4,6,7,8-HxCDF	110		28 - 136	01/19/23 11:44	01/31/23 19:42	1
13C-1,2,3,4,6,7,8-HpCDD	108		23 - 140	01/19/23 11:44	01/31/23 19:42	1
13C-1,2,3,4,6,7,8-HpCDF	98		28 - 143	01/19/23 11:44	01/31/23 19:42	1
13C-1,2,3,4,7,8,9-HpCDF	114		26 - 138	01/19/23 11:44	01/31/23 19:42	1
13C-OCDD	96		17 - 157	01/19/23 11:44	01/31/23 19:42	1
13C-OCDF	118		17 - 157	01/19/23 11:44	01/31/23 19:42	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	87		35 - 197	01/19/23 11:44	01/31/23 19:42	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-123414-1	Outfall002_20230110_Comp	87
MB 320-648057/1-A	Method Blank	85

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-648057/2-A	Lab Control Sample	86
LCSD 320-648057/3-A	Lab Control Sample Dup	89

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-123414-1	Outfall002_20230110_Comp	73	68	83	86	81	101	80	108
MB 320-648057/1-A	Method Blank	63	60	77	72	76	90	76	97

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxCDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-123414-1	Outfall002_20230110_Comp	105	104	110	108	98	114	96	118
MB 320-648057/1-A	Method Blank	97	85	98	89	83	90	71	87

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-648057/2-A	Lab Control Sample	61	56	74	74	72	88	73	93
LCSD 320-648057/3-A	Lab Control Sample Dup	67	64	75	75	78	97	77	101

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxCDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-648057/2-A	Lab Control Sample	90	87	95	92	83	97	79	98
LCSD 320-648057/3-A	Lab Control Sample Dup	100	91	104	93	88	93	77	92

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-648057/1-A
Matrix: Water
Analysis Batch: 650623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 648057

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,4,7,8-PeCDF	76		21 - 178	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,7,8-HxCDD	90		32 - 141	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,6,7,8-HxCDD	76		28 - 130	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,7,8-HxCDF	97		26 - 152	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,6,7,8-HxCDF	97		26 - 123	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,7,8,9-HxCDF	85		29 - 147	01/19/23 11:44	01/31/23 12:28	1
13C-2,3,4,6,7,8-HxCDF	98		28 - 136	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,6,7,8-HpCDD	89		23 - 140	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,6,7,8-HpCDF	83		28 - 143	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,7,8,9-HpCDF	90		26 - 138	01/19/23 11:44	01/31/23 12:28	1
13C-OCDD	71		17 - 157	01/19/23 11:44	01/31/23 12:28	1
13C-OCDF	87		17 - 157	01/19/23 11:44	01/31/23 12:28	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	85		35 - 197	01/19/23 11:44	01/31/23 12:28	1

Lab Sample ID: LCS 320-648057/2-A
Matrix: Water
Analysis Batch: 650623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 648057

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000235		ug/L		118	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000845		ug/L		84	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000833		ug/L		83	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000854		ug/L		85	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000830	MB	ug/L		83	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00102	MB	ug/L		102	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000878	MB	ug/L		88	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000871	MB	ug/L		87	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000890	MB	ug/L		89	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000902	MB	ug/L		90	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000895	MB	ug/L		89	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000850	MB	ug/L		85	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000988	MB	ug/L		99	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000829	MB	ug/L		83	78 - 138
OCDD	0.00200	0.00210	MB	ug/L		105	78 - 144
OCDF	0.00200	0.00182	MB	ug/L		91	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	61		20 - 175
13C-2,3,7,8-TCDF	56		22 - 152
13C-1,2,3,7,8-PeCDD	74		21 - 227
13C-1,2,3,7,8-PeCDF	74		21 - 192
13C-2,3,4,7,8-PeCDF	72		13 - 328
13C-1,2,3,4,7,8-HxCDD	88		21 - 193
13C-1,2,3,6,7,8-HxCDD	73		25 - 163
13C-1,2,3,4,7,8-HxCDF	93		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-648057/2-A
Matrix: Water
Analysis Batch: 650623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 648057

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,6,7,8-HxCDF	90		21 - 159
13C-1,2,3,7,8,9-HxCDF	87		17 - 205
13C-2,3,4,6,7,8-HxCDF	95		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	92		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	83		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	97		20 - 186
13C-OCDD	79		13 - 199
13C-OCDF	98		13 - 199
Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	86		31 - 191

Lab Sample ID: LCSD 320-648057/3-A
Matrix: Water
Analysis Batch: 650623

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 648057

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000193		ug/L		97	67 - 158	4	50	
2,3,7,8-TCDF	0.000200	0.000222		ug/L		111	75 - 158	6	50	
1,2,3,7,8-PeCDD	0.00100	0.000901		ug/L		90	70 - 142	6	50	
1,2,3,7,8-PeCDF	0.00100	0.000888		ug/L		89	80 - 134	6	50	
2,3,4,7,8-PeCDF	0.00100	0.000825		ug/L		83	68 - 160	3	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000836	MB	ug/L		84	70 - 164	1	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00109	MB	ug/L		109	76 - 134	7	50	
1,2,3,7,8,9-HxCDD	0.00100	0.000911	MB	ug/L		91	64 - 162	4	50	
1,2,3,4,7,8-HxCDF	0.00100	0.000869	MB	ug/L		87	72 - 134	0	50	
1,2,3,6,7,8-HxCDF	0.00100	0.000901	MB	ug/L		90	84 - 130	1	50	
1,2,3,7,8,9-HxCDF	0.00100	0.000910	MB	ug/L		91	78 - 130	1	50	
2,3,4,6,7,8-HxCDF	0.00100	0.000905	MB	ug/L		91	70 - 156	1	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000885	MB	ug/L		89	70 - 140	4	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00102	MB	ug/L		102	82 - 122	4	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.000870	MB	ug/L		87	78 - 138	5	50	
OCDD	0.00200	0.00211	MB	ug/L		105	78 - 144	0	50	
OCDF	0.00200	0.00190	MB	ug/L		95	63 - 170	5	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	67		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	75		21 - 227
13C-1,2,3,7,8-PeCDF	75		21 - 192
13C-2,3,4,7,8-PeCDF	78		13 - 328
13C-1,2,3,4,7,8-HxCDD	97		21 - 193
13C-1,2,3,6,7,8-HxCDD	77		25 - 163
13C-1,2,3,4,7,8-HxCDF	101		19 - 202
13C-1,2,3,6,7,8-HxCDF	100		21 - 159
13C-1,2,3,7,8,9-HxCDF	91		17 - 205
13C-2,3,4,6,7,8-HxCDF	104		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	93		26 - 166

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-648057/3-A

Matrix: Water

Analysis Batch: 650623

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 648057

<u>Isotope Dilution</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
13C-1,2,3,4,6,7,8-HpCDF	88		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	93		20 - 186
13C-OCDD	77		13 - 199
13C-OCDF	92		13 - 199

<u>Surrogate</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
37Cl4-2,3,7,8-TCDD	89		31 - 191

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Specialty Organics

Prep Batch: 648057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	1613B	
MB 320-648057/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-648057/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-648057/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 650623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	1613B	648057
MB 320-648057/1-A	Method Blank	Total/NA	Water	1613B	648057
LCS 320-648057/2-A	Lab Control Sample	Total/NA	Water	1613B	648057
LCSD 320-648057/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	648057

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Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

Date Collected: 01/10/23 10:20

Matrix: Water

Date Received: 01/10/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1044.5 mL	20.0 uL	648057	01/19/23 11:44	CGB	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	650623	01/31/23 19:42	KSS	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23 *
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123414-1	Outfall002_20230110_Comp	Water	01/10/23 10:20	01/10/23 17:55

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Chain of Custody Record



Sampler		Lab PM: Patel Virendra		Camer Tracking No(s): 570-203785.1	
Client Information (Sub Contract Lab)		E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	
Shipping/Receiving		Accreditations Required (See note): State Program California		Job #: 570-123414-3	
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 2/10/2023		Preservation Codes:	
Address: 13715 Rider Trail North,		TAT Requested (days):		A HCL	
City: Earth City		PO #:		M Hexane	
State, Zip: MO, 63045		WC #:		N None	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Project #: 44024446		O AsNaO2	
Email:		SSOW#:		P Na2O4S	
Project Name: Boeing SSFL NPDES Outfall 002 Comp		Sample Date: 1/10/23		Q Na2SO3	
Site:		Sample Time: 17:55 Pacific		R Na2SO4	
		Sample Matrix (W=water, S=solid, O=water/oil, BT=Trace, A=Air)		S H2SO4	
		Sample Type (C=Comp, G=grab)		T TSP Dodecahydrate	
		Preservation Code: Water		U Acetone	
		Field Filtered Sample (Yes or No)		V MCAA	
		Perform MS/MSD (Yes or No)		W PH 4-S	
		Analysis Requested		Y Trizma	
		901.1_CsFill_Geo_0-K-40 and Cesium-137		Z other (specify)	
		A01r_W/Exchrom_Actin Total Uranium			
		900.0/Evaporation Gross Alpha/Beta			
		903.0/PreSep_21 Radium-226			
		904.0/PreSep_0 Radium-226			
		905.5/Sr90/PreSep_7 Strontium-90			
		906.0/LSC_Diet_Susp Tritium			
		Total Number of Containers		Special Instructions/Note:	
		2		Boeing SSFL, DO NOT FILTER; use prep date from preservation	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date/Time: 01/11/23 12:39 PM Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No

Method of Shipment: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Cooler Temperature(s) °C and Other Remarks: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:



ICOC No
570-203785

Containers
Count

Container Type

Preservative

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123414-2

Login Number: 123414

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Virendra

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123414-2

Login Number: 123414

List Number: 3

Creator: Fisher, Jamyiah L

List Source: Eurofins Sacramento

List Creation: 01/12/23 01:30 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-123414-3

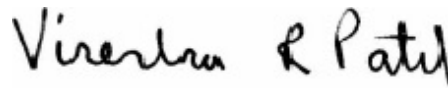
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

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Authorized for release by
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Qualifiers

Rad

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Job ID: 570-123414-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-123414-3

Comments

No additional comments.

Receipt

The samples were received on 1/10/2023 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.9° C and 2.1° C.

Receipt Exceptions

The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of 7: Outfall009_20230110_Comp (570-123393-1) and Outfall002_20230110_Comp (570-123414-1). The samples were preserved to the appropriate pH in the laboratory.

RAD

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 597589

The matrix spike (MS) recoveries for Gross Alpha were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (570-123414-R-1-G MS)

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 597589

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230110_Comp (570-123414-1), (LCS 160-597589/2-A), (LCSB 160-597589/3-A), (MB 160-597589/1-A), (570-123414-R-1-I DU), (570-123414-R-1-G MS) and (570-123414-R-1-H MSBT)

Method 901.1: Gamma Prep Batch 160-596826

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Job ID: 570-123414-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230110_Comp (570-123414-1), (570-123009-T-1-H) and (570-123009-T-1-I DU)

Method 903.0: Radium-226 prep batch 160-596814:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230110_Comp (570-123414-1), (LCS 160-596814/2-A), (MB 160-596814/1-A), (280-171142-A-1-A) and (280-171142-B-1-B DU)

Method 904.0: Radium-228 prep batch 160-596818:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230110_Comp (570-123414-1), (LCS 160-596818/2-A), (MB 160-596818/1-A), (280-171142-A-1-B) and (280-171142-B-1-C DU)

Method 905: Strontium-90 Batch 597060

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230110_Comp (570-123414-1), (LCS 160-597060/2-A), (LCSD 160-597060/3-A) and (MB 160-597060/1-A)

Method 906.0: Tritium 597488

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230110_Comp (570-123414-1), (LCS 160-597488/2-A), (MB 160-597488/1-A), (570-123038-U-2-B), (570-123038-U-2-C DU) and (570-123414-Q-1-C MS)

Method A-01-R: Isotopic Uranium batch 597259

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230110_Comp (570-123414-1), (LCS 160-597259/2-A), (MB 160-597259/1-A), (570-123038-A-2-B) and (570-123038-A-2-C DU)

Method PrecSep_0:

Method PrecSep-21:

Method PrecSep-7: Strontium-90 Prep Batch 160-597060

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall002_20230110_Comp (570-123414-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 160-597060

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230110_Comp (570-123414-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Job ID: 570-123414-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

precision.

Method PrecSep-7:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230110_Comp
 Date Collected: 01/10/23 10:20
 Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.721	U	1.67	1.67	3.00	2.93	pCi/L	01/20/23 09:55	01/24/23 20:34	1
Gross Beta	2.03		0.739	0.766	4.00	1.00	pCi/L	01/20/23 09:55	01/24/23 20:34	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230110_Comp
Date Collected: 01/10/23 10:20
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-2.21	U	7.55	7.56	20.0	8.82	pCi/L	01/13/23 11:41	02/03/23 19:54	1
Potassium-40	3.58	U	94.9	94.9		101	pCi/L	01/13/23 11:41	02/03/23 19:54	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230110_Comp
Date Collected: 01/10/23 10:20
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.129		0.0802	0.0810	1.00	0.103	pCi/L	01/13/23 09:48	02/06/23 09:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.2		40 - 110					01/13/23 09:48	02/06/23 09:50	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230110_Comp
Date Collected: 01/10/23 10:20
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0254	U	0.292	0.292	1.00	0.549	pCi/L	01/13/23 10:13	01/20/23 12:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.2		40 - 110					01/13/23 10:13	01/20/23 12:30	1
Y Carrier	91.2		40 - 110					01/13/23 10:13	01/20/23 12:30	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230110_Comp
 Date Collected: 01/10/23 10:20
 Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.261	U	0.381	0.381	3.00	0.737	pCi/L	01/16/23 10:20	01/26/23 17:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	83.6		40 - 110					01/16/23 10:20	01/26/23 17:29	1
Y Carrier	77.8		40 - 110					01/16/23 10:20	01/26/23 17:29	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230110_Comp
 Date Collected: 01/10/23 10:20
 Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-26.1	U	159	159	500	294	pCi/L	01/19/23 12:02	01/21/23 00:40	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230110_Comp
Date Collected: 01/10/23 10:20
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123414-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.270		0.176	0.177	1.00	0.179	pCi/L	01/17/23 16:09	01/25/23 14:42	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	86.2		30 - 110					01/17/23 16:09	01/25/23 14:42	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-171142-B-1-B DU	Duplicate	89.1	
570-123414-1	Outfall002_20230110_Comp	99.2	
LCS 160-596814/2-A	Lab Control Sample	95.0	
MB 160-596814/1-A	Method Blank	96.6	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-171142-B-1-C DU	Duplicate	89.1	86.4
570-123414-1	Outfall002_20230110_Comp	99.2	91.2
LCS 160-596818/2-A	Lab Control Sample	95.0	85.2
MB 160-596818/1-A	Method Blank	96.6	87.1
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (40-110)	Y (40-110)
570-123414-1	Outfall002_20230110_Comp	83.6	77.8
LCS 160-597060/2-A	Lab Control Sample	84.7	70.7
LCSD 160-597060/3-A	Lab Control Sample Dup	79.1	74.8
MB 160-597060/1-A	Method Blank	77.0	68.0
Tracer/Carrier Legend			
Sr = Sr Carrier			
Y = Y Carrier			

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
570-123038-A-2-C DU	Duplicate	86.2	
570-123414-1	Outfall002_20230110_Comp	86.2	
LCS 160-597259/2-A	Lab Control Sample	87.1	
MB 160-597259/1-A	Method Blank	85.3	
Tracer/Carrier Legend			
U-232 = Uranium-232			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-597589/1-A
Matrix: Water
Analysis Batch: 598170

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597589

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.2358	U	0.454	0.455	3.00	0.596	pCi/L	01/20/23 09:55	01/25/23 12:20	1
Gross Beta	0.3365	U	0.521	0.522	4.00	0.529	pCi/L	01/20/23 09:55	01/25/23 12:20	1

Lab Sample ID: LCS 160-597589/2-A
Matrix: Water
Analysis Batch: 598147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Gross Alpha	50.5	47.39		6.90	3.00	1.40	pCi/L	94	75 - 125

Lab Sample ID: LCSB 160-597589/3-A
Matrix: Water
Analysis Batch: 598147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Gross Beta	73.8	67.95		7.33	4.00	0.453	pCi/L	92	75 - 125

Lab Sample ID: 570-123414-1 MS
Matrix: Water
Analysis Batch: 598067

Client Sample ID: Outfall002_20230110_Comp
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec
						Uncert. (2σ+/-)					Limits
Gross Alpha	0.721	U	50.5	30.29	F1	5.19	3.00	2.67	pCi/L	59	60 - 140

Lab Sample ID: 570-123414-1 MSBT
Matrix: Water
Analysis Batch: 598067

Client Sample ID: Outfall002_20230110_Comp
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec
						Uncert. (2σ+/-)					Limits
Gross Beta	2.03		73.8	73.84		7.92	4.00	0.978	pCi/L	97	60 - 140

Lab Sample ID: 570-123414-1 DU
Matrix: Water
Analysis Batch: 598067

Client Sample ID: Outfall002_20230110_Comp
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER	
					Uncert. (2σ+/-)					Limit	
Gross Alpha	0.721	U	-0.5977	U	1.06	3.00	2.23	pCi/L		0.48	1
Gross Beta	2.03		2.279		0.700	4.00	0.810	pCi/L		0.17	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-596826/1-A
Matrix: Water
Analysis Batch: 599329

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596826

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	-1.907	U	10.1	10.1	20.0	12.5	pCi/L	01/13/23 11:41	02/03/23 17:39	1
Potassium-40	20.39	U	126	126		145	pCi/L	01/13/23 11:41	02/03/23 17:39	1

Lab Sample ID: LCS 160-596826/2-A
Matrix: Water
Analysis Batch: 599336

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596826

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	135000	137200		16300		297	pCi/L	102	75 - 125
Cesium-137	41000	42260		5030	20.0	72.1	pCi/L	103	75 - 125
Cobalt-60	18200	19050		2270		38.2	pCi/L	105	75 - 125

Lab Sample ID: 570-123009-T-1-I DU
Matrix: Water
Analysis Batch: 599502

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596826

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Cesium-137	-1.70	U	3.961	U	9.55	20.0	11.7	pCi/L	0.33	1
Potassium-40	-51.2	U	-72.50	U	166		182	pCi/L	0.08	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-596814/1-A
Matrix: Water
Analysis Batch: 599338

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596814

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.04849	U	0.0600	0.0602	1.00	0.0992	pCi/L	01/13/23 09:48	02/06/23 09:56	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	96.6		40 - 110				01/13/23 09:48	02/06/23 09:56	1	

Lab Sample ID: LCS 160-596814/2-A
Matrix: Water
Analysis Batch: 599338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596814

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	11.60		1.17	1.00	0.0769	pCi/L	102	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	95.0		40 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 280-171142-B-1-B DU
Matrix: Water
Analysis Batch: 599338

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596814

Analyte	Sample	Sample	DU		Total	RL	MDC	Unit	RER	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)						
Radium-226	0.243		0.2352		0.0928	1.00	0.0938	pCi/L	0.04		1
Carrier	%Yield	DU Qualifier	Limits								
Ba Carrier	89.1		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-596818/1-A
Matrix: Water
Analysis Batch: 597614

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596818

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.5270	U	0.399	0.402	1.00	0.623	pCi/L	01/13/23 10:13	01/20/23 12:10	1
Carrier	%Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.6		40 - 110					01/13/23 10:13	01/20/23 12:10	1
Y Carrier	87.1		40 - 110					01/13/23 10:13	01/20/23 12:10	1

Lab Sample ID: LCS 160-596818/2-A
Matrix: Water
Analysis Batch: 597613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596818

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	Limits
		Result	Qual	Uncert. (2σ+/-)						
Radium-228	8.26	9.450		1.28	1.00	0.590	pCi/L	114		75 - 125
Carrier	%Yield	LCS Qualifier	Limits							
Ba Carrier	95.0		40 - 110							
Y Carrier	85.2		40 - 110							

Lab Sample ID: 280-171142-B-1-C DU
Matrix: Water
Analysis Batch: 597613

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596818

Analyte	Sample	Sample	DU		Total	RL	MDC	Unit	RER	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)						
Radium-228	0.200	U	0.4563	U	0.367	1.00	0.567	pCi/L	0.37		1
Carrier	%Yield	DU Qualifier	Limits								
Ba Carrier	89.1		40 - 110								
Y Carrier	86.4		40 - 110								

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-597060/1-A
Matrix: Water
Analysis Batch: 598291

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597060

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	-0.1985	U	0.247	0.248	3.00	0.478	pCi/L	01/16/23 10:20	01/26/23 17:35	1
Carrier	MB MB		Limits					Prepared	Analyzed	Dil Fac
	%Yield	Qualifier								
Sr Carrier	77.0		40 - 110					01/16/23 10:20	01/26/23 17:35	1
Y Carrier	68.0		40 - 110					01/16/23 10:20	01/26/23 17:35	1

Lab Sample ID: LCS 160-597060/2-A
Matrix: Water
Analysis Batch: 598291

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597060

Analyte		Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	RER	Limit
			Result	Qual	Uncert. (2σ+/-)					Limits		
Strontium-90		7.38	7.381		0.866	3.00	0.408	pCi/L	100	75 - 125		
Carrier	LCS LCS		Limits									
	%Yield	Qualifier										
Sr Carrier	84.7		40 - 110									
Y Carrier	70.7		40 - 110									

Lab Sample ID: LCSD 160-597060/3-A
Matrix: Water
Analysis Batch: 598291

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597060

Analyte		Spike Added	LCSD	LCSD	Total	RL	MDC	Unit	%Rec	%Rec	RER	Limit
			Result	Qual	Uncert. (2σ+/-)					Limits		
Strontium-90		7.38	6.740		0.814	3.00	0.392	pCi/L	91	75 - 125	0.38	1
Carrier	LCSD LCSD		Limits									
	%Yield	Qualifier										
Sr Carrier	79.1		40 - 110									
Y Carrier	74.8		40 - 110									

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-597488/1-A
Matrix: Water
Analysis Batch: 597784

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597488

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-84.68	U	164	165	500	326	pCi/L	01/19/23 12:02	01/20/23 20:22	1

Lab Sample ID: LCS 160-597488/2-A
Matrix: Water
Analysis Batch: 597784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597488

Analyte		Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	RER	Limit
			Result	Qual	Uncert. (2σ+/-)					Limits		
Tritium		2120	1848		381	500	324	pCi/L	87	75 - 125		

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 570-123414-1 MS
 Matrix: Water
 Analysis Batch: 597784

Client Sample ID: Outfall002_20230110_Comp
 Prep Type: Total/NA
 Prep Batch: 597488

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Tritium	-26.1	U	2120	1947		376	500	297	pCi/L	92	60 - 140

Lab Sample ID: 570-123038-U-2-C DU
 Matrix: Water
 Analysis Batch: 597784

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 597488

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Tritium	-83.3	U	-97.75	U	162	500	324	pCi/L	0.05	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-597259/1-A
 Matrix: Water
 Analysis Batch: 598217

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 597259

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.05873	U	0.09433	0.09455	1.00	0.172	pCi/L	01/17/23 16:09	01/25/23 14:42	1
<i>Tracer</i>	<i>MB %Yield</i>	<i>MB Qualifier</i>	<i>Limits</i>					<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	85.3		30 - 110					01/17/23 16:09	01/25/23 14:42	1

Lab Sample ID: LCS 160-597259/2-A
 Matrix: Water
 Analysis Batch: 598218

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 597259

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Uranium-234	12.7	12.19		1.46	1.00	0.151	pCi/L	96	75 - 125
Uranium-238	13.0	13.33		1.56	1.00	0.135	pCi/L	102	75 - 125
<i>Tracer</i>	<i>LCS %Yield</i>	<i>LCS Qualifier</i>	<i>Limits</i>						
Uranium-232	87.1		30 - 110						

Lab Sample ID: 570-123038-A-2-C DU
 Matrix: Water
 Analysis Batch: 598230

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 597259

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Total Uranium	0.128		0.07847	U	0.1118	1.00	0.163	pCi/L	0.22	1
<i>Tracer</i>	<i>DU %Yield</i>	<i>DU Qualifier</i>	<i>Limits</i>							
Uranium-232	86.2		30 - 110							

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Rad

Prep Batch: 596814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	PrecSep-21	
MB 160-596814/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-596814/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
280-171142-B-1-B DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 596818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	PrecSep_0	
MB 160-596818/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-596818/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
280-171142-B-1-C DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 596826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-596826/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-596826/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-123009-T-1-I DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 597060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	PrecSep-7	
MB 160-597060/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-597060/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-597060/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 597259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	ExtChrom	
MB 160-597259/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-597259/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-123038-A-2-C DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 597488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-597488/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-597488/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-123414-1 MS	Outfall002_20230110_Comp	Total/NA	Water	LSC_Dist_Susp	
570-123038-U-2-C DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 597589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123414-1	Outfall002_20230110_Comp	Total/NA	Water	Evaporation	
MB 160-597589/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-597589/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-597589/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-123414-1 MS	Outfall002_20230110_Comp	Total/NA	Water	Evaporation	
570-123414-1 MSBT	Outfall002_20230110_Comp	Total/NA	Water	Evaporation	
570-123414-1 DU	Outfall002_20230110_Comp	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Client Sample ID: Outfall002_20230110_Comp

Lab Sample ID: 570-123414-1

Date Collected: 01/10/23 10:20

Matrix: Water

Date Received: 01/10/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			199.99 mL	1.0 g	597589	01/20/23 09:55	MST	EET SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	598067	01/24/23 20:34	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	596826	01/13/23 11:41	JML	EET SL
Total/NA	Analysis	901.1		1			599333	02/03/23 19:54	SCB	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			758.55 mL	1.0 g	596814	01/13/23 09:48	DJP	EET SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	599340	02/06/23 09:50	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			758.55 mL	1.0 g	596818	01/13/23 10:13	DJP	EET SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	597713	01/20/23 12:30	SCB	EET SL
Instrument ID: GFPCORANGE										
Total/NA	Prep	PrecSep-7			500.74 mL	1.0 g	597060	01/16/23 10:20	DJP	EET SL
Total/NA	Analysis	905		1			598282	01/26/23 17:29	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			100.12 mL	1.0 g	597488	01/19/23 12:02	ZR	EET SL
Total/NA	Analysis	906.0		1			597784	01/21/23 00:40	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			501.80 mL	1.0 mL	597259	01/17/23 16:09	SAC	EET SL
Total/NA	Analysis	A-01-R		1			598237	01/25/23 14:42	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123414-1	Outfall002_20230110_Comp	Water	01/10/23 10:20	01/10/23 17:55

1

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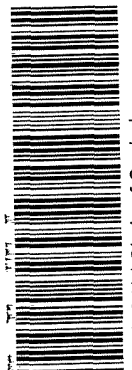
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Eurofins Calscience Irvine

570-123414 Chain of Custody

CHAIN OF CUSTODY FORM

123414 Page 1 of 2

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92106		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 016 Outfall 002 Comp		ANALYSIS REQUIRED Total Recoverable Metals (E200.7) As, Mn, Fe Total Recoverable Metals, Mercury (E245.1) 2,4,6 TCP, 2,4 Dinitrofluorene, Bis(2-ethylhexyl)phthalate, NDMA, POP (SVOCs E625) alpha-BHC (E608) Ammonia-N (350.2) TSS (160.2 (SM2540D)) Turbidity TDS (SM2540C/E180.1) Perchlorate (E300) Cl- SO4 Nitrate-N Nitrite-N NO3+NO2-N Surfactants (MBS) (SM5540C/E425.1) BOD5 (20 degrees C) (405.1 (SM5210B, BODcalc)) TCDD (and all congeners) (E1618B) Total Recoverable Metals (E200.7): Zn (E200.8) Cu, Pb, Cd, Se															
Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel. 949-260-3218		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Sample I.D. Outfall002_20230110_Comp Outfall 002		Sampling Date/Time 1/10/2023 11020		Sample Matrix WM		Container Type 500 mL Poly 1L Glass Amber 1L Poly 500 mL Poly 500 mL Poly 500 mL Poly 500 mL Poly 1L Glass Amber 1L Glass Amber 1L Glass Amber 500 mL Poly 500 mL Poly 1L Glass Amber 1L Glass Amber		# of Cont. 1 2 1 2 2 1 1 2 2 1 2 1 2 2 2 2		Preservative HNO3 None None None None None H2SO4 None None None None None None None None None		MSMSD No No No No No No No No No No No No No No No		Comments Outfall 001 analyze for Fe. Outfall 002 analyze for Fe. Outfall 011 analyze for As, Mn and Fe. 48 hours Holding Time NO3 & NO2 48 hour holding time for turbidity	

Relinquished By: *Mark Dominick* 1-10-2023/235 H.A. Company: *Calscience*

Received By: *Christian Bondoc* 1/10/23 1235 EC Date/Time: 1/10/23 1235 EC

Relinquished By: *Christian Bondoc* 1/10/23 1755 EC Company: *Calscience*

Received By: *Mark Dominick* 1/10/23 1755 Date/Time: 1/10/23 1755

Legend: C=Conditional, R=Routine

2-1-2-1 1-9-1-9 8-11



Chain of Custody Record



Sampler		Lab PM: Patel Virendra		Camer Tracking No(s): 570-203785.1											
Client Information (Sub Contract Lab)		E-Mail: Virendra.Patel@eurofins.com		Page: Page 1 of 1											
Shipping/Receiving		Accreditations Required (See note): State Program California		Job #: 570-123414-3											
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 2/10/2023		Preservation Codes:											
Address: 13715 Rider Trail North,		TAT Requested (days):		A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Archlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other											
City: Earth City		PO #:		M Hexane N None O AsNaO2 P Na2O4S Q Na2SO3 R Na2SO4 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W PH 4-S X Y Z other (specify)											
State, Zip: MO, 63045		WC #:													
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Project #: 44024446													
Email:		SSOW#:													
Project Name: Boeing SSFL NPDES Outfall 002 Comp															
Site:															
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_CsFill_Geo_0-K-40 and Csium-137	A01r_W/Exchrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PreSep_21 Radium-226	904.0/PreSep_0 Radium-226	905. Srs0/PreSep_7 Strontium-90	906.0/LSC_Diet_Susp Tritium	Total Number of Containers	Special Instructions/Note:
Outfall002_20230110_Comp (570-123414-1)	1/10/23	17:55 Pacific	Water	Water	X	X	X	X	X	X	X	X	X	2	Boeing SSFL, DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: *[Signature]* Date: 01/11/23 Time: 12:39 PM Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No



ICOC No
570-203785

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123414-3

Login Number: 123414

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123414-3

Login Number: 123414

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 01/12/23 10:15 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Sample preserved upon arrival
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/3/2023 11:59:47 AM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-123414-4

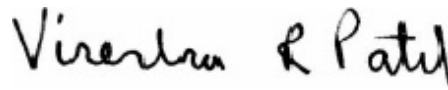
Job Notes

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender and destroy this report immediately. This report shall not be reproduced except in full, without prior express written approval by the laboratory.

The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

 Generated
2/3/2023 11:59:47 AM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-123414-4

Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-4

Job ID: 570-123414-4

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123414-4

Comments

No additional comments.

Receipt

The samples were received on 1/10/2023 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.9° C and 2.1° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-4

Method	Method Description	Protocol	Laboratory
Subcontract	Chronic-Selenestrum	None	Aquatic

Protocol References:

None = None

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-123414-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123414-1	Outfall002_20230110_Comp	Water	01/10/23 10:20	01/10/23 17:55

1

2

3

4

5

6

7

8

9



January 25, 2023

Mr. Virendra Patel
Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1432

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013*. Results were as follows:

CLIENT: Eurofins Calscience
SAMPLE I.D.: Outfall002_20230110_Comp
DATE RECEIVED: 10 Jan - 2023
ABC LAB. NO.: CSE0123.045

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00 %

TST RESULT

GROWTH = PASS % EFFECT = -43.82 %

Yours very truly,


Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 20 Jan-23 15:43 (p 1 of 1)
 Test Code/ID: CSE0123.045 / 06-4258-2668

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 18-9735-4313	Test Type: Cell Growth	Analyst:
Start Date: 10 Jan-23 15:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 14 Jan-23 13:50	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 5d
Sample ID: 05-2562-7793	Code: CSE0123.045	Project: Boeing-SSFL NPDES
Sample Date: 10 Jan-23 10:20	Material: Sample Water	Source: Bioassay Report
Receipt Date: 10 Jan-23 14:35	CAS (PC):	Station: Outfall002_20230110_Comp
Sample Age: 5h (5 °C)	Client: Eurofins Calscience	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
20-4353-0383	Cell Density	TST-Welch's t Test	<1.0E-05	100% passed cell density	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
20-4353-0383	Cell Density	Control CV	0.06411	<<	0.2	Yes	Passes Criteria
20-4353-0383	Cell Density	Control Resp	1.25E+6	1.00E+6	<<	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.254E+6	1.187E+6	1.321E+6	1.122E+6	1.344E+6	2.843E+4	8.041E+4	6.41%	0.00%
100		8	1.804E+6	1.729E+6	1.878E+6	1.705E+6	1.917E+6	3.142E+4	8.888E+4	4.93%	-43.82%

Cell Density Detail

MD5: 67C7BC8F06E01B8CF333AD0046E6C2D6

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.210E+6	1.342E+6	1.344E+6	1.188E+6	1.223E+6	1.122E+6	1.294E+6	1.310E+6
100		1.710E+6	1.908E+6	1.816E+6	1.746E+6	1.705E+6	1.745E+6	1.917E+6	1.882E+6

CETIS Analytical Report

Report Date: 20 Jan-23 15:43 (p 1 of 2)
 Test Code/ID: CSE0123.045 / 06-4258-2668

Selenastrum Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 20-4353-0383	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 15:42	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Jan-23 15:41	MD5 Hash: 67C7BC8F06E01B8CF333AD0046E6C2D6	Editor ID: 009-702-627-3
Batch ID: 18-9735-4313	Test Type: Cell Growth	Analyst:
Start Date: 10 Jan-23 15:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 14 Jan-23 13:50	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 5d
Sample ID: 05-2562-7793	Code: CSE0123.045	Project: Boeing-SSFL NPDES
Sample Date: 10 Jan-23 10:20	Material: Sample Water	Source: Bioassay Report
Receipt Date: 10 Jan-23 14:35	CAS (PC):	Station: Outfall002_20230110_Comp
Sample Age: 5h (5 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density endpoint

TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	12	22.73	0.6955	CDF	<1.0E-05	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control CV	0.06411	<<	0.2	Yes	Passes Criteria
Control Resp	1.25E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.208E+12	1.208E+12	1	168.2	<1.0E-05	Significant Effect
Error	1.006E+11	7.182E+09	14			
Total	1.308E+12		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.2755	8.862	0.6079	Equal Variances
	Mod Levene Equality of Variance Test	0.2164	8.862	0.6489	Equal Variances
	Variance Ratio F Test	1.222	8.885	0.7983	Equal Variances
Distribution	Anderson-Darling A2 Test	0.5902	3.878	0.1274	Normal Distribution
	D'Agostino Skewness Test	0.04286	2.576	0.9658	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1481	0.2471	0.4776	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9198	0.8408	0.1673	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.254E+6	1.187E+6	1.321E+6	1.258E+6	1.122E+6	1.344E+6	2.843E+4	6.41%	0.00%
100		8	1.804E+6	1.729E+6	1.878E+6	1.781E+6	1.705E+6	1.917E+6	3.142E+4	4.93%	-43.82%

Cell Density Detail

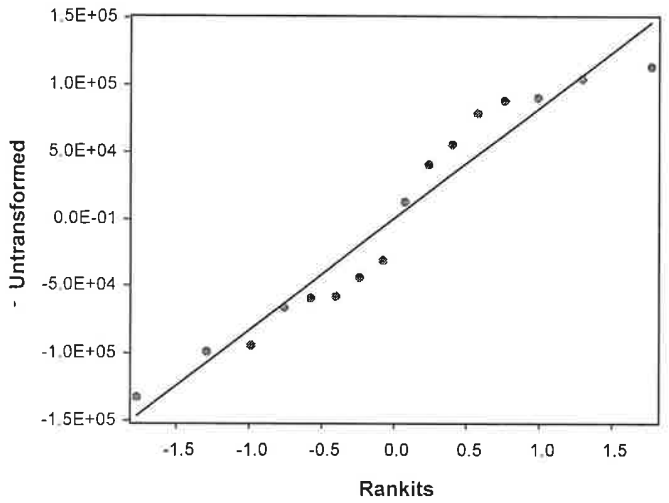
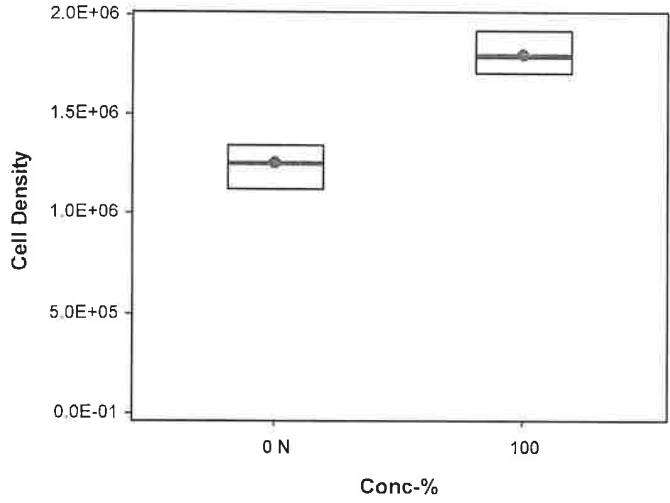
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.210E+6	1.342E+6	1.344E+6	1.188E+6	1.223E+6	1.122E+6	1.294E+6	1.310E+6
100		1.710E+6	1.908E+6	1.816E+6	1.746E+6	1.705E+6	1.745E+6	1.917E+6	1.882E+6

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 20-4353-0383 Endpoint: Cell Density CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 15:42 Analysis: Parametric Bioequivalence-Two Sample Status Level: 1
Edit Date: 20 Jan-23 15:41 MD5 Hash: 67C7BC8F06E01B8CF333AD0046E6C2D6 Editor ID: 009-702-627-3

Graphics



CETIS Measurement Report

Report Date: 20 Jan-23 15:43 (p 1 of 1)
 Test Code/ID: CSE0123.045 / 06-4258-2668

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 18-9735-4313 Test Type: Cell Growth Analyst:
 Start Date: 10 Jan-23 15:50 Protocol: EPA/821/R-02-013 (2002) Diluent: Laboratory Water
 Ending Date: 14 Jan-23 13:50 Species: Selenastrum capricornutum Brine: Not Applicable
 Test Length: 94h Taxon: Chlorophyta Source: Aquatic Biosystems, CO Age: 5d

Sample ID: 05-2562-7793 Code: CSE0123.045 Project: Boeing-SSFL NPDES
 Sample Date: 10 Jan-23 10:20 Material: Sample Water Source: Bioassay Report
 Receipt Date: 10 Jan-23 14:35 CAS (PC): Station: Outfall002_20230110_Comp
 Sample Age: 5h (5 °C) Client: Eurofins Calscience

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	77	---	---	77	77	---	---	---	0
100		1	34	---	---	34	34	---	---	---	0
Overall		2	55.5	-217.7	328.7	34	77	21.5	30.41	54.78%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	484.8	463.6	506	456	500	3.41	17.05	3.52%	0
100		5	504	497.7	510.3	499	510	1.01	5.05	1.00%	0
Overall		10	494.4	483.3	505.5	456	510	4.929	15.59	3.15%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	118	---	---	118	118	---	---	---	0
100		1	48	---	---	48	48	---	---	---	0
Overall		2	83	-361.7	527.7	48	118	35	49.5	59.64%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.86	7.693	8.027	7.7	8	0.02683	0.1342	1.71%	0
100		5	8.08	7.918	8.242	7.9	8.2	0.02608	0.1304	1.61%	0
Overall		10	7.97	7.848	8.092	7.7	8.2	0.05385	0.1703	2.14%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.56	25.39	25.73	25.5	25.8	0.02683	0.1342	0.52%	0
100		5	25.56	25.39	25.73	25.5	25.8	0.02683	0.1342	0.52%	0
Overall		10	25.56	25.47	25.65	25.5	25.8	0.04	0.1265	0.49%	0 (0%)

Urofos Calscience Irvine

CHAIN OF CUSTODY FORM

Temp. deg. C = 50.0

Client Name/Address:
 Haley & Aldrich
 333 Mission Center Rd Suite 300
 San Diego, CA 92108
 Urofos Calscience Irvine Contact: Christian Bondoc
 7451 Dierken Ave Suite #100
 Wine CA 92814
 tel: 949-280-3218

Project:
 Beating-SSFL NPDES
 Permit 2023
 Routine Outfall 001, 002, 011, 018J
 Outfall 002
 Camp

Project Manager: Kathleen Miller
 520.289.8608 520.904.8944 (cell)
Field Manager: Mark Dominick
 979.234.5033 818.599.0702 (cell)

Sampler: Adrian Mobeke

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Basis #	USMED	Total Dissolved Metals: (E200.7): Zn (E200.8): Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, Cs-137 (E901.0 or E901.1)	Chronic Toxicity - Selenastrum (EPA-821-R-02-013) ABC Labs in Ventura, CA	Total Dissolved Metals: Mercury (E245.1)	Total Dissolved Metals: (E200.7): As, Mn, Fe	ANALYSIS REQUIRED (mg/L)	Comments
Outfall 002	Outfall002_20230110_Comp_F	1/10/2023	VWA	1L Poly	1	None	230	No	X							NH3 (mg/L) = 0.81 Comments: -041
			VWA	Preservative Vials	1	None	320	No								
			VWA	800 mL Poly	1	NSDH	230	No	X							
			VWA	2.5 Gall Cans	1	None	235	No								
Outfall 002_20230110_Comp	1/10/2023	VWA	1L Glass Amber	1	None	230	No				X					
		VWA	1 Gall Cans	6	None	239	No					X				
		VWA														

Legend: A=Annual, C=Conditional, E=Expert Panel, R=Routine, Q=Quarterly, QRES=Quarterly Receiving Water, S=Semi-Annual

Requested By: [Signature] **Date/Time:** 1-10-2023/1435 H:A
Company: Urofos
Received By: [Signature] **Date/Time:** 1/10/23 1435
Department: Urofos

Turn-around time (Check):
 24 Hour: _____ 72 Hour: _____ 10 Day:
 48 Hour: _____ 5 Day: _____ Normal: _____
Sample Integrity (Check): On Ice: _____
 Store samples for 6 months. Data Requirements (Check):
 No Level IV: All Level IV: _____

Other and preserve with 24hrs of receipt at lab:
 Outfall 001 analysis for Fe, Outfall 002 analysis for Fe, Outfall 011 analysis for As, Mn and Fe.
 Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedural.
 Unfiltered and unpreserved analysis. Separate RAD or no another workflow. Analyze duplicate, not RESMED.
 Only test if first or second run events of this year. Deliver to ABC Labs in Ventura, CA.

* Hand delivered to AB Labs with copy of COC



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CHRONIC SELENASTRUM GROWTH BIOASSAY


DATE: 12 January - 2023

STANDARD TOXICANT: Cadmium Chloride

NOEC = 20.00 ug/l

IC25 = 53.36 ug/l
IC50 = 102.30 ug/l

Yours very truly,


Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 20 Jan-23 16:52 (p 1 of 1)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
02-3719-8182	Cell Density	Dunnett Multiple Comparison Test	20	40	28.28	4.66%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
05-1997-3179	Cell Density	Linear Interpolation (ICPIN)	IC15	34.55	31.57	37.91	1
			IC20	39.4	35.65	48.58	
			IC25	53.36	40.71	62.3	
			IC40	88.59	84.67	92.36	
			IC50	102.3	99.22	105.6	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
02-3719-8182	Cell Density	Control CV	0.03087	<<	0.2	Yes	Passes Criteria
05-1997-3179	Cell Density	Control CV	0.03087	<<	0.2	Yes	Passes Criteria
02-3719-8182	Cell Density	Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria
05-1997-3179	Cell Density	Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.057E+6	1.005E+6	1.109E+6	1.033E+6	1.105E+6	1.631E+4	3.262E+4	3.09%	0.00%
20		4	1.091E+6	1.026E+6	1.156E+6	1.040E+6	1.131E+6	2.040E+4	4.080E+4	3.74%	-3.26%
40		4	8.525E+5	8.034E+5	9.016E+5	8.250E+5	8.890E+5	1.541E+4	3.083E+4	3.62%	19.33%
80		4	7.118E+5	6.788E+5	7.447E+5	6.940E+5	7.330E+5	1.035E+4	2.069E+4	2.91%	32.65%
140		4	2.412E+5	1.995E+5	2.830E+5	2.190E+5	2.790E+5	1.312E+4	2.623E+4	10.87%	77.17%
180		4	1.472E+5	1.228E+5	1.717E+5	1.320E+5	1.610E+5	7.696E+3	1.539E+4	10.45%	86.07%

Cell Density Detail

MD5: 8002C18F242E2CF77D044A91E3CE4461

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5

CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 02-3719-8182	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 16:51	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3
Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	20	40	28.28	---	49300	4.66%

Dunnett Multiple Comparison Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		20	6	-1.685	2.407	49300	CDF	0.9976	Non-Significant Effect
		40*	6	9.973	2.407	49300	CDF	2.7E-05	Significant Effect
		80*	6	16.85	2.407	49300	CDF	2.7E-05	Significant Effect
		140*	6	39.82	2.407	49300	CDF	2.7E-05	Significant Effect
		180*	6	44.41	2.407	49300	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control CV	0.03087	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.272E+12	6.545E+11	5	780.2	<1.0E-05	Significant Effect
Error	1.51E+10	838820000	18			
Total	3.287E+12		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	2.884	15.09	0.7178	Equal Variances
	Levene Equality of Variance Test	1.242	4.248	0.3306	Equal Variances
	Mod Levene Equality of Variance Test	0.6992	4.248	0.6311	Equal Variances
Distribution	Anderson-Darling A2 Test	0.7994	3.878	0.0381	Normal Distribution
	D'Agostino Kurtosis Test	0.7357	2.576	0.4619	Normal Distribution
	D'Agostino Skewness Test	0.6079	2.576	0.5433	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	0.9108	9.21	0.6342	Normal Distribution
	Kolmogorov-Smirnov D Test	0.2114	0.2056	0.0070	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9401	0.884	0.1636	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.057E+6	1.005E+6	1.109E+6	1.044E+6	1.033E+6	1.105E+6	1.631E+4	3.09%	0.00%
20		4	1.091E+6	1.026E+6	1.156E+6	1.097E+6	1.040E+6	1.131E+6	2.040E+4	3.74%	-3.26%
40		4	8.525E+5	8.034E+5	9.016E+5	8.480E+5	8.250E+5	8.890E+5	1.541E+4	3.62%	19.33%
80		4	7.118E+5	6.788E+5	7.447E+5	7.047E+5	6.940E+5	7.330E+5	1.035E+4	2.91%	32.65%
140		4	2.412E+5	1.995E+5	2.830E+5	2.335E+5	2.190E+5	2.790E+5	1.312E+4	10.87%	77.17%
180		4	1.472E+5	1.228E+5	1.717E+5	1.480E+5	1.320E+5	1.610E+5	7.696E+3	10.45%	86.07%

Selenastrum Growth Test

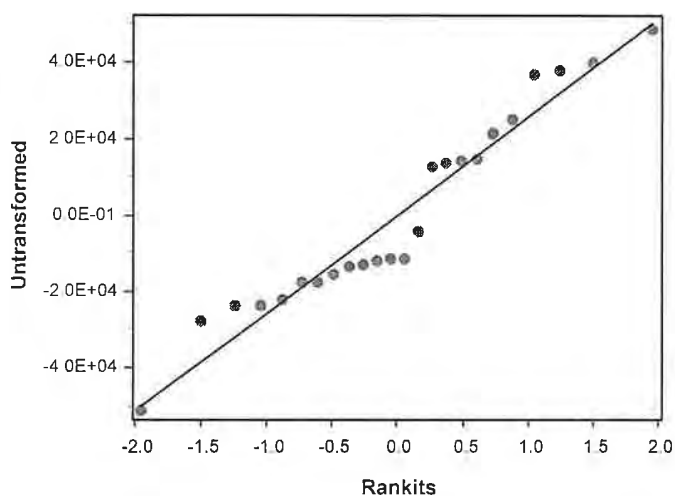
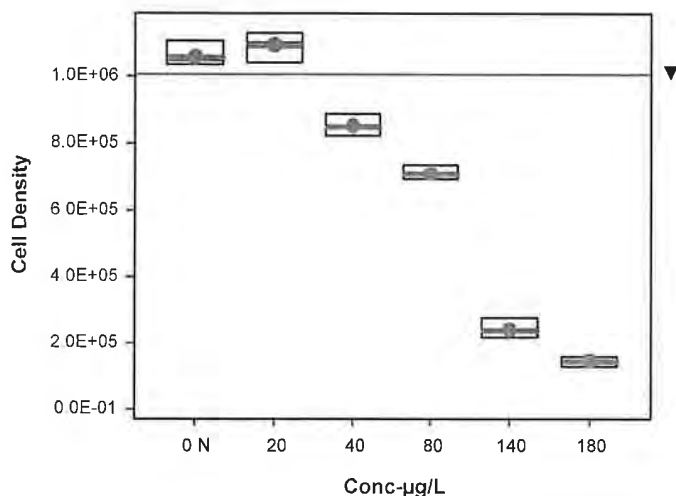
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 02-3719-8182 Endpoint: Cell Density CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 16:51 Analysis: Parametric-Control vs Treatments Status Level: 1
Edit Date: 20 Jan-23 16:48 MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461 Editor ID: 009-702-627-3

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5

Graphics



CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test		Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID: 05-1997-3179	Endpoint: Cell Density	CETIS Version: CETISv2.1.4			
Analyzed: 20 Jan-23 16:51	Analysis: Linear Interpolation (ICPIN)	Status Level: 1			
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3			
Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:			
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable			
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 7d		
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX			
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant			
Receipt Date:	CAS (PC):	Station: REF TOX			
Sample Age: ---	Client: Internal Lab				

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control CV	0.03087	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

Point Estimates			
Level	µg/L	95% LCL	95% UCL
IC15	34.55	31.57	37.91
IC20	39.4	35.65	48.58
IC25	53.36	40.71	62.3
IC40	88.59	84.67	92.36
IC50	102.3	99.22	105.6

Cell Density Summary		Calculated Variate							Isotonic Variate	
Conc-µg/L	Code	Count	Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	1.057E+6	1.044E+6	1.033E+6	1.105E+6	3.09%	0.00%	1.074E+6	0.00%
20		4	1.091E+6	1.097E+6	1.040E+6	1.131E+6	3.74%	-3.26%	1.074E+6	0.00%
40		4	8.525E+5	8.480E+5	8.250E+5	8.890E+5	3.62%	19.33%	8.525E+5	20.62%
80		4	7.118E+5	7.047E+5	6.940E+5	7.330E+5	2.91%	32.65%	7.118E+5	33.72%
140		4	2.412E+5	2.335E+5	2.190E+5	2.790E+5	10.87%	77.17%	2.412E+5	77.54%
180		4	1.472E+5	1.480E+5	1.320E+5	1.610E+5	10.45%	86.07%	1.472E+5	86.29%

Cell Density Detail					
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5

CETIS Analytical Report

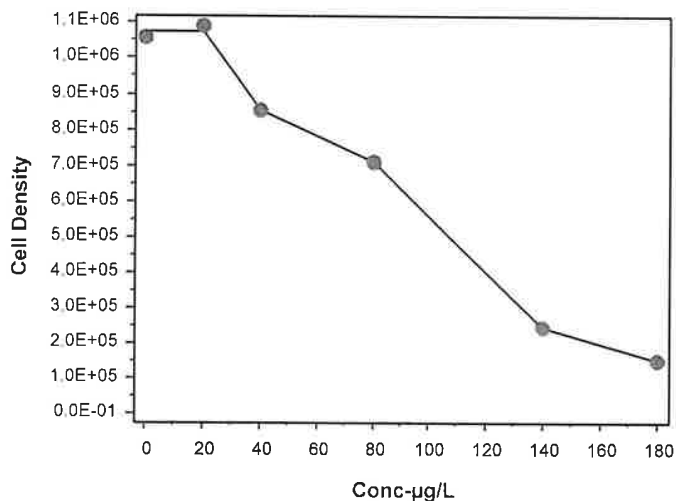
Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-1997-3179	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 16:51	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3

Graphics



CETIS Measurement Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID:	19-4179-0418	Test Type:	Cell Growth	Analyst:			
Start Date:	12 Jan-23 13:24	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water		
Ending Date:	16 Jan-23 13:10	Species:	Selenastrum capricornutum	Brine:	Not Applicable		
Test Length:	96h	Taxon:	Chlorophyta	Source:	Aquatic Biosystems, CO	Age:	7d
Sample ID:	01-0315-3386	Code:	SEL011223	Project:	REF TOX		
Sample Date:	12 Jan-23 13:24	Material:	Cadmium chloride	Source:	Reference Toxicant		
Receipt Date:		CAS (PC):		Station:	REF TOX		
Sample Age:	---	Client:	Internal Lab				

Alkalinity (CaCO3)-mg/L											
Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	77	---	---	77	77	---	---	---	0
20		1	80	---	---	80	80	---	---	---	0
40		1	77	---	---	77	77	---	---	---	0
80		1	68	---	---	68	68	---	---	---	0
140		1	66	---	---	66	66	---	---	---	0
180		1	65	---	---	65	65	---	---	---	0
Overall		6	72.17	65.29	79.05	65	80	2.676	6.555	9.08%	0 (0%)

Conductivity-µmhos											
Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	497.6	487.7	507.5	489	510	1.591	7.956	1.60%	0
20		5	489.2	474.1	504.3	468	499	2.439	12.19	2.49%	0
40		5	453.6	434.3	472.9	445	481	3.104	15.52	3.42%	0
80		5	432.4	417.2	447.6	425	454	2.452	12.26	2.84%	0
140		5	407.8	390.9	424.7	400	432	2.722	13.61	3.34%	0
180		5	390.4	369.6	411.2	379	420	3.348	16.74	4.29%	0
Overall		30	445.2	429.5	460.8	379	510	7.646	41.88	9.41%	0 (0%)

Hardness (CaCO3)-mg/L											
Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	118	---	---	118	118	---	---	---	0
20		1	110	---	---	110	110	---	---	---	0
40		1	125	---	---	125	125	---	---	---	0
80		1	95	---	---	95	95	---	---	---	0
140		1	98	---	---	98	98	---	---	---	0
180		1	93	---	---	93	93	---	---	---	0
Overall		6	106.5	92.63	120.4	93	125	5.396	13.22	12.41%	0 (0%)

pH-Units											
Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.849	8.071	7.8	8	0.01789	0.08944	1.12%	0
20		5	8	8	8	8	8	0	0	0.00%	0
40		5	8	8	8	8	8	0	0	0.00%	0
80		5	8	8	8	8	8	0	0	0.00%	0
140		5	7.98	7.924	8.036	7.9	8	0.008943	0.04472	0.56%	0
180		5	7.98	7.924	8.036	7.9	8	0.008943	0.04472	0.56%	0
Overall		30	7.987	7.97	8.003	7.8	8	0.007927	0.04342	0.54%	0 (0%)

Temperature-°C											
Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
20		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
40		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
80		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
140		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
180		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
Overall		30	25.28	25.21	25.35	25	25.5	0.03601	0.1972	0.78%	0 (0%)

CETIS Measurement Report

Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

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ICOC No
570-203785

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123414-4

Login Number: 123414

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/3/2023 3:25:56 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - GRAB

JOB NUMBER

570-124245-1

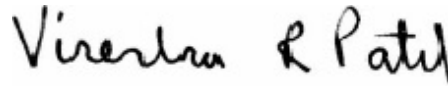
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-124245-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Qualifiers

General Chemistry

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

Job ID: 570-124245-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124245-1

Comments

No additional comments.

Receipt

The samples were received on 1/16/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.3° C.

Receipt Exceptions

Method SM 2540F: The following sample was received outside of holding time for SS: Outfall002_20230114_Grab (570-124245-1).

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 570-296446.

Method SM 2540F: The following sample was received outside of holding time: Outfall002_20230114_Grab (570-124245-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-296834.
Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-124245-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Client Sample ID: Outfall002_20230114_Grab

Lab Sample ID: 570-124245-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	1.3		0.50	0.17	ug/L	1		624.1	Total/NA
Specific Conductance	410		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: TB-20230114

Lab Sample ID: 570-124245-3

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230114_Grab

Date Collected: 01/14/23 10:20

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124245-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/17/23 01:45	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/17/23 01:45	1
Trichloroethene	1.3		0.50	0.17	ug/L			01/17/23 01:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		60 - 140					01/17/23 01:45	1
Toluene-d8 (Surr)	97		60 - 140					01/17/23 01:45	1

Client Sample ID: TB-20230114

Date Collected: 01/14/23 10:20

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124245-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/17/23 00:14	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/17/23 00:14	1
Trichloroethene	ND		0.50	0.17	ug/L			01/17/23 00:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		60 - 140					01/17/23 00:14	1
Toluene-d8 (Surr)	98		60 - 140					01/17/23 00:14	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

General Chemistry

Client Sample ID: Outfall002_20230114_Grab

Date Collected: 01/14/23 10:20

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124245-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	ND		1.1	0.55	mg/L		01/18/23 15:01	01/19/23 17:07	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance (SM 2510B)	410		1.0	1.0	umhos/cm			01/27/23 17:01	1
Settleable Solids (SM 2540F)	ND	BU BV	0.10	0.10	mL/L			01/17/23 12:53	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL
		(60-140)	(60-140)
570-124245-1	Outfall002_20230114_Grab	97	97
570-124245-3	TB-20230114	101	98
LCS 570-296226/1003	Lab Control Sample	99	100
LCSD 570-296226/4	Lab Control Sample Dup	102	100
MB 570-296226/6	Method Blank	97	101

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-296226/6
Matrix: Water
Analysis Batch: 296226

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/16/23 19:20	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/16/23 19:20	1
Trichloroethene	ND		0.50	0.17	ug/L			01/16/23 19:20	1
Surrogate	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	97		60 - 140					01/16/23 19:20	1
Toluene-d8 (Surr)	101		60 - 140					01/16/23 19:20	1

Lab Sample ID: LCS 570-296226/1003
Matrix: Water
Analysis Batch: 296226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene	10.0	12.0		ug/L		120	50 - 150		
1,2-Dichloroethane	10.0	11.7		ug/L		117	70 - 130		
Trichloroethene	10.0	12.0		ug/L		120	65 - 135		
Surrogate	LCS	LCS	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	99		60 - 140						
Toluene-d8 (Surr)	100		60 - 140						

Lab Sample ID: LCSD 570-296226/4
Matrix: Water
Analysis Batch: 296226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	10.0	10.6		ug/L		106	50 - 150	12	32
1,2-Dichloroethane	10.0	11.9		ug/L		119	70 - 130	2	49
Trichloroethene	10.0	11.2		ug/L		112	65 - 135	7	48
Surrogate	LCSD	LCSD	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	102		60 - 140						
Toluene-d8 (Surr)	100		60 - 140						

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-296834/1-A
Matrix: Water
Analysis Batch: 297188

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296834

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HEM: Oil and Grease	ND		1.0	0.51	mg/L		01/18/23 15:01	01/19/23 17:07	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 570-296834/2-A
Matrix: Water
Analysis Batch: 297188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296834

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	36.1		mg/L		90	78 - 114

Lab Sample ID: LCSD 570-296834/3-A
Matrix: Water
Analysis Batch: 297188

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296834

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	38.4		mg/L		96	78 - 114	6	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-299286/9
Matrix: Water
Analysis Batch: 299286

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			01/27/23 16:01	1

Lab Sample ID: 570-125266-A-4 DU
Matrix: Water
Analysis Batch: 299286

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	7300		7300		umhos/cm		0	25

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

GC/MS VOA

Analysis Batch: 296226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124245-1	Outfall002_20230114_Grab	Total/NA	Water	624.1	
570-124245-3	TB-20230114	Total/NA	Water	624.1	
MB 570-296226/6	Method Blank	Total/NA	Water	624.1	
LCS 570-296226/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-296226/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 296446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124245-1	Outfall002_20230114_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 296834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124245-1	Outfall002_20230114_Grab	Total/NA	Water	1664A	
MB 570-296834/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-296834/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-296834/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 297188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124245-1	Outfall002_20230114_Grab	Total/NA	Water	1664A	296834
MB 570-296834/1-A	Method Blank	Total/NA	Water	1664A	296834
LCS 570-296834/2-A	Lab Control Sample	Total/NA	Water	1664A	296834
LCSD 570-296834/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	296834

Analysis Batch: 299286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124245-1	Outfall002_20230114_Grab	Total/NA	Water	SM 2510B	
MB 570-299286/9	Method Blank	Total/NA	Water	SM 2510B	
570-125266-A-4 DU	Duplicate	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

Client Sample ID: Outfall002_20230114_Grab

Lab Sample ID: 570-124245-1

Date Collected: 01/14/23 10:20

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	296226	01/17/23 01:45	A1W	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			925 mL	1000 mL	296834	01/18/23 15:01	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			297188	01/19/23 17:07	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			299286	01/27/23 17:01	BDH9	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	296446	01/17/23 12:53	GG0B	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230114

Lab Sample ID: 570-124245-3

Date Collected: 01/14/23 10:20

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	296226	01/17/23 00:14	A1W	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

- 1664A = EPA-821-98-002
- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124245-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124245-1	Outfall002_20230114_Grab	Water	01/14/23 10:20	01/16/23 17:00
570-124245-3	TB-20230114	Water	01/14/23 10:20	01/16/23 17:00

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124245



570-124245 Chain of Custody

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

TREAF-79B

Client Name/Address:		Project:		Field Readings (Include units)		Meter serial #							
Hailey & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Grab		Time of Readings: 10:20									
Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel. 949-260-3218		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		DO 9.23 mg/L pH 7.41 pH unit Temp 52.0 °C (E)									
Eurofins Calscience Irvine Contact: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Field readings QC									
TestAmerica's services under this COC shall be performed in accordance with the T&Cs within Blanket Service Agreement # 2019-22-TestAmerica by and between Hailey & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.				Checked by: <i>Mark Dominick</i>									
Sampler: Adrian Mobeka				Date/Time: 1-14-2023/10:20									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Soluble Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120.1)	Comments
Outfall 002	Outfall002_20230114_Grab	1/14/2023 10:20	WM	1 L Glass Amber	2	HCl	15	No	X				
			WM	40 mL VOA	3	HCl	30	No		X			
			WM	1 L Poly	1	None	70	No					
			WM	500 mL Poly	1	None	75	No			X		
			WM	1 L Glass Amber	2	HCl	15	No	H				
	Outfall002_20230114_Grab_Extra	1/14/2023 10:20	WM	40 mL VOA	3	HCl	30	No	H				
			WM	500 mL Poly	1	None	75	No					
	Trip Blanks TB-20230114	1/14/2023/10:20	WQ	40 mL VOA	3	HCl	30	No	X				

Legend: R=Routine

Relinquished By: <i>Mark Dominick</i>	Date/Time: 1-16-2023/18:00	Company: <i>HA & A</i>	Received By: <i>EC</i>	Date/Time: 1-16-23 14:30
Relinquished By: <i>EC</i>	Date/Time: 1-16-23 17:00	Company: <i>EC</i>	Received By: <i>EC</i>	Date/Time: 1-16-23 17:00
Relinquished By: <i>EC</i>	Date/Time: 1-16-23 17:00	Company: <i>EC</i>	Received By: <i>EC</i>	Date/Time: 1-16-23 17:00

0.3/0.3 SC11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124245-1

Login Number: 124245

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-124247-1

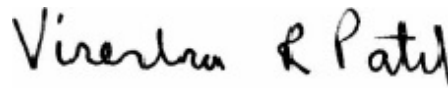
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/14/2023 2:03:26 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
EY	Result exceeds normal dynamic range; reported as a min. est.

Metals

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Job ID: 570-124247-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-124247-1

Comments

No additional comments.

Receipt

The samples were received on 1/16/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.7° C.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

Method 300.0: Dilutions were performed for the following samples due to sample matrix properties: Outfall002_20230115_Comp (570-124247-1).

Method 314.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-297043 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Perchlorate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 200.8: The method blank for preparation batch 570-297004 and analytical batch 570-297142 contained Iron above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230115_Comp_F (570-124247-3). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230115_Comp_F (570-124247-3). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-296435. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 608

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-296476. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Job ID: 570-124247-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method:625.1 Sim

Method 625: The emulsions were broken up using sodium sulfate

Method:625 Sim

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Client Sample ID: Outfall002_20230115_Comp

Lab Sample ID: 570-124247-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.0		5.0	1.8	mg/L	5		300.0	Total/NA
Nitrate as N	1.3		0.50	0.098	mg/L	5		300.0	Total/NA
Sulfate	71		5.0	1.2	mg/L	5		300.0	Total/NA
Nitrate Nitrite as N	1.3		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	2.5		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.74	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Selenium	0.61	J,DX	2.0	0.52	ug/L	1		200.8	Total Recoverable
Iron	1300	MB	20	3.7	ug/L	1		200.8	Total Recoverable
Zinc	7.5	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Turbidity	37		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	260		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	31		2.5	2.1	mg/L	1		SM 2540D	Total/NA
MBAS	0.091	J,DX	0.30	0.054	mg/L	1		SM 5540C	Total/NA
Biochemical Oxygen Demand	10		3.0	1.5	mg/L	1		SM5210B	Total/NA

Client Sample ID: Outfall002_20230115_Comp_F

Lab Sample ID: 570-124247-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.5	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Selenium	0.54	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Iron	39	BU	20	3.7	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230115_Comp

Lab Sample ID: 570-124247-1

Date Collected: 01/15/23 07:20

Matrix: Water

Date Received: 01/16/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.96	0.13	ug/L		01/17/23 13:55	01/26/23 17:15	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		01/17/23 13:55	01/26/23 17:15	1
Bis(2-ethylhexyl) phthalate	ND		4.8	3.4	ug/L		01/17/23 13:55	01/26/23 17:15	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		01/17/23 13:55	01/26/23 17:15	1
Pentachlorophenol	ND		0.96	0.81	ug/L		01/17/23 13:55	01/26/23 17:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	59		31 - 120	01/17/23 13:55	01/26/23 17:15	1
Phenol-d6 (Surr)	26		10 - 120	01/17/23 13:55	01/26/23 17:15	1
p-Terphenyl-d14 (Surr)	69		45 - 120	01/17/23 13:55	01/26/23 17:15	1
2,4,6-Tribromophenol	90		28 - 127	01/17/23 13:55	01/26/23 17:15	1
2-Fluorophenol	40		17 - 120	01/17/23 13:55	01/26/23 17:15	1
Nitrobenzene-d5	73		27 - 120	01/17/23 13:55	01/26/23 17:15	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 40CFR136A 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230115_Comp

Date Collected: 01/15/23 07:20

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		01/17/23 12:18	01/19/23 15:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Tetrachloro-m-xylene</i>	62		20 - 139				01/17/23 12:18	01/19/23 15:20	1
<i>DCB Decachlorobiphenyl (Surr)</i>	38		20 - 154				01/17/23 12:18	01/19/23 15:20	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230115_Comp

Date Collected: 01/15/23 07:20

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.0		5.0	1.8	mg/L			01/16/23 22:12	5
Nitrite as N	ND		0.50	0.22	mg/L			01/16/23 22:12	5
Nitrate as N	1.3		0.50	0.098	mg/L			01/16/23 22:12	5
Sulfate	71		5.0	1.2	mg/L			01/16/23 22:12	5

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230115_Comp
Date Collected: 01/15/23 07:20
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/20/23 03:08	1

- 1
- 2
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230115_Comp

Lab Sample ID: 570-124247-1

Date Collected: 01/15/23 07:20

Matrix: Water

Date Received: 01/16/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.3		0.10	0.020	mg/L			01/17/23 16:16	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230115_Comp

Date Collected: 01/15/23 07:20

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		01/19/23 09:12	01/19/23 13:27	1
Copper	2.5		2.0	0.32	ug/L		01/19/23 09:12	01/19/23 13:27	1
Lead	0.74	J,DX	1.0	0.12	ug/L		01/19/23 09:12	01/19/23 13:27	1
Selenium	0.61	J,DX	2.0	0.52	ug/L		01/19/23 09:12	01/19/23 13:27	1
Iron	1300	MB	20	3.7	ug/L		01/19/23 09:12	01/19/23 13:27	1
Zinc	7.5	J,DX	20	2.8	ug/L		01/19/23 09:12	01/19/23 13:27	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230115_Comp_F

Date Collected: 01/15/23 07:20

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	BU	1.0	0.13	ug/L			01/18/23 11:19	1
Copper	1.5	J,DX BU	2.0	0.32	ug/L			01/18/23 11:19	1
Lead	ND	BU	1.0	0.12	ug/L			01/18/23 11:19	1
Selenium	0.54	J,DX BU	2.0	0.52	ug/L			01/18/23 11:19	1
Iron	39	BU	20	3.7	ug/L			01/18/23 11:19	1
Zinc	ND	BU	20	2.8	ug/L			01/18/23 11:19	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230115_Comp
Date Collected: 01/15/23 07:20
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/18/23 18:51	01/19/23 17:21	1

- 1
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230115_Comp_F
Date Collected: 01/15/23 07:20
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/18/23 19:30	01/19/23 18:33	1

- 1
- 2
- 3
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- 5
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- 14
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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

General Chemistry

Client Sample ID: Outfall002_20230115_Comp

Lab Sample ID: 570-124247-1

Date Collected: 01/15/23 07:20

Matrix: Water

Date Received: 01/16/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		01/26/23 09:45	01/26/23 12:19	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/17/23 16:01	1
Turbidity (SM 2130B)	37		0.05	0.05	NTU			01/16/23 22:07	1
Total Dissolved Solids (SM 2540C)	260		10	8.7	mg/L			01/18/23 15:24	1
Total Suspended Solids (SM 2540D)	31		2.5	2.1	mg/L			01/19/23 13:23	1
MBAS (SM 5540C)	0.091	J,DX	0.30	0.054	mg/L		01/16/23 21:15	01/16/23 22:33	1
Biochemical Oxygen Demand (SM5210B)	10		3.0	1.5	mg/L			01/16/23 18:02	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-124247-1	Outfall002_20230115_Comp	59	26	69	90	40	73
LCS 570-296476/2-A	Lab Control Sample	81	44	105	109	63	81
LCSD 570-296476/3-A	Lab Control Sample Dup	80	45	106	106	63	80
MB 570-296476/1-A	Method Blank	55	26	76	69	40	64

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 TBP = 2,4,6-Tribromophenol
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (20-139)	DCB2 (20-154)
570-124247-1	Outfall002_20230115_Comp	62	38

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (20-139)	DCB2 (20-154)
LCS 570-296435/2-A	Lab Control Sample	85	88
LCSD 570-296435/3-A	Lab Control Sample Dup	85	88
MB 570-296435/1-A	Method Blank	90	89

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-296476/1-A
Matrix: Water
Analysis Batch: 299094

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296476

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		01/17/23 13:55	01/27/23 11:45	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		01/17/23 13:55	01/27/23 11:45	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		01/17/23 13:55	01/27/23 11:45	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		01/17/23 13:55	01/27/23 11:45	1
Pentachlorophenol	ND		1.0	0.84	ug/L		01/17/23 13:55	01/27/23 11:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	55		31 - 120	01/17/23 13:55	01/27/23 11:45	1
Phenol-d6 (Surr)	26		10 - 120	01/17/23 13:55	01/27/23 11:45	1
p-Terphenyl-d14 (Surr)	76		45 - 120	01/17/23 13:55	01/27/23 11:45	1
2,4,6-Tribromophenol	69		28 - 127	01/17/23 13:55	01/27/23 11:45	1
2-Fluorophenol	40		17 - 120	01/17/23 13:55	01/27/23 11:45	1
Nitrobenzene-d5	64		27 - 120	01/17/23 13:55	01/27/23 11:45	1

Lab Sample ID: LCS 570-296476/2-A
Matrix: Water
Analysis Batch: 298807

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	21.6		ug/L		108	52 - 129
2,4-Dinitrotoluene	20.0	24.7		ug/L		124	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	25.9		ug/L		130	29 - 137
N-Nitrosodimethylamine	20.0	12.3		ug/L		61	20 - 120
Pentachlorophenol	20.0	23.5		ug/L		118	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	81		31 - 120
Phenol-d6 (Surr)	44		10 - 120
p-Terphenyl-d14 (Surr)	105		45 - 120
2,4,6-Tribromophenol	109		28 - 127
2-Fluorophenol	63		17 - 120
Nitrobenzene-d5	81		27 - 120

Lab Sample ID: LCSD 570-296476/3-A
Matrix: Water
Analysis Batch: 298807

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296476

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	21.2		ug/L		106	52 - 129	2	35
2,4-Dinitrotoluene	20.0	24.5		ug/L		122	48 - 127	1	25
Bis(2-ethylhexyl) phthalate	20.0	25.2		ug/L		126	29 - 137	3	50
N-Nitrosodimethylamine	20.0	12.4		ug/L		62	20 - 120	1	21
Pentachlorophenol	20.0	23.3		ug/L		116	38 - 152	1	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	80		31 - 120
Phenol-d6 (Surr)	45		10 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-296476/3-A
 Matrix: Water
 Analysis Batch: 298807

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 296476

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
p-Terphenyl-d14 (Surr)	106		45 - 120
2,4,6-Tribromophenol	106		28 - 127
2-Fluorophenol	63		17 - 120
Nitrobenzene-d5	80		27 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-296435/1-A
 Matrix: Water
 Analysis Batch: 296586

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 296435

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		01/17/23 12:18	01/18/23 20:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	90		20 - 139	01/17/23 12:18	01/18/23 20:08	1
DCB Decachlorobiphenyl (Surr)	89		20 - 154	01/17/23 12:18	01/18/23 20:08	1

Lab Sample ID: LCS 570-296435/2-A
 Matrix: Water
 Analysis Batch: 296586

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 296435

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0278		ug/L		83	37 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	85		20 - 139
DCB Decachlorobiphenyl (Surr)	88		20 - 154

Lab Sample ID: LCSD 570-296435/3-A
 Matrix: Water
 Analysis Batch: 296586

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 296435

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	0.0333	0.0280		ug/L		84	37 - 140	1	36

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	85		20 - 139
DCB Decachlorobiphenyl (Surr)	88		20 - 154

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-295972/5
 Matrix: Water
 Analysis Batch: 295972

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			01/16/23 07:41	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 570-295972/5
Matrix: Water
Analysis Batch: 295972

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.10	0.020	mg/L			01/16/23 07:41	1

Lab Sample ID: LCS 570-295972/6
Matrix: Water
Analysis Batch: 295972

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.59		mg/L		104	90 - 110
Nitrate as N	5.00	5.08		mg/L		102	90 - 110

Lab Sample ID: LCSD 570-295972/7
Matrix: Water
Analysis Batch: 295972

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.53		mg/L		101	90 - 110	2	15
Nitrate as N	5.00	5.02		mg/L		100	90 - 110	1	15

Lab Sample ID: 570-123084-I-3 MS
Matrix: Water
Analysis Batch: 295972

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	0.49	J,DX	2.50	2.90		mg/L		96	80 - 120
Nitrate as N	0.25	J,DX	5.00	4.91		mg/L		93	80 - 120

Lab Sample ID: 570-123084-I-3 MSD
Matrix: Water
Analysis Batch: 295972

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	0.49	J,DX	2.50	2.77		mg/L		91	80 - 120	5	20
Nitrate as N	0.25	J,DX	5.00	4.82		mg/L		91	80 - 120	2	20

Lab Sample ID: MB 570-295973/5
Matrix: Water
Analysis Batch: 295973

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			01/16/23 07:41	1
Sulfate	ND		1.0	0.24	mg/L			01/16/23 07:41	1

Lab Sample ID: LCS 570-295973/6
Matrix: Water
Analysis Batch: 295973

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.0		mg/L		100	90 - 110
Sulfate	50.0	50.3		mg/L		101	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 570-295973/7
 Matrix: Water
 Analysis Batch: 295973

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.9		mg/L		100	90 - 110	0	15
Sulfate	50.0	50.0		mg/L		100	90 - 110	0	15

Lab Sample ID: 570-123084-I-3 MS
 Matrix: Water
 Analysis Batch: 295973

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	6.3		50.0	46.7		mg/L		81	80 - 120
Sulfate	6.4		50.0	52.5		mg/L		92	80 - 120

Lab Sample ID: 570-123084-I-3 MSD
 Matrix: Water
 Analysis Batch: 295973

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	6.3		50.0	46.1		mg/L		80	80 - 120	1	20
Sulfate	6.4		50.0	51.6		mg/L		90	80 - 120	2	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-297043/7
 Matrix: Water
 Analysis Batch: 297043

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/20/23 02:12	1

Lab Sample ID: LCS 570-297043/8
 Matrix: Water
 Analysis Batch: 297043

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	23.0		ug/L		92	85 - 115

Lab Sample ID: LCSD 570-297043/9
 Matrix: Water
 Analysis Batch: 297043

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	23.5		ug/L		94	85 - 115	2	15

Lab Sample ID: 570-124466-C-9 MS
 Matrix: Water
 Analysis Batch: 297043

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	100	EY	50.0	153	EY	ug/L		101	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 570-124466-C-9 MSD
Matrix: Water
Analysis Batch: 297043

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	100	EY	50.0	144	EY	ug/L		84	80 - 120	6	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-297004/1-A
Matrix: Water
Analysis Batch: 297141

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		01/19/23 09:12	01/19/23 13:25	1
Copper	ND		2.0	0.32	ug/L		01/19/23 09:12	01/19/23 13:25	1
Lead	ND		1.0	0.12	ug/L		01/19/23 09:12	01/19/23 13:25	1
Selenium	ND		2.0	0.52	ug/L		01/19/23 09:12	01/19/23 13:25	1
Iron	5.09	J,DX	20	3.7	ug/L		01/19/23 09:12	01/19/23 13:25	1
Zinc	ND		20	2.8	ug/L		01/19/23 09:12	01/19/23 13:25	1

Lab Sample ID: LCS 570-297004/2-A
Matrix: Water
Analysis Batch: 297141

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	80.4		ug/L		101	85 - 115
Copper	80.0	80.6		ug/L		101	85 - 115
Lead	80.0	80.0		ug/L		100	85 - 115
Selenium	80.0	82.6		ug/L		103	85 - 115
Iron	800	811		ug/L		101	85 - 115
Zinc	80.0	80.6		ug/L		101	85 - 115

Lab Sample ID: LCSD 570-297004/3-A
Matrix: Water
Analysis Batch: 297141

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	79.2		ug/L		99	85 - 115	2	20
Copper	80.0	80.9		ug/L		101	85 - 115	0	20
Lead	80.0	79.6		ug/L		100	85 - 115	1	20
Selenium	80.0	78.4		ug/L		98	85 - 115	5	20
Iron	800	831		ug/L		104	85 - 115	2	20
Zinc	80.0	80.6		ug/L		101	85 - 115	0	20

Lab Sample ID: 570-124222-B-1-C MS
Matrix: Water
Analysis Batch: 297142

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	78.7		ug/L		98	80 - 120
Copper	13		80.0	86.6		ug/L		93	80 - 120
Lead	0.34	J,DX	80.0	76.2		ug/L		95	80 - 120
Selenium	0.77	J,DX	80.0	78.3		ug/L		97	80 - 120
Iron	8.0	J,DX MB	800	769		ug/L		95	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-124222-B-1-C MS
Matrix: Water
Analysis Batch: 297142

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	160		80.0	226		ug/L		84	80 - 120

Lab Sample ID: 570-124222-B-1-D MSD
Matrix: Water
Analysis Batch: 297142

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	79.9		ug/L		100	80 - 120	1	20
Copper	13		80.0	88.3		ug/L		95	80 - 120	2	20
Lead	0.34	J,DX	80.0	78.3		ug/L		97	80 - 120	3	20
Selenium	0.77	J,DX	80.0	77.9		ug/L		96	80 - 120	0	20
Iron	8.0	J,DX MB	800	778		ug/L		96	80 - 120	1	20
Zinc	160		80.0	228		ug/L		86	80 - 120	1	20

Lab Sample ID: MB 570-296510/1-A
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			01/18/23 10:06	1
Copper	ND		2.0	0.32	ug/L			01/18/23 10:06	1
Lead	ND		1.0	0.12	ug/L			01/18/23 10:06	1
Selenium	ND		2.0	0.52	ug/L			01/18/23 10:06	1
Iron	ND		20	3.7	ug/L			01/18/23 10:06	1
Zinc	ND		20	2.8	ug/L			01/18/23 10:06	1

Lab Sample ID: LCS 570-296510/2-A
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	73.6		ug/L		92	85 - 115
Copper	80.0	75.7		ug/L		95	85 - 115
Lead	80.0	75.5		ug/L		94	85 - 115
Selenium	80.0	72.7		ug/L		91	85 - 115
Iron	800	762		ug/L		95	85 - 115
Zinc	80.0	74.3		ug/L		93	85 - 115

Lab Sample ID: LCSD 570-296510/3-A
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	75.7		ug/L		95	85 - 115	3	20
Copper	80.0	76.9		ug/L		96	85 - 115	2	20
Lead	80.0	77.0		ug/L		96	85 - 115	2	20
Selenium	80.0	73.1		ug/L		91	85 - 115	1	20
Iron	800	778		ug/L		97	85 - 115	2	20
Zinc	80.0	74.9		ug/L		94	85 - 115	1	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-123631-C-2-B MS
Matrix: Water
Analysis Batch: 296758

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	70.4		ug/L		88	80 - 120
Copper	2.5		80.0	74.9		ug/L		91	80 - 120
Lead	0.20	J,DX	80.0	72.6		ug/L		90	80 - 120
Selenium	ND		80.0	71.5		ug/L		89	80 - 120
Iron	40		800	762		ug/L		90	80 - 120
Zinc	380		80.0	442	BB	ug/L		81	80 - 120

Lab Sample ID: 570-123631-C-2-C MSD
Matrix: Water
Analysis Batch: 296758

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	72.1		ug/L		90	80 - 120	2	20
Copper	2.5		80.0	76.0		ug/L		92	80 - 120	1	20
Lead	0.20	J,DX	80.0	74.3		ug/L		93	80 - 120	2	20
Selenium	ND		80.0	72.5		ug/L		91	80 - 120	1	20
Iron	40		800	770		ug/L		91	80 - 120	1	20
Zinc	380		80.0	443	BB	ug/L		83	80 - 120	0	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-296898/1-A
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296898

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/18/23 18:51	01/19/23 16:49	1

Lab Sample ID: LCS 570-296898/2-A
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.50		ug/L		106	85 - 115

Lab Sample ID: LCSD 570-296898/3-A
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296898

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.64		ug/L		108	85 - 115	2	10

Lab Sample ID: 570-124050-A-1-E MS
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 296898

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.45		ug/L		106	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-124050-A-1-F MSD
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 296898

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.44		ug/L		105	85 - 115	0	10

Lab Sample ID: MB 570-296900/1-B
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 296901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/18/23 19:30	01/19/23 18:20	1

Lab Sample ID: LCS 570-296900/2-B
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 296901

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.90		ug/L		111	85 - 115

Lab Sample ID: LCSD 570-296900/3-B
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 296901

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.89		ug/L		111	85 - 115	0	10

Lab Sample ID: 570-124243-F-3-E MS
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 296901

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.84		ug/L		111	85 - 115

Lab Sample ID: 570-124243-F-3-F MSD
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 296901

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.81		ug/L		110	85 - 115	0	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-298842/5-A
Matrix: Water
Analysis Batch: 298901

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298842

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		01/26/23 09:45	01/26/23 12:10	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 570-298842/6-A
Matrix: Water
Analysis Batch: 298901

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298842

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.517		mg/L		103	90 - 110

Lab Sample ID: LCSD 570-298842/7-A
Matrix: Water
Analysis Batch: 298901

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298842

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Ammonia	0.500	0.515		mg/L		103	90 - 110	0	20

Lab Sample ID: 570-124603-U-1-A MS
Matrix: Water
Analysis Batch: 298901

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 298842

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	ND		0.500	0.539		mg/L		108	90 - 110

Lab Sample ID: 570-124603-U-1-B MSD
Matrix: Water
Analysis Batch: 298901

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 298842

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Ammonia	ND		0.500	0.506		mg/L		101	90 - 110	6	25

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-296559/11
Matrix: Water
Analysis Batch: 296559

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			01/17/23 15:00	1

Lab Sample ID: LCS 570-296559/12
Matrix: Water
Analysis Batch: 296559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	243		ug/L		97	90 - 110

Lab Sample ID: LCSD 570-296559/13
Matrix: Water
Analysis Batch: 296559

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Cyanide, Total	250	229		ug/L		92	90 - 110	6	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: MRL 570-296559/10
Matrix: Water
Analysis Batch: 296559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	5.17		ug/L		104	50 - 150

Lab Sample ID: 570-123565-A-1 MS
Matrix: Water
Analysis Batch: 296559

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	ND		250	209		ug/L		84	70 - 130

Lab Sample ID: 570-123565-A-1 MSD
Matrix: Water
Analysis Batch: 296559

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	ND		250	211		ug/L		84	70 - 130	1	30

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-296271/1
Matrix: Water
Analysis Batch: 296271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		100.5	99.0 - 101.0

Lab Sample ID: LCSSRM 570-296271/2
Matrix: Water
Analysis Batch: 296271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		99.7	99.0 - 101.0

Lab Sample ID: LCSSRM 570-296271/3
Matrix: Water
Analysis Batch: 296271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

Lab Sample ID: 570-124243-J-1 DU
Matrix: Water
Analysis Batch: 296271

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	100		110		NTU		3	25

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-296842/1
 Matrix: Water
 Analysis Batch: 296842

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			01/18/23 15:24	1

Lab Sample ID: LCS 570-296842/2
 Matrix: Water
 Analysis Batch: 296842

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108

Lab Sample ID: LCSD 570-296842/3
 Matrix: Water
 Analysis Batch: 296842

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108	1	10

Lab Sample ID: 570-124247-1 DU
 Matrix: Water
 Analysis Batch: 296842

Client Sample ID: Outfall002_20230115_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	260		253		mg/L		0.8	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-297110/1
 Matrix: Water
 Analysis Batch: 297110

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			01/19/23 13:23	1

Lab Sample ID: LCS 570-297110/2
 Matrix: Water
 Analysis Batch: 297110

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	97.0		mg/L		97	77 - 116

Lab Sample ID: LCSD 570-297110/3
 Matrix: Water
 Analysis Batch: 297110

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	93.0		mg/L		93	77 - 116	4	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 570-124247-1 DU
 Matrix: Water
 Analysis Batch: 297110

Client Sample ID: Outfall002_20230115_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Suspended Solids	31		28.8		mg/L		8	10

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-296465/5-A
 Matrix: Water
 Analysis Batch: 296287

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 296465

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.30	0.054	mg/L		01/16/23 21:15	01/16/23 22:24	1

Lab Sample ID: LCS 570-296465/6-A
 Matrix: Water
 Analysis Batch: 296287

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 296465

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
MBAS	1.00	1.02		mg/L		102	85 - 111

Lab Sample ID: LCSD 570-296465/7-A
 Matrix: Water
 Analysis Batch: 296287

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 296465

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
MBAS	1.00	1.02		mg/L		102	85 - 111	1	7

Lab Sample ID: 570-124243-J-1-A MS
 Matrix: Water
 Analysis Batch: 296287

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 296465

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
MBAS	0.069	J,DX	1.00	1.10		mg/L		103	75 - 125

Lab Sample ID: 570-124243-J-1-B MSD
 Matrix: Water
 Analysis Batch: 296287

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 296465

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
MBAS	0.069	J,DX	1.00	1.08		mg/L		101	75 - 125	2	12

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 570-297648/2
 Matrix: Water
 Analysis Batch: 297648

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L			01/16/23 11:59	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 570-297648/4
Matrix: Water
Analysis Batch: 297648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	196		mg/L		99	84.6 - 115.4

Lab Sample ID: 570-124205-I-5 DU
Matrix: Water
Analysis Batch: 297648

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	ND		ND		mg/L		NC	25

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

GC/MS Semi VOA

Prep Batch: 296476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	625	
MB 570-296476/1-A	Method Blank	Total/NA	Water	625	
LCS 570-296476/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-296476/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 298807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-296476/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	296476
LCSD 570-296476/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	296476

Analysis Batch: 298809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	625.1 SIM	296476

Analysis Batch: 299094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-296476/1-A	Method Blank	Total/NA	Water	625.1 SIM	296476

GC Semi VOA

Prep Batch: 296435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	608	
MB 570-296435/1-A	Method Blank	Total/NA	Water	608	
LCS 570-296435/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-296435/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 296586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-296435/1-A	Method Blank	Total/NA	Water	608.3	296435
LCS 570-296435/2-A	Lab Control Sample	Total/NA	Water	608.3	296435
LCSD 570-296435/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	296435

Analysis Batch: 296909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	608.3	296435

HPLC/IC

Analysis Batch: 295972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	300.0	
MB 570-295972/5	Method Blank	Total/NA	Water	300.0	
LCS 570-295972/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-295972/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123084-I-3 MS	Matrix Spike	Total/NA	Water	300.0	
570-123084-I-3 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 295973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	300.0	
MB 570-295973/5	Method Blank	Total/NA	Water	300.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

HPLC/IC (Continued)

Analysis Batch: 295973 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-295973/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-295973/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123084-I-3 MS	Matrix Spike	Total/NA	Water	300.0	
570-123084-I-3 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 296515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	NO2NO3 Calc	

Analysis Batch: 297043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	314.0	
MB 570-297043/7	Method Blank	Total/NA	Water	314.0	
LCS 570-297043/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-297043/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-124466-C-9 MS	Matrix Spike	Total/NA	Water	314.0	
570-124466-C-9 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Metals

Filtration Batch: 296510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-3	Outfall002_20230115_Comp_F	Dissolved	Water	Filtration	
MB 570-296510/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-296510/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-296510/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-123631-C-2-B MS	Matrix Spike	Dissolved	Water	Filtration	
570-123631-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Analysis Batch: 296754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-296510/1-A	Method Blank	Dissolved	Water	200.8	296510
LCS 570-296510/2-A	Lab Control Sample	Dissolved	Water	200.8	296510
LCSD 570-296510/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	296510

Analysis Batch: 296758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-3	Outfall002_20230115_Comp_F	Dissolved	Water	200.8	296510
570-123631-C-2-B MS	Matrix Spike	Dissolved	Water	200.8	296510
570-123631-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	296510

Prep Batch: 296898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	245.1	
MB 570-296898/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-296898/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-296898/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-124050-A-1-E MS	Matrix Spike	Total/NA	Water	245.1	
570-124050-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Metals

Filtration Batch: 296900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-3	Outfall002_20230115_Comp_F	Dissolved	Water	Filtration	
MB 570-296900/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-296900/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-296900/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-124243-F-3-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-124243-F-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Prep Batch: 296901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-3	Outfall002_20230115_Comp_F	Dissolved	Water	245.1	296900
MB 570-296900/1-B	Method Blank	Dissolved	Water	245.1	296900
LCS 570-296900/2-B	Lab Control Sample	Dissolved	Water	245.1	296900
LCSD 570-296900/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	296900
570-124243-F-3-E MS	Matrix Spike	Dissolved	Water	245.1	296900
570-124243-F-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	296900

Prep Batch: 297004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total Recoverable	Water	200.8	
MB 570-297004/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-297004/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-297004/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-124222-B-1-C MS	Matrix Spike	Total Recoverable	Water	200.8	
570-124222-B-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	

Analysis Batch: 297141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-297004/1-A	Method Blank	Total Recoverable	Water	200.8	297004
LCS 570-297004/2-A	Lab Control Sample	Total Recoverable	Water	200.8	297004
LCSD 570-297004/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	297004

Analysis Batch: 297142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total Recoverable	Water	200.8	297004
570-124222-B-1-C MS	Matrix Spike	Total Recoverable	Water	200.8	297004
570-124222-B-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	297004

Analysis Batch: 297225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	245.1	296898
570-124247-3	Outfall002_20230115_Comp_F	Dissolved	Water	245.1	296901
MB 570-296898/1-A	Method Blank	Total/NA	Water	245.1	296898
MB 570-296900/1-B	Method Blank	Dissolved	Water	245.1	296901
LCS 570-296898/2-A	Lab Control Sample	Total/NA	Water	245.1	296898
LCS 570-296900/2-B	Lab Control Sample	Dissolved	Water	245.1	296901
LCSD 570-296898/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	296898
LCSD 570-296900/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	296901
570-124050-A-1-E MS	Matrix Spike	Total/NA	Water	245.1	296898
570-124050-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	296898
570-124243-F-3-E MS	Matrix Spike	Dissolved	Water	245.1	296901
570-124243-F-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	296901

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

General Chemistry

Analysis Batch: 296271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-296271/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-296271/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-296271/3	Lab Control Sample	Total/NA	Water	SM 2130B	
570-124243-J-1 DU	Duplicate	Total/NA	Water	SM 2130B	

Analysis Batch: 296287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	SM 5540C	296465
MB 570-296465/5-A	Method Blank	Total/NA	Water	SM 5540C	296465
LCS 570-296465/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	296465
LCSD 570-296465/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	296465
570-124243-J-1-A MS	Matrix Spike	Total/NA	Water	SM 5540C	296465
570-124243-J-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	296465

Prep Batch: 296465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	SM 5540C	
MB 570-296465/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-296465/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-296465/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-124243-J-1-A MS	Matrix Spike	Total/NA	Water	SM 5540C	
570-124243-J-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	

Analysis Batch: 296559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	Kelada 01	
MB 570-296559/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-296559/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-296559/13	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-296559/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-123565-A-1 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-123565-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 296842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	SM 2540C	
MB 570-296842/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-296842/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-296842/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-124247-1 DU	Outfall002_20230115_Comp	Total/NA	Water	SM 2540C	

Analysis Batch: 297110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	SM 2540D	
MB 570-297110/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-297110/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-297110/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-124247-1 DU	Outfall002_20230115_Comp	Total/NA	Water	SM 2540D	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

General Chemistry

Analysis Batch: 297648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	SM5210B	
USB 570-297648/2	Method Blank	Total/NA	Water	SM5210B	
LCS 570-297648/4	Lab Control Sample	Total/NA	Water	SM5210B	
570-124205-I-5 DU	Duplicate	Total/NA	Water	SM5210B	

Prep Batch: 298842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-298842/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-298842/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-298842/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
570-124603-U-1-A MS	Matrix Spike	Total/NA	Water	Distill/Ammonia	
570-124603-U-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 298901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	350.1	298842
MB 570-298842/5-A	Method Blank	Total/NA	Water	350.1	298842
LCS 570-298842/6-A	Lab Control Sample	Total/NA	Water	350.1	298842
LCSD 570-298842/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	298842
570-124603-U-1-A MS	Matrix Spike	Total/NA	Water	350.1	298842
570-124603-U-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	298842

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Client Sample ID: Outfall002_20230115_Comp

Lab Sample ID: 570-124247-1

Date Collected: 01/15/23 07:20

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1041.2 mL	2 mL	296476	01/17/23 13:55	UM1W	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	298809	01/26/23 17:15	ULLI	EET CAL 4
Instrument ID: GCMSEEE										
Total/NA	Prep	608			1500 mL	1 mL	296435	01/17/23 12:18	USUL	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	296909	01/19/23 15:20	N5Y3	EET CAL 4
Instrument ID: GC52A										
Total/NA	Analysis	300.0		5	4 mL	4 mL	295972	01/16/23 22:12	PS	EET CAL 4
Instrument ID: IC9										
Total/NA	Analysis	300.0		5	4 mL	4 mL	295973	01/16/23 22:12	PS	EET CAL 4
Instrument ID: IC9										
Total/NA	Analysis	314.0		1	4 mL	4 mL	297043	01/20/23 03:08	M5Z3	EET CAL 4
Instrument ID: IC13										
Total/NA	Analysis	NO2NO3 Calc		1			296515	01/17/23 16:16	WH6J	EET CAL 4
Instrument ID: NOEQUIP										
Total Recoverable	Prep	200.8			50 mL	50 mL	297004	01/19/23 09:12	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			297142	01/19/23 13:27	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Total/NA	Prep	245.1			25 mL	50 mL	296898	01/18/23 18:51	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			297225	01/19/23 17:21	C0YH	EET CAL 4
Instrument ID: HG8										
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	298842	01/26/23 09:45	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	298901	01/26/23 12:19	UXCH	EET CAL 4
Instrument ID: ACA2										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	296559	01/17/23 16:01	GG0B	EET CAL 4
Instrument ID: LACHAT01										
Total/NA	Analysis	SM 2130B		1			296271	01/16/23 22:07	TXA8	EET CAL 4
Instrument ID: TUR4										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	296842	01/18/23 15:24	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	400 mL	1000 mL	297110	01/19/23 13:23	BDH9	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Prep	SM 5540C			100 mL	100 mL	296465	01/16/23 21:15	TXA8	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	296287	01/16/23 22:33	TXA8	EET CAL 4
Instrument ID: UV9										
Total/NA	Analysis	SM5210B		1			297648	01/16/23 18:02	U7UR	EET CAL 4
Instrument ID: BOD3										

Client Sample ID: Outfall002_20230115_Comp_F

Lab Sample ID: 570-124247-3

Date Collected: 01/15/23 07:20

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	296510	01/17/23 15:47	W1BQ	EET CAL 4
Dissolved	Analysis	200.8		1			296758	01/18/23 11:19	Y2WS	EET CAL 4
Instrument ID: ICPMS09										

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Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Client Sample ID: Outfall002_20230115_Comp_F

Lab Sample ID: 570-124247-3

Date Collected: 01/15/23 07:20

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			25 mL	25 mL	296900	01/18/23 18:53	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	296901	01/18/23 19:30	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			297225	01/19/23 18:33	COYH	EET CAL 4

Instrument ID: HG8

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	40CFR136A	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
SM5210B	BOD, 5 Day	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	EET CAL 4
625	Liquid-Liquid Extraction	40CFR136A	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124247-1	Outfall002_20230115_Comp	Water	01/15/23 07:20	01/16/23 17:00
570-124247-3	Outfall002_20230115_Comp_F	Water	01/15/23 07:20	01/16/23 17:00

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CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address:		Project:		ANALYSIS REQUIRED		Comments		
Halley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Doran Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Boeing-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 018 Outfall 002 Comp		Total Dissolved Metals: (E200 7) Fe Total Dissolved Metals, Mercury (E245.1) Chronic Toxicity Selenium (EPA 821-R-02-019) ABC Labs in Ventura, CA CS-137 (E901 0 or E901 1) Radium 228 (E904 0), Uranium (E908 0), K-40 Tritium (T-3) (E906 0), Sr-90 (E905 0), Total Gross Alpha (E900 0) Gross Beta (E900 0) Cyanide (SM4500-CN-E / E335 2)			Filter and preserve with 24hrs of receipt at lab. Outfall 002 analyze for Fe. Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD. Only test if first or second rain events of the year Deliver to ABC Labs in Ventura, CA.	
Sample Description	Sample ID	Sample Matrix	Sampling Date/Time	Container Type	# of Cont.	Preservative		Bottle #
③	Outfall002_20230115_Comp_F	WM	1/15/2023 10:20	1L Poly	1	None	200	No
Outfall 002		WM		borellicate vial	1	None	320	No
①	Outfall002_20230115_Comp	WM	1/15/2023 10:20	500 mL Poly	1	NaOH	220	No
		WM		2.5 Gall Cube	1	None	225	No
		WM		1 L Glass Amber	1	None	230	No
		WM		1 Gall-Quose	5	None	305	No

Relinquished By:	Company:	Received By:	Date/Time:	Turn-around time (Check)
<i>Mark Dominick</i>		<i>EC</i>	1-16-2023 14:30	24 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 5 Day <input type="checkbox"/> 10 Day <input checked="" type="checkbox"/> Normal
Relinquished By:	Company:	Received By:	Date/Time:	Sample Integrity (Check)
<i>EC</i>		<i>EC</i>	1-16-23 17:00	In tact: <input type="checkbox"/> On Ice: <input type="checkbox"/>
Relinquished By:	Company:	Received By:	Date/Time:	Store samples for 6 months.
				Data Requirements: (Check)
				No Level IV: <input type="checkbox"/> All Level IV: <input checked="" type="checkbox"/>

Chronic toxicity not collected and not submitted. Removed from COC (MD 2/1/2023)



124247



570-124247 Chain of Custody

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address:		Project:		ANALYSIS REQUIRED												Comments											
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Boeing-SSFL NPDES Permit 2023 Routine Outfall 001 002, 011 018 Outfall 002 Comp		Total Recoverable Metals: (E200.7) Zn (E200.8) Cu, Pb, Cd, Se TCD (and all congeners) (E1613B) BOD5 (20 degrees C) (E405) (SM5210B, BODcalc) Surfactants (MBS) (SM5540C/E425.1) Cl- SO4, Nitrate-N, Nitrite-N NO3+NO2-N Perchlorate (E300) Turbidity TDS (SM2540C/E180.1) TSS (160.2 (SM2540D)) Ammonia-N (350.2) alpha-BHC (E608) 2,4,6 TCP 2,4 Dinitrochlorene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625) Total Recoverable Metals: (E200.7) Fe												Outfall 002 analyze for Fe.											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7) Zn (E200.8) Cu, Pb, Cd, Se	TCD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405) (SM5210B, BODcalc)	Surfactants (MBS) (SM5540C/E425.1)	Cl- SO4, Nitrate-N, Nitrite-N NO3+NO2-N	Perchlorate (E300)	Turbidity TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP 2,4 Dinitrochlorene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals: (E200.7) Fe	Comments						
① Outfall002_20230115_Comp		1/15/2023	WM	500 mL Poly	1	HNO3	90	No	X																		
				1 L Glass Amber	2	None	110	No	X																		
				1 L Poly	1	None	115	No																			
				500 mL Poly	2	None	120	No																			
				500 mL Poly	2	None	130	No																			
				500 mL Poly	1	None	150	No																			
				500 mL Poly	1	H2SO4	160	No																			
				1 L Glass Amber	2	None	170	No																			
				1 L Glass Amber	2	None	180	No																			
				1 L Poly	1	None	185	No																			
② Outfall002_20230115_Comp_Extra		1/15/2023	WM	1 L Glass Amber	2	None	110	No																			
				500 mL Poly	2	None	120	No																			
				500 mL Poly	2	None	130	No																			
				1 L Glass Amber	2	None	170	No																			
				1 L Glass Amber	2	None	170	No																			
				1 L Glass Amber	2	None	180	No																			

Relinquished By: *[Signature]* Date/Time: 1-16-23 14:30 Company: H.A.
 Relinquished By: *[Signature]* Date/Time: 1-16-23 17:00 Company: EC
 Relinquished By: *[Signature]* Date/Time: 1-17-23 17:00 Company: EC

08/0.8 1-7/1-7 SC11



124247

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 016 Outfall 002 Comp		Project Manager: Katherine Miller 520.289.8606 520.904.6844 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)											
TedAmerica's services under this CoC shall be performed in accordance with the TACO with Blanket Service Agreement 2019-22; responsibility and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TedAmerica Laboratories Inc.															
Sampler: Adrian Mobeka															
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.7) Zn (E200.8) Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha (E900.0) Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA	Total Dissolved Metals, Mercury (E245.1)	Total Dissolved Metals, (E200.7) Fe	Comments
(3)	Outfall002_20230115_Comp_F	1/15/2023 10:20	WM	1L Poly	1	None	200	No	X	X					Filter and preserve with 24hrs of receipt at lab. Outfall 002 analyze for Fe.
Outfall 002			WM	borellicate vials	1	None	320	No					X		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
(1)	Outfall002_20230115_Comp	1/15/2023 10:20	WM	500 mL Poly	1	NaOH	220	No	X	X					Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	2.5 Gal Cube	1	None	225	No			X				Only test if first or second rain events of the year Deliver to ABC Labs in Ventura, CA.
			WM	1 L Glass Amber	1	None	230	No				X			
			WM	1 Gal Cube	6	None	235	No							

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>Mark Dominick</i>	Date/Time: 1-16-2023/1430	Company: H&A	Received By: <i>EC</i>	Date/Time: 1-16-23	Company: EC
Relinquished By: <i>EC</i>	Date/Time: 1-16-23	Company: EC	Received By: <i>EC</i>	Date/Time: 1-16-23	Company: EC
Relinquished By: <i>EC</i>	Date/Time: 1-16-23	Company: EC	Received By: <i>EC</i>	Date/Time: 1-16-23	Company: EC

Turn-around time (Check): 24 Hour ____ 72 Hour ____ 10 Day ____ X
 48 Hour ____ 5 Day ____ Normal ____

Sample Integrity (Check): Intact: ____ On Ice: ____

Store samples for 6 months. Data Requirements: (Check) No Level IV: ____ All Level IV: ____ X

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124247-1

Login Number: 124247

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time (excluding tests with immediate HTs)		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/14/2023 2:02:07 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-124247-2

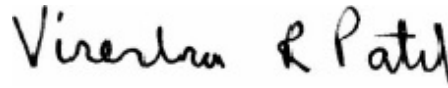
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/14/2023 2:02:07 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Job ID: 570-124247-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124247-2

Comments

No additional comments.

Receipt

The samples were received on 1/16/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.7° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: Outfall002_20230115_Comp (570-124247-1), (CCV 320-652285/2) and (MB 320-650862/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Client Sample ID: Outfall002_20230115_Comp

Lab Sample ID: 570-124247-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.00000036	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				3					
2,3,4,7,8-PeCDF	0.00000029	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,7,8-HxCDD	0.00000024	J,DX MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				5					
1,2,3,6,7,8-HxCDD	0.00000011	J,DX MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				5					
1,2,3,7,8,9-HxCDD	0.00000088	J,DX MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				2					
1,2,3,4,7,8-HxCDF	0.00000034	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				3					
1,2,3,6,7,8-HxCDF	0.00000049	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				2					
1,2,3,7,8,9-HxCDF	0.00000041	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				3					
2,3,4,6,7,8-HxCDF	0.00000049	J,DX MB	0.000048	0.00000011	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.00000022	J,DX MB	0.000048	0.0000005	ug/L	1		1613B	Total/NA
				2					
1,2,3,4,6,7,8-HpCDF	0.00000050	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				1					
1,2,3,4,7,8,9-HpCDF	0.00000045	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				6					
OCDD	0.00023	MB	0.000096	0.0000016	ug/L	1		1613B	Total/NA
OCDF	0.000017	J,DX MB	0.000096	0.0000002	ug/L	1		1613B	Total/NA
				4					
Total TCDD	0.0000022	J,DX MB	0.0000096	0.0000002	ug/L	1		1613B	Total/NA
				6					
Total TCDF	0.00000040	J,DX MB q	0.0000096	0.0000000	ug/L	1		1613B	Total/NA
				91					
Total PeCDD	0.00000059	J,DX MB q	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				1					
Total PeCDF	0.00000065	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				3					
Total HxCDD	0.00000078	J,DX MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				2					
Total HxCDF	0.00000045	J,DX MB q	0.000048	0.00000011	ug/L	1		1613B	Total/NA
Total HpCDD	0.00000039	J,DX MB	0.000048	0.0000005	ug/L	1		1613B	Total/NA
				2					
Total HpCDF	0.0000013	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				1					

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230115_Comp

Date Collected: 01/15/23 07:20

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000096	0.0000002	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000002	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,7,8-PeCDF	0.00000036	J,DX MB	0.000048	0.0000001	ug/L		02/01/23 06:04	02/06/23 19:48	1
2,3,4,7,8-PeCDF	0.00000029	J,DX MB q	0.000048	0.0000001	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,4,7,8-HxCDD	0.00000024	J,DX MB	0.000048	0.0000002	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,6,7,8-HxCDD	0.00000011	J,DX MB	0.000048	0.0000002	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,7,8,9-HxCDD	0.00000088	J,DX MB	0.000048	0.0000002	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,4,7,8-HxCDF	0.00000034	J,DX MB q	0.000048	0.0000001	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,6,7,8-HxCDF	0.00000049	J,DX MB	0.000048	0.0000001	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,7,8,9-HxCDF	0.00000041	J,DX MB q	0.000048	0.0000001	ug/L		02/01/23 06:04	02/06/23 19:48	1
2,3,4,6,7,8-HxCDF	0.00000049	J,DX MB	0.000048	0.00000011	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,4,6,7,8-HpCDD	0.000022	J,DX MB	0.000048	0.0000005	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,4,6,7,8-HpCDF	0.00000050	J,DX MB	0.000048	0.0000003	ug/L		02/01/23 06:04	02/06/23 19:48	1
1,2,3,4,7,8,9-HpCDF	0.00000045	J,DX MB	0.000048	0.0000003	ug/L		02/01/23 06:04	02/06/23 19:48	1
OCDD	0.00023	MB	0.000096	0.0000016	ug/L		02/01/23 06:04	02/06/23 19:48	1
OCDF	0.000017	J,DX MB	0.000096	0.0000002	ug/L		02/01/23 06:04	02/06/23 19:48	1
Total TCDD	0.0000022	J,DX MB	0.0000096	0.0000002	ug/L		02/01/23 06:04	02/06/23 19:48	1
Total TCDF	0.00000040	J,DX MB q	0.0000096	0.0000000	ug/L		02/01/23 06:04	02/06/23 19:48	1
Total PeCDD	0.00000059	J,DX MB q	0.000048	0.0000002	ug/L		02/01/23 06:04	02/06/23 19:48	1
Total PeCDF	0.00000065	J,DX MB q	0.000048	0.0000001	ug/L		02/01/23 06:04	02/06/23 19:48	1
Total HxCDD	0.0000078	J,DX MB	0.000048	0.0000002	ug/L		02/01/23 06:04	02/06/23 19:48	1
Total HxCDF	0.0000045	J,DX MB q	0.000048	0.00000011	ug/L		02/01/23 06:04	02/06/23 19:48	1
Total HpCDD	0.000039	J,DX MB	0.000048	0.0000005	ug/L		02/01/23 06:04	02/06/23 19:48	1
Total HpCDF	0.000013	J,DX MB	0.000048	0.0000003	ug/L		02/01/23 06:04	02/06/23 19:48	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	65		25 - 164	02/01/23 06:04	02/06/23 19:48	1
13C-2,3,7,8-TCDF	64		24 - 169	02/01/23 06:04	02/06/23 19:48	1
13C-1,2,3,7,8-PeCDD	66		25 - 181	02/01/23 06:04	02/06/23 19:48	1
13C-1,2,3,7,8-PeCDF	67		24 - 185	02/01/23 06:04	02/06/23 19:48	1
13C-2,3,4,7,8-PeCDF	66		21 - 178	02/01/23 06:04	02/06/23 19:48	1
13C-1,2,3,4,7,8-HxCDD	67		32 - 141	02/01/23 06:04	02/06/23 19:48	1
13C-1,2,3,6,7,8-HxCDD	73		28 - 130	02/01/23 06:04	02/06/23 19:48	1
13C-1,2,3,4,7,8-HxCDF	65		26 - 152	02/01/23 06:04	02/06/23 19:48	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230115_Comp
Date Collected: 01/15/23 07:20
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,6,7,8-HxCDF	72		26 - 123	02/01/23 06:04	02/06/23 19:48	1
13C-1,2,3,7,8,9-HxCDF	73		29 - 147	02/01/23 06:04	02/06/23 19:48	1
13C-2,3,4,6,7,8-HxCDF	75		28 - 136	02/01/23 06:04	02/06/23 19:48	1
13C-1,2,3,4,6,7,8-HpCDD	71		23 - 140	02/01/23 06:04	02/06/23 19:48	1
13C-1,2,3,4,6,7,8-HpCDF	67		28 - 143	02/01/23 06:04	02/06/23 19:48	1
13C-1,2,3,4,7,8,9-HpCDF	70		26 - 138	02/01/23 06:04	02/06/23 19:48	1
13C-OCDD	67		17 - 157	02/01/23 06:04	02/06/23 19:48	1
13C-OCDF	68		17 - 157	02/01/23 06:04	02/06/23 19:48	1
Surrogate						
37Cl4-2,3,7,8-TCDD	78		35 - 197	02/01/23 06:04	02/06/23 19:48	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall002_20230115_Comp

Date Collected: 01/15/23 07:20

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.0000096	0.0000004	ug/L		02/01/23 06:04	02/07/23 16:18	1
				3					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	62		24 - 169				02/01/23 06:04	02/07/23 16:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	90		35 - 197				02/01/23 06:04	02/07/23 16:18	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-124247-1	Outfall002_20230115_Comp	78
570-124247-1 - RA	Outfall002_20230115_Comp	90
MB 320-650862/1-A	Method Blank	82
MB 320-650862/1-A - RA	Method Blank	95

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-650862/2-A	Lab Control Sample	83
LCSD 320-650862/3-A	Lab Control Sample Dup	79

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-124247-1	Outfall002_20230115_Comp	65	64	66	67	66	67	73	65
570-124247-1 - RA	Outfall002_20230115_Comp		62						
MB 320-650862/1-A	Method Blank	61	60	63	63	64	62	66	57
MB 320-650862/1-A - RA	Method Blank		59						

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	¹³ CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-124247-1	Outfall002_20230115_Comp	72	73	75	71	67	70	67	68
570-124247-1 - RA	Outfall002_20230115_Comp								
MB 320-650862/1-A	Method Blank	66	66	67	62	59	62	61	60
MB 320-650862/1-A - RA	Method Blank								

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- ¹³CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-650862/2-A	Lab Control Sample	60	59	60	61	55	54	57	49
LCSD 320-650862/3-A	Lab Control Sample Dup	62	60	64	65	62	62	64	58

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	¹³ CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-650862/2-A	Lab Control Sample	57	66	65	62	55	63	62	62
LCSD 320-650862/3-A	Lab Control Sample Dup	65	69	70	65	62	67	65	64

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF

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Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-124247-2

Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

HxCDD = 13C-1,2,3,4,7,8-HxCDD

HxDD = 13C-1,2,3,6,7,8-HxCDD

HxCDF = 13C-1,2,3,4,7,8-HxCDF

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-650862/1-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 650862

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDF	63		24 - 185	02/01/23 06:04	02/06/23 14:23	1
13C-2,3,4,7,8-PeCDF	64		21 - 178	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,7,8-HxCDD	62		32 - 141	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,6,7,8-HxCDD	66		28 - 130	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,7,8-HxCDF	57		26 - 152	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,6,7,8-HxCDF	66		26 - 123	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,7,8,9-HxCDF	66		29 - 147	02/01/23 06:04	02/06/23 14:23	1
13C-2,3,4,6,7,8-HxCDF	67		28 - 136	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,6,7,8-HpCDD	62		23 - 140	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,6,7,8-HpCDF	59		28 - 143	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,7,8,9-HpCDF	62		26 - 138	02/01/23 06:04	02/06/23 14:23	1
13C-OCDD	61		17 - 157	02/01/23 06:04	02/06/23 14:23	1
13C-OCDF	60		17 - 157	02/01/23 06:04	02/06/23 14:23	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	82		35 - 197	02/01/23 06:04	02/06/23 14:23	1

Lab Sample ID: LCS 320-650862/2-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 650862

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000228		ug/L		114	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00103		ug/L		103	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00104		ug/L		104	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00104		ug/L		104	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00102		ug/L		102	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00105		ug/L		105	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00116		ug/L		116	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00104		ug/L		104	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00105		ug/L		105	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00103		ug/L		103	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00104		ug/L		104	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00104		ug/L		104	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00105		ug/L		105	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00104		ug/L		104	78 - 138
OCDD	0.00200	0.00205		ug/L		103	78 - 144
OCDF	0.00200	0.00216		ug/L		108	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	60		20 - 175
13C-2,3,7,8-TCDF	59		22 - 152
13C-1,2,3,7,8-PeCDD	60		21 - 227
13C-1,2,3,7,8-PeCDF	61		21 - 192
13C-2,3,4,7,8-PeCDF	55		13 - 328
13C-1,2,3,4,7,8-HxCDD	54		21 - 193
13C-1,2,3,6,7,8-HxCDD	57		25 - 163

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-650862/2-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 650862

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDF	49		19 - 202
13C-1,2,3,6,7,8-HxCDF	57		21 - 159
13C-1,2,3,7,8,9-HxCDF	66		17 - 205
13C-2,3,4,6,7,8-HxCDF	65		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	62		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	55		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	63		20 - 186
13C-OCDD	62		13 - 199
13C-OCDF	62		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	83		31 - 191

Lab Sample ID: LCSD 320-650862/3-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 650862

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000213		ug/L		106	67 - 158	2	50	
2,3,7,8-TCDF	0.000200	0.000223		ug/L		112	75 - 158	2	50	
1,2,3,7,8-PeCDD	0.00100	0.00102		ug/L		102	70 - 142	1	50	
1,2,3,7,8-PeCDF	0.00100	0.00102		ug/L		102	80 - 134	2	50	
2,3,4,7,8-PeCDF	0.00100	0.00104		ug/L		104	68 - 160	0	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000996		ug/L		100	70 - 164	2	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00105		ug/L		105	76 - 134	0	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00105		ug/L		105	64 - 162	9	50	
1,2,3,4,7,8-HxCDF	0.00100	0.00101		ug/L		101	72 - 134	3	50	
1,2,3,6,7,8-HxCDF	0.00100	0.00104		ug/L		104	84 - 130	1	50	
1,2,3,7,8,9-HxCDF	0.00100	0.00102		ug/L		102	78 - 130	2	50	
2,3,4,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	70 - 156	2	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00103		ug/L		103	70 - 140	0	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00104		ug/L		104	82 - 122	1	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00103		ug/L		103	78 - 138	1	50	
OCDD	0.00200	0.00205		ug/L		102	78 - 144	0	50	
OCDF	0.00200	0.00213		ug/L		106	63 - 170	1	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	62		20 - 175
13C-2,3,7,8-TCDF	60		22 - 152
13C-1,2,3,7,8-PeCDD	64		21 - 227
13C-1,2,3,7,8-PeCDF	65		21 - 192
13C-2,3,4,7,8-PeCDF	62		13 - 328
13C-1,2,3,4,7,8-HxCDD	62		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163
13C-1,2,3,4,7,8-HxCDF	58		19 - 202
13C-1,2,3,6,7,8-HxCDF	65		21 - 159
13C-1,2,3,7,8,9-HxCDF	69		17 - 205
13C-2,3,4,6,7,8-HxCDF	70		22 - 176

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-650862/3-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 650862

<u>Isotope Dilution</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
13C-1,2,3,4,6,7,8-HpCDD	65		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	62		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	67		20 - 186
13C-OCDD	65		13 - 199
13C-OCDF	64		13 - 199

<u>Surrogate</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
37Cl4-2,3,7,8-TCDD	79		31 - 191

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-650862/1-A
Matrix: Water
Analysis Batch: 652285

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 650862

<u>Analyte</u>	<u>MB Result</u>	<u>MB Qualifier</u>	<u>RL</u>	<u>EDL</u>	<u>Unit</u>	<u>D</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
2,3,7,8-TCDF - RA	ND		0.000010	0.0000005	ug/L		02/01/23 06:04	02/07/23 13:23	1

<u>Isotope Dilution</u>	<u>MB MB</u>		<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
	<u>%Recovery</u>	<u>Qualifier</u>				
13C-2,3,7,8-TCDF - RA	59		24 - 169	02/01/23 06:04	02/07/23 13:23	1

<u>Surrogate</u>	<u>MB MB</u>		<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
	<u>%Recovery</u>	<u>Qualifier</u>				
37Cl4-2,3,7,8-TCDD - RA	95		35 - 197	02/01/23 06:04	02/07/23 13:23	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Specialty Organics

Prep Batch: 650862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1 - RA	Outfall002_20230115_Comp	Total/NA	Water	1613B	
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	1613B	
MB 320-650862/1-A - RA	Method Blank	Total/NA	Water	1613B	
MB 320-650862/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-650862/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-650862/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 652038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	1613B	650862
MB 320-650862/1-A	Method Blank	Total/NA	Water	1613B	650862
LCS 320-650862/2-A	Lab Control Sample	Total/NA	Water	1613B	650862
LCSD 320-650862/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	650862

Analysis Batch: 652285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1 - RA	Outfall002_20230115_Comp	Total/NA	Water	1613B	650862
MB 320-650862/1-A - RA	Method Blank	Total/NA	Water	1613B	650862

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Client Sample ID: Outfall002_20230115_Comp

Lab Sample ID: 570-124247-1

Date Collected: 01/15/23 07:20

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B	RA		1041.7 mL	20 uL	650862	02/01/23 06:04	FC	EET SAC
Total/NA	Analysis	1613B	RA	1	1 uL	1 uL	652285	02/07/23 16:18	DB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1041.7 mL	20 uL	650862	02/01/23 06:04	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	652038	02/06/23 19:48	GRB	EET SAC
Instrument ID: 12D5										

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23 *
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124247-1	Outfall002_20230115_Comp	Water	01/15/23 07:20	01/16/23 17:00

- 1
- 2
- 3
- 4
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- 11
- 12
- 13
- 14
- 15
- 16

124247



570-124247 Chain of Custody

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address:		Project:		ANALYSIS REQUIRED												Comments										
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Boeing-SSFL NPDES Permit 2023 Routine Outfall 001 002, 011 018 Outfall 002 Comp		Total Recoverable Metals: (E200.7) Zn (E200.8) Cu, Pb, Cd, Se TCCD (and all congeners) (E1613B) BOD5 (20 degrees C) (E405) (SM5210B, BODcalc) Surfactants (MBS) (SM5540C/E425.1) Cl- SO4, Nitrate-N, Nitrite-N NO3+NO2-N Perchlorate (E300) Turbidity TDS (SM2540C/E180.1) TSS (160.2 (SM2540D)) Ammonia-N (350.2) alpha-BHC (E608) 2,4,6 TCP 2,4 Dinitrochlorene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625) Total Recoverable Metals: (E200.7) Fe												Outfall 002 analyze for Fe.										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7) Zn (E200.8) Cu, Pb, Cd, Se	TCCD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405) (SM5210B, BODcalc)	Surfactants (MBS) (SM5540C/E425.1)	Cl- SO4, Nitrate-N, Nitrite-N NO3+NO2-N	Perchlorate (E300)	Turbidity TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP 2,4 Dinitrochlorene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals: (E200.7) Fe	Comments					
① Outfall002_20230115_Comp		1/15/2023	WM	500 mL Poly	1	HNO3	90	No	X																	
				1 L Glass Amber	2	None	110	No	X																	
				1 L Poly	1	None	115	No		X																
				500 mL Poly	2	None	120	No			X															
				500 mL Poly	2	None	130	No				X														
				500 mL Poly	1	None	150	No					X													
				500 mL Poly	1	H2SO4	160	No						X												
				1 L Glass Amber	2	None	170	No														X				
				1 L Glass Amber	2	None	180	No																		
				1 L Poly	1	None	185	No																		
② Outfall002_20230115_Comp_Extra		1/15/2023	WM	1 L Glass Amber	2	None	110	No		H																
				500 mL Poly	2	None	120	No																		
				500 mL Poly	2	None	130	No																		
				1 L Glass Amber	2	None	170	No														H				

Relinquished By: *[Signature]* Date/Time: 1-16-23 14:30 Company: H.A.
 Relinquished By: *[Signature]* Date/Time: 1-16-23 17:00 Company: EC
 Relinquished By: *[Signature]* Date/Time: 1-16-23 17:00 Company: EC

08/0.8 1-7/1-7 SC11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124247-2

Login Number: 124247

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Virendra

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time (excluding tests with immediate HTs)		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124247-2

Login Number: 124247

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 01/18/23 12:00 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.3c 3.2c 1.9c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/20/2023 2:54:04 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-124247-3

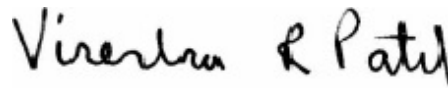
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/20/2023 2:54:04 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Job ID: 570-124247-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124247-3

Comments

No additional comments.

Receipt

The samples were received on 1/16/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.7° C.

Receipt Exceptions

The reference method requires samples to have a pH of 2. The following samples were received with a pH of 6: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

Job #: 570-124247 R-1
Job #: 570-124230 R-1,
Job #: 570-124243 AP-1 and AR-1
Job #: 570-124233 K-1
Job #: 570-124239 J-1
Job #: 570-123901 T-1, T-2, U-1, U-2
Job #: 570-123902 J-1, J-2, K-1, K-2

RAD

Method 900.0: Gross Alpha and Gross Beta batch 598185

The detection goal was not met for the following sample(s). The samples and batch QC were prepped at full volume. Matrix interferences are suspected because the method blank achieved the detection goal demonstrating acceptable sample preparation and instrument performance: Outfall002_20230115_Comp (570-124247-1). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha and Gross Beta batch 598185

The detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass: (400-231975-E-8-A) and (400-231975-E-8-F DU). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha and Gross Beta batch 598185

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230115_Comp (570-124247-1), (LCS 160-598185/2-A), (LCSB 160-598185/3-A), (MB 160-598185/1-A), (400-231975-E-8-A), (400-231975-E-8-F DU), (400-231975-E-8-B MS), (400-231975-E-8-D MSBT), (400-231975-E-8-E MSBTD) and (400-231975-E-8-C MSD)

Method 901.1: Gamma Prep Batch 160-597551

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Job ID: 570-124247-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230115_Comp (570-124247-1), (570-124230-R-1-E) and (570-124230-R-1-F DU)

Method 903.0: Radium-226 prep batch 160-597480:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230115_Comp (570-124247-1), (LCS 160-597480/2-A), (LCSD 160-597480/3-A) and (MB 160-597480/1-A)

Method 904.0: Radium-228 batch 597487

The LCS/LCSD recovered at (LCS 142% / LCSD 135%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required

(LCS 160-597487/2-A) and (LCSD 160-597487/3-A)

Method 904.0: Radium-228 batch 597487

The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: Outfall002_20230115_Comp (570-124247-1). Analytical results are reported with the detection limit achieved.

Method 904.0: Radium-228 batch 597487

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230115_Comp (570-124247-1), (LCS 160-597487/2-A), (LCSD 160-597487/3-A) and (MB 160-597487/1-A)

Method 905: Strontium-90 prep batch 160-597465:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230115_Comp (570-124247-1), (LCS 160-597465/2-A), (LCSD 160-597465/3-A) and (MB 160-597465/1-A)

Method 906.0: Tritium 598269

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Job ID: 570-124247-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230115_Comp (570-124247-1), (LCS 160-598269/2-A), (MB 160-598269/1-A), (160-48571-B-3-A), (160-48571-B-3-B DU), (160-48571-B-5-A) and (160-48571-B-5-B MS)

Methods A-01-R, U-02-RC: Isotopic Uranium batch 597538

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230115_Comp (570-124247-1), (LCS 160-597538/2-A), (MB 160-597538/1-A), (570-123671-T-2-E) and (570-123671-T-2-F DU)

Method ExtChrom: Uranium Prep Batch 160-597538

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall002_20230115_Comp (570-124247-1).

Method PrecSep_0: Radium-228 Prep Batch 160-597487

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230115_Comp (570-124247-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-597480

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230115_Comp (570-124247-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 160-597465

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230115_Comp (570-124247-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Client Sample ID: Outfall002_20230115_Comp

Lab Sample ID: 570-124247-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230115_Comp
 Date Collected: 01/15/23 07:20
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	4.24	G	2.36	2.41	3.00	3.41	pCi/L	01/25/23 14:57	02/10/23 14:50	1
Gross Beta	2.59		0.802	0.842	4.00	0.984	pCi/L	01/25/23 14:57	02/10/23 14:50	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230115_Comp
Date Collected: 01/15/23 07:20
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	1.22	U	6.90	6.90	20.0	8.52	pCi/L	01/19/23 15:59	02/16/23 21:31	1
Potassium-40	-9.59	U	89.0	89.0		115	pCi/L	01/19/23 15:59	02/16/23 21:31	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230115_Comp
 Date Collected: 01/15/23 07:20
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.117	U	0.125	0.125	1.00	0.200	pCi/L	01/19/23 11:31	02/10/23 07:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		40 - 110					01/19/23 11:31	02/10/23 07:43	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230115_Comp
 Date Collected: 01/15/23 07:20
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0230	U G	0.617	0.617	1.00	1.15	pCi/L	01/19/23 12:00	01/25/23 12:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		40 - 110					01/19/23 12:00	01/25/23 12:07	1
Y Carrier	75.1		40 - 110					01/19/23 12:00	01/25/23 12:07	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230115_Comp
Date Collected: 01/15/23 07:20
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
Matrix: Water

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.596	U	0.497	0.499	3.00	0.790	pCi/L	01/19/23 09:10	01/27/23 18:28	1
Carrier	%Yield	Qualifier	Limits				Prepared		Analyzed	Dil Fac
Sr Carrier	80.7		40 - 110				01/19/23 09:10		01/27/23 18:28	1
Y Carrier	75.5		40 - 110				01/19/23 09:10		01/27/23 18:28	1



Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230115_Comp
Date Collected: 01/15/23 07:20
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	144	U	156	157	500	254	pCi/L	01/26/23 08:47	02/01/23 17:59	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230115_Comp
 Date Collected: 01/15/23 07:20
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124247-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.310		0.284	0.285	1.00	0.310	pCi/L	01/19/23 14:12	01/31/23 14:25	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	86.7		30 - 110					01/19/23 14:12	01/31/23 14:25	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)							
570-124247-1	Outfall002_20230115_Comp	93.4							
LCS 160-597480/2-A	Lab Control Sample	84.6							
LCSD 160-597480/3-A	Lab Control Sample Dup	85.1							
MB 160-597480/1-A	Method Blank	86.9							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)						
570-124247-1	Outfall002_20230115_Comp	93.4	75.1						
LCS 160-597487/2-A	Lab Control Sample	84.6	86.4						
LCSD 160-597487/3-A	Lab Control Sample Dup	85.1	84.9						
MB 160-597487/1-A	Method Blank	86.9	91.2						

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (40-110)	Y (40-110)						
570-124247-1	Outfall002_20230115_Comp	80.7	75.5						
LCS 160-597465/2-A	Lab Control Sample	88.8	74.0						
LCSD 160-597465/3-A	Lab Control Sample Dup	89.3	69.5						
MB 160-597465/1-A	Method Blank	85.4	84.9						

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)							
570-123671-T-2-F DU	Duplicate	92.9							
570-124247-1	Outfall002_20230115_Comp	86.7							
LCS 160-597538/2-A	Lab Control Sample	80.5							
MB 160-597538/1-A	Method Blank	80.4							

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-598185/1-A
Matrix: Water
Analysis Batch: 600017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598185

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.1914	U	0.499	0.499	3.00	1.02	pCi/L	01/25/23 14:57	02/10/23 07:53	1
Gross Beta	-0.2171	U	0.469	0.470	4.00	0.883	pCi/L	01/25/23 14:57	02/10/23 07:53	1

Lab Sample ID: LCS 160-598185/2-A
Matrix: Water
Analysis Batch: 600017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

Lab Sample ID: LCSB 160-598185/3-A
Matrix: Water
Analysis Batch: 600017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

Lab Sample ID: 400-231975-E-8-B MS
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

Lab Sample ID: 400-231975-E-8-C MSD
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit

Lab Sample ID: 400-231975-E-8-D MSBT
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 400-231975-E-8-E MSBTD
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	Limit
											60 - 140	0.07	1	
Gross Beta	11.3		264	282.7		30.2	4.00	3.30	pCi/L	103	60 - 140	0.07	1	

Lab Sample ID: 400-231975-E-8-F DU
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										0.56
Gross Alpha	6.14	U G	0.2921	U G	4.76	3.00	9.19	pCi/L	0.56	1
Gross Beta	11.3		12.57		3.02	4.00	2.98	pCi/L	0.21	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-597551/1-A
Matrix: Water
Analysis Batch: 600521

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597551

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
										01/19/23 15:59
Cesium-137	-4.559	U	10.2	10.2	20.0	12.1	pCi/L	01/19/23 15:59	02/15/23 20:28	1
Potassium-40	-34.61	U	91.2	91.3		128	pCi/L	01/19/23 15:59	02/15/23 20:28	1

Lab Sample ID: LCS 160-597551/2-A
Matrix: Water
Analysis Batch: 600544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597551

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75 - 125	75 - 125
Americium-241	135000	137500		16400		299	pCi/L	102	75 - 125	
Cesium-137	40900	42210		5030	20.0	78.5	pCi/L	103	75 - 125	
Cobalt-60	18100	18870		2250		40.6	pCi/L	104	75 - 125	

Lab Sample ID: 570-124230-R-1-F DU
Matrix: Water
Analysis Batch: 600538

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597551

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										0.12
Cesium-137	2.49	U	4.234	U	7.98	20.0	9.73	pCi/L	0.12	1
Potassium-40	-15.0	U	44.22	U	79.5		91.6	pCi/L	0.38	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-597480/1-A
Matrix: Water
Analysis Batch: 600015

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597480

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.06048	U	0.0554	0.0557	1.00	0.0831	pCi/L	01/19/23 11:31	02/10/23 07:35	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	86.9		40 - 110				01/19/23 11:31		02/10/23 07:35	1

Lab Sample ID: LCS 160-597480/2-A
Matrix: Water
Analysis Batch: 600015

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597480

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.76		1.20	1.00	0.0976	pCi/L	104	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	84.6		40 - 110						

Lab Sample ID: LCSD 160-597480/3-A
Matrix: Water
Analysis Batch: 600015

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597480

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER
				Uncert. (2σ+/-)							Limit
Radium-226	11.3	11.34		1.16	1.00	0.0982	pCi/L	100	75 - 125	0.18	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	85.1		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-597487/1-A
Matrix: Water
Analysis Batch: 598170

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597487

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.2403	U	0.449	0.450	1.00	0.921	pCi/L	01/19/23 12:00	01/25/23 17:30	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	86.9		40 - 110				01/19/23 12:00		01/25/23 17:30	1
Y Carrier	91.2		40 - 110				01/19/23 12:00		01/25/23 17:30	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-597487/2-A
Matrix: Water
Analysis Batch: 598170

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597487

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.25	11.73		1.52	1.00	0.521	pCi/L	142	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	84.6		40 - 110							
Y Carrier	86.4		40 - 110							

Lab Sample ID: LCSD 160-597487/3-A
Matrix: Water
Analysis Batch: 598170

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597487

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
Radium-228	8.25	11.12		1.47	1.00	0.576	pCi/L	135	75 - 125	0.20	1	
LCSD LCSD												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	85.1		40 - 110									
Y Carrier	84.9		40 - 110									

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-597465/1-A
Matrix: Water
Analysis Batch: 598536

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597465

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
MB MB										
Carrier	%Yield	Qualifier	Limits		Prepared		Analyzed		Dil Fac	
Sr Carrier	85.4		40 - 110		01/19/23 09:10		01/27/23 18:27		1	
Y Carrier	84.9		40 - 110		01/19/23 09:10		01/27/23 18:27		1	

Lab Sample ID: LCS 160-597465/2-A
Matrix: Water
Analysis Batch: 598536

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597465

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Strontium-90	7.38	7.362		0.845	3.00	0.369	pCi/L	100	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Sr Carrier	88.8		40 - 110							
Y Carrier	74.0		40 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: LCSD 160-597465/3-A
Matrix: Water
Analysis Batch: 598536

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597465

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	RER Limit
									Limits	RER		
Strontium-90	7.38	8.158		0.921	3.00	0.366	pCi/L	111	75 - 125	0.45		1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Sr Carrier	89.3		40 - 110									
Y Carrier	69.5		40 - 110									

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-598269/1-A
Matrix: Water
Analysis Batch: 599474

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598269

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac

Lab Sample ID: LCS 160-598269/2-A
Matrix: Water
Analysis Batch: 599474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598269

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
									Limits	RER
Tritium	2110	2226		377	500	263	pCi/L	105	75 - 125	

Lab Sample ID: 160-48571-B-5-B MS
Matrix: Water
Analysis Batch: 599474

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 598269

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
											Limits	RER
Tritium	153	U	2140	2086		358	500	253	pCi/L	90	60 - 140	

Lab Sample ID: 160-48571-B-3-B DU
Matrix: Water
Analysis Batch: 599474

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 598269

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										Limit
Tritium	102	U	145.0	U	161	500	263	pCi/L	0.14	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-597538/1-A
Matrix: Water
Analysis Batch: 598766

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597538

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

<i>Tracer</i>	<i>MB MB</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Uranium-232</i>	<i>%Yield Qualifier</i>	<i>30 - 110</i>	<i>01/19/23 14:12</i>	<i>01/30/23 21:45</i>	<i>1</i>
	80.4				

Lab Sample ID: LCS 160-597538/2-A
Matrix: Water
Analysis Batch: 598767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597538

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qual</i>	<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>%Rec</i>	<i>%Rec Limits</i>
Uranium-234	12.7	12.89		1.52	1.00	0.204	pCi/L	101	75 - 125
Uranium-238	13.0	12.29		1.47	1.00	0.135	pCi/L	94	75 - 125

<i>Tracer</i>	<i>LCS LCS</i>	<i>Limits</i>
<i>Uranium-232</i>	<i>%Yield Qualifier</i>	<i>30 - 110</i>
	80.5	

Lab Sample ID: 570-123671-T-2-F DU
Matrix: Water
Analysis Batch: 598726

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597538

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qual</i>	<i>DU Result</i>	<i>DU Qual</i>	<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>RER</i>	<i>RER Limit</i>
Total Uranium	1.09		1.050		0.326	1.00	0.143	pCi/L	0.06	1

<i>Tracer</i>	<i>DU DU</i>	<i>Limits</i>
<i>Uranium-232</i>	<i>%Yield Qualifier</i>	<i>30 - 110</i>
	92.9	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Rad

Prep Batch: 597465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	PrecSep-7	
MB 160-597465/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-597465/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-597465/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 597480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	PrecSep-21	
MB 160-597480/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-597480/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-597480/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 597487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	PrecSep_0	
MB 160-597487/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-597487/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-597487/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 597538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	ExtChrom	
MB 160-597538/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-597538/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-123671-T-2-F DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 597551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-597551/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-597551/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-124230-R-1-F DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 598185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	Evaporation	
MB 160-598185/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-598185/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-598185/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
400-231975-E-8-B MS	Matrix Spike	Total/NA	Water	Evaporation	
400-231975-E-8-C MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
400-231975-E-8-D MSBT	Matrix Spike	Total/NA	Water	Evaporation	
400-231975-E-8-E MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
400-231975-E-8-F DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 598269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124247-1	Outfall002_20230115_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-598269/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-598269/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
160-48571-B-5-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Rad (Continued)

Prep Batch: 598269 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-48571-B-3-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Client Sample ID: Outfall002_20230115_Comp

Lab Sample ID: 570-124247-1

Date Collected: 01/15/23 07:20

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.01 mL	1.0 g	598185	01/25/23 14:57	MST	EET SL
Total/NA	Analysis	900.0		1			600016	02/10/23 14:50	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	597551	01/19/23 15:59	JML	EET SL
Total/NA	Analysis	901.1		1			600543	02/16/23 21:31	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			497.70 mL	1.0 g	597480	01/19/23 11:31	DJP	EET SL
Total/NA	Analysis	903.0		1			600016	02/10/23 07:43	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			497.70 mL	1.0 g	597487	01/19/23 12:00	DJP	EET SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	598172	01/25/23 12:07	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			501.69 mL	1.0 g	597465	01/19/23 09:10	DJP	EET SL
Total/NA	Analysis	905		1			598536	01/27/23 18:28	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			99.64 mL	1.0 g	598269	01/26/23 08:47	SEH	EET SL
Total/NA	Analysis	906.0		1			599474	02/01/23 17:59	REV	EET SL
Instrument ID: LSCBROWN										
Total/NA	Prep	ExtChrom			250.07 mL	1.0 mL	597538	01/19/23 14:12	SAC	EET SL
Total/NA	Analysis	A-01-R		1			598828	01/31/23 14:25	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124247-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124247-1	Outfall002_20230115_Comp	Water	01/15/23 07:20	01/16/23 17:00

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124247



570-124247 Chain of Custody

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address:		Project:		ANALYSIS REQUIRED												Comments										
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Boeing-SSFL NPDES Permit 2023 Routine Outfall 001 002, 011 018 Outfall 002 Comp		Total Recoverable Metals: (E200.7) Zn (E200.8) Cu, Pb, Cd, Se TCDD (and all congeners) (E1613B) BOD5 (20 degrees C) (E405) (SM5210B, BODcalo) Surfactants (MBS) (SM5540C/E425.1) Cl- SO4, Nitrate-N, Nitrite-N NO3+NO2-N Perchlorate (E300) Turbidity TDS (SM2540C/E180.1) TSS (160.2 (SM2540D)) Ammonia-N (350.2) alpha-BHC (E608) 2,4,6 TCP 2,4 Dinitrochlorene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625) Total Recoverable Metals: (E200.7) Fe												Outfall 002 analyze for Fe.										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7) Zn (E200.8) Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405) (SM5210B, BODcalo)	Surfactants (MBS) (SM5540C/E425.1)	Cl- SO4, Nitrate-N, Nitrite-N NO3+NO2-N	Perchlorate (E300)	Turbidity TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP 2,4 Dinitrochlorene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals: (E200.7) Fe	Comments					
① Outfall002_20230115_Comp		1/15/2023	WM	500 mL Poly	1	HNO3	90	No	X																	
				1 L Glass Amber	2	None	110	No	X																	
				1 L Poly	1	None	115	No						X												
				500 mL Poly	2	None	120	No						X												
				500 mL Poly	2	None	130	No						X												
				500 mL Poly	1	None	150	No																		
				500 mL Poly	1	H2SO4	160	No																		
				1 L Glass Amber	2	None	170	No																		
				1 L Glass Amber	2	None	180	No																		
				1 L Poly	1	None	185	No																		
② Outfall002_20230115_Comp_Extra		1/15/2023	WM	1 L Glass Amber	2	None	110	No																		
				500 mL Poly	2	None	120	No																		
				500 mL Poly	2	None	130	No																		
				1 L Glass Amber	2	None	170	No																		

Legend: C=Conditional, R=Routine

Relinquished By: <i>[Signature]</i>	Date/Time: 1-16-23 14:30	Company: H.A.	Received By: <i>[Signature]</i>	Date/Time: 1-16-23 14:30	Company: H.A.
Relinquished By: <i>[Signature]</i>	Date/Time: 1-16-23 17:00	Company: EC	Received By: <i>[Signature]</i>	Date/Time: 1-16-23 17:00	Company: EC
Relinquished By: <i>[Signature]</i>	Date/Time: 1-16-23 17:00	Company: EC	Received By: <i>[Signature]</i>	Date/Time: 1-16-23 17:00	Company: EC

08/0.8 1-7/1-7 SC11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124247-3

Login Number: 124247

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time (excluding tests with immediate HTs)		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124247-3

Login Number: 124247

List Number: 2

Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis

List Creation: 01/18/23 12:01 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - GRAB

JOB NUMBER

570-124869-1

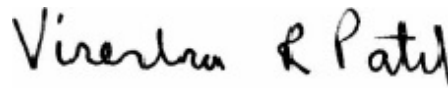
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-124869-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

Job ID: 570-124869-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124869-1

Comments

No additional comments.

Receipt

The samples were received on 1/20/2023 6:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.8° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-297633. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 570-297620.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-298577. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.
1664

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-124869-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Client Sample ID: Outfall002_20230120_Grab

Lab Sample ID: 570-124869-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	1.6		0.50	0.17	ug/L	1		624.1	Total/NA
HEM: Oil and Grease	0.60	J,DX	1.0	0.51	mg/L	1		1664A	Total/NA
Specific Conductance	440		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: TB-20230120

Lab Sample ID: 570-124869-3

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230120_Grab

Date Collected: 01/20/23 09:25

Date Received: 01/20/23 18:30

Lab Sample ID: 570-124869-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/21/23 21:23	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/21/23 21:23	1
Trichloroethene	1.6		0.50	0.17	ug/L			01/21/23 21:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		60 - 140					01/21/23 21:23	1
Toluene-d8 (Surr)	99		60 - 140					01/21/23 21:23	1

Client Sample ID: TB-20230120

Date Collected: 01/20/23 09:25

Date Received: 01/20/23 18:30

Lab Sample ID: 570-124869-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/21/23 18:46	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/21/23 18:46	1
Trichloroethene	ND		0.50	0.17	ug/L			01/21/23 18:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		60 - 140					01/21/23 18:46	1
Toluene-d8 (Surr)	102		60 - 140					01/21/23 18:46	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

General Chemistry

Client Sample ID: Outfall002_20230120_Grab
Date Collected: 01/20/23 09:25
Date Received: 01/20/23 18:30

Lab Sample ID: 570-124869-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	0.60	J,DX	1.0	0.51	mg/L		01/25/23 14:19	01/26/23 12:24	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance (SM 2510B)	440		1.0	1.0	umhos/cm			01/30/23 16:20	1
Settleable Solids (SM 2540F)	ND		0.10	0.10	mL/L			01/21/23 09:59	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL
		(60-140)	(60-140)
570-124869-1	Outfall002_20230120_Grab	98	99
570-124869-3	TB-20230120	99	102
LCS 570-297633/1003	Lab Control Sample	102	99
LCSD 570-297633/4	Lab Control Sample Dup	100	101
MB 570-297633/6	Method Blank	98	97

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-297633/6
Matrix: Water
Analysis Batch: 297633

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/21/23 12:23	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/21/23 12:23	1
Trichloroethene	ND		0.50	0.17	ug/L			01/21/23 12:23	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	98		60 - 140				01/21/23 12:23	1	
Toluene-d8 (Surr)	97		60 - 140				01/21/23 12:23	1	

Lab Sample ID: LCS 570-297633/1003
Matrix: Water
Analysis Batch: 297633

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
								1,1-Dichloroethene
1,2-Dichloroethane	10.0	9.77		ug/L		98	70 - 130	
Trichloroethene	10.0	10.0		ug/L		100	65 - 135	
Surrogate	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
4-Bromofluorobenzene (Surr)	102		60 - 140					
Toluene-d8 (Surr)	99		60 - 140					

Lab Sample ID: LCSD 570-297633/4
Matrix: Water
Analysis Batch: 297633

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
1,2-Dichloroethane	10.0	9.76		ug/L		98	70 - 130	0	49
Trichloroethene	10.0	9.34		ug/L		93	65 - 135	7	48
Surrogate	LCSD	LCSD	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	100		60 - 140						
Toluene-d8 (Surr)	101		60 - 140						

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-298577/1-A
Matrix: Water
Analysis Batch: 298854

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298577

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HEM: Oil and Grease	ND		1.0	0.51	mg/L		01/25/23 14:19	01/26/23 12:24	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 570-298577/2-A
Matrix: Water
Analysis Batch: 298854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298577

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	36.3		mg/L		91	78 - 114

Lab Sample ID: LCSD 570-298577/3-A
Matrix: Water
Analysis Batch: 298854

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298577

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	37.2		mg/L		93	78 - 114	2	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-299719/7
Matrix: Water
Analysis Batch: 299719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			01/30/23 15:46	1

Lab Sample ID: 570-124688-K-4 DU
Matrix: Water
Analysis Batch: 299719

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	630		640		umhos/cm		1	25

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

GC/MS VOA

Analysis Batch: 297633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124869-1	Outfall002_20230120_Grab	Total/NA	Water	624.1	
570-124869-3	TB-20230120	Total/NA	Water	624.1	
MB 570-297633/6	Method Blank	Total/NA	Water	624.1	
LCS 570-297633/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-297633/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 297620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124869-1	Outfall002_20230120_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 298577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124869-1	Outfall002_20230120_Grab	Total/NA	Water	1664A	
MB 570-298577/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-298577/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-298577/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 298854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124869-1	Outfall002_20230120_Grab	Total/NA	Water	1664A	298577
MB 570-298577/1-A	Method Blank	Total/NA	Water	1664A	298577
LCS 570-298577/2-A	Lab Control Sample	Total/NA	Water	1664A	298577
LCSD 570-298577/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	298577

Analysis Batch: 299719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124869-1	Outfall002_20230120_Grab	Total/NA	Water	SM 2510B	
MB 570-299719/7	Method Blank	Total/NA	Water	SM 2510B	
570-124688-K-4 DU	Duplicate	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

Client Sample ID: Outfall002_20230120_Grab

Lab Sample ID: 570-124869-1

Date Collected: 01/20/23 09:25

Matrix: Water

Date Received: 01/20/23 18:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	297633	01/21/23 21:23	A1W	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			995 mL	1000 mL	298577	01/25/23 14:19	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			298854	01/26/23 12:24	L6IE	EET CAL 4
Instrument ID: NO EQUIP										
Total/NA	Analysis	SM 2510B		1			299719	01/30/23 16:20	BDH9	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	297620	01/21/23 09:59	ZVB7	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230120

Lab Sample ID: 570-124869-3

Date Collected: 01/20/23 09:25

Matrix: Water

Date Received: 01/20/23 18:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	297633	01/21/23 18:46	A1W	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-124869-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-124869-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124869-1	Outfall002_20230120_Grab	Water	01/20/23 09:25	01/20/23 18:30
570-124869-3	TB-20230120	Water	01/20/23 09:25	01/20/23 18:30

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124869-1

Login Number: 124869

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/14/2023 3:10:55 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-124887-1

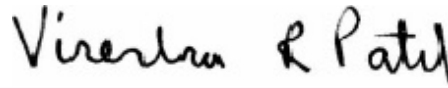
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/14/2023 3:10:55 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

HPLC/IC

Qualifier	Qualifier Description
BA	Relative percent difference out of control
BB	Sample > 4X spike concentration

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
IB	CCV recovery above limit; analyte not detected
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Job ID: 570-124887-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124887-1

Comments

No additional comments.

Receipt

The samples were received on 1/21/2023 11:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.4° C.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

Method 300.0: The following samples were diluted due to the nature of the sample matrix: (570-124934-D-2 MS) and (570-124934-D-2 MSD). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 200.7 Rev 4.4: The matrix spike (MS) recoveries of Iron for preparation batch 570-298189 and analytical batch 570-298286 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 245.1: The continuing calibration verification (CCV) associated with batch 570-298644 recovered above the upper control limit for Mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 570-298459/9-A).

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230121_Comp_F (570-124887-3). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-297984. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 608.1

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-298062. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 625 Sim

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Job ID: 570-124887-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2,4-Dinitrotoluene	0.12	J,DX	0.19	0.11	ug/L	1		625.1 SIM	Total/NA
Chloride	8.3		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.84		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate - DL	120		2.0	0.47	mg/L	2		300.0	Total/NA
Nitrate Nitrite as N	0.84		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	1.7	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Iron	13	J,DX	20	3.7	ug/L	1		200.8	Total Recoverable
Turbidity	0.55		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	320		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall002_20230121_Comp_F

Lab Sample ID: 570-124887-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.5	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Iron	4.7	J,DX BU	20	3.7	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

Date Collected: 01/21/23 07:35

Matrix: Water

Date Received: 01/21/23 11:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.95	0.13	ug/L		01/24/23 08:32	02/02/23 20:48	1
2,4-Dinitrotoluene	0.12	J,DX	0.19	0.11	ug/L		01/24/23 08:32	02/02/23 20:48	1
Bis(2-ethylhexyl) phthalate	ND		4.7	3.4	ug/L		01/24/23 08:32	02/02/23 20:48	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		01/24/23 08:32	02/02/23 20:48	1
Pentachlorophenol	ND		0.95	0.80	ug/L		01/24/23 08:32	02/02/23 20:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	60		31 - 120	01/24/23 08:32	02/02/23 20:48	1
Phenol-d6 (Surr)	26		10 - 120	01/24/23 08:32	02/02/23 20:48	1
p-Terphenyl-d14 (Surr)	46		45 - 120	01/24/23 08:32	02/02/23 20:48	1
2,4,6-Tribromophenol	80		28 - 127	01/24/23 08:32	02/02/23 20:48	1
2-Fluorophenol	41		17 - 120	01/24/23 08:32	02/02/23 20:48	1
Nitrobenzene-d5	69		27 - 120	01/24/23 08:32	02/02/23 20:48	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 40CFR136A 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230121_Comp

Date Collected: 01/21/23 07:35

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		01/23/23 18:56	01/31/23 15:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Tetrachloro-m-xylene</i>	61		20 - 139				01/23/23 18:56	01/31/23 15:38	1
<i>DCB Decachlorobiphenyl (Surr)</i>	52		20 - 154				01/23/23 18:56	01/31/23 15:38	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230121_Comp

Date Collected: 01/21/23 07:35

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.3		1.0	0.36	mg/L			01/21/23 12:25	1
Nitrite as N	ND		0.10	0.043	mg/L			01/21/23 12:25	1
Nitrate as N	0.84		0.10	0.020	mg/L			01/21/23 12:25	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: EPA 300.0 - Anions, Ion Chromatography - DL

Client Sample ID: Outfall002_20230121_Comp

Date Collected: 01/21/23 07:35

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	120		2.0	0.47	mg/L			01/23/23 23:24	2

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230121_Comp

Date Collected: 01/21/23 07:35

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/27/23 05:17	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

Date Collected: 01/21/23 07:35

Matrix: Water

Date Received: 01/21/23 11:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.84		0.10	0.020	mg/L			01/24/23 12:20	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230121_Comp

Date Collected: 01/21/23 07:35

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		01/24/23 09:53	01/24/23 14:17	1
Copper	1.7	J,DX	2.0	0.32	ug/L		01/24/23 09:53	01/24/23 14:17	1
Lead	ND		1.0	0.12	ug/L		01/24/23 09:53	01/24/23 14:17	1
Selenium	ND		2.0	0.52	ug/L		01/24/23 09:53	01/24/23 14:17	1
Iron	13	J,DX	20	3.7	ug/L		01/24/23 09:53	01/24/23 14:17	1
Zinc	ND		20	2.8	ug/L		01/24/23 09:53	01/24/23 14:17	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230121_Comp_F

Date Collected: 01/21/23 07:35

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	BU	1.0	0.13	ug/L			01/25/23 14:46	1
Copper	1.5	J,DX BU	2.0	0.32	ug/L			01/25/23 14:46	1
Lead	ND	BU	1.0	0.12	ug/L			01/25/23 14:46	1
Selenium	ND	BU	2.0	0.52	ug/L			01/25/23 14:46	1
Iron	4.7	J,DX BU	20	3.7	ug/L			01/25/23 14:46	1
Zinc	ND	BU	20	2.8	ug/L			01/25/23 14:46	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230121_Comp
Date Collected: 01/21/23 07:35
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	IB	0.20	0.12	ug/L		01/24/23 17:46	01/25/23 16:00	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230121_Comp_F
Date Collected: 01/21/23 07:35
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/24/23 18:15	01/25/23 15:31	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

General Chemistry

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

Date Collected: 01/21/23 07:35

Matrix: Water

Date Received: 01/21/23 11:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		01/30/23 12:27	01/30/23 14:34	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/23/23 15:12	1
Turbidity (SM 2130B)	0.55		0.05	0.05	NTU			01/21/23 15:04	1
Total Dissolved Solids (SM 2540C)	320		10	8.7	mg/L			01/24/23 18:23	1
Total Suspended Solids (SM 2540D)	ND		1.0	0.83	mg/L			01/23/23 16:51	1
MBAS (SM 5540C)	ND		0.30	0.054	mg/L		01/21/23 15:20	01/21/23 16:45	1
Biochemical Oxygen Demand (SM5210B)	ND		2.0	1.0	mg/L			01/21/23 13:39	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-124887-1	Outfall002_20230121_Comp	60	26	46	80	41	69
LCS 570-298062/2-A	Lab Control Sample	74	37	84	89	57	72
LCSD 570-298062/3-A	Lab Control Sample Dup	77	39	87	94	61	75
MB 570-298062/1-A	Method Blank	67	34	82	83	54	80

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
PHL6 = Phenol-d6 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX1 (20-139)	DCB1 (20-154)
570-124887-1	Outfall002_20230121_Comp	61	52
LCS 570-297984/2-A	Lab Control Sample	101	110
LCSD 570-297984/3-A	Lab Control Sample Dup	92	96
MB 570-297984/1-A	Method Blank	70	86

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-298062/1-A
Matrix: Water
Analysis Batch: 300591

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298062

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		01/24/23 08:32	02/02/23 14:02	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		01/24/23 08:32	02/02/23 14:02	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		01/24/23 08:32	02/02/23 14:02	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		01/24/23 08:32	02/02/23 14:02	1
Pentachlorophenol	ND		1.0	0.84	ug/L		01/24/23 08:32	02/02/23 14:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	67		31 - 120	01/24/23 08:32	02/02/23 14:02	1
Phenol-d6 (Surr)	34		10 - 120	01/24/23 08:32	02/02/23 14:02	1
p-Terphenyl-d14 (Surr)	82		45 - 120	01/24/23 08:32	02/02/23 14:02	1
2,4,6-Tribromophenol	83		28 - 127	01/24/23 08:32	02/02/23 14:02	1
2-Fluorophenol	54		17 - 120	01/24/23 08:32	02/02/23 14:02	1
Nitrobenzene-d5	80		27 - 120	01/24/23 08:32	02/02/23 14:02	1

Lab Sample ID: LCS 570-298062/2-A
Matrix: Water
Analysis Batch: 300591

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298062

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	18.2		ug/L		91	52 - 129
2,4-Dinitrotoluene	20.0	19.8		ug/L		99	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	19.5		ug/L		97	29 - 137
N-Nitrosodimethylamine	20.0	11.8		ug/L		59	20 - 120
Pentachlorophenol	20.0	16.5		ug/L		83	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	74		31 - 120
Phenol-d6 (Surr)	37		10 - 120
p-Terphenyl-d14 (Surr)	84		45 - 120
2,4,6-Tribromophenol	89		28 - 127
2-Fluorophenol	57		17 - 120
Nitrobenzene-d5	72		27 - 120

Lab Sample ID: LCSD 570-298062/3-A
Matrix: Water
Analysis Batch: 300591

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298062

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	19.0		ug/L		95	52 - 129	5	35
2,4-Dinitrotoluene	20.0	20.3		ug/L		102	48 - 127	3	25
Bis(2-ethylhexyl) phthalate	20.0	20.2		ug/L		101	29 - 137	4	50
N-Nitrosodimethylamine	20.0	12.3		ug/L		62	20 - 120	5	21
Pentachlorophenol	20.0	18.1		ug/L		91	38 - 152	9	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	77		31 - 120
Phenol-d6 (Surr)	39		10 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-298062/3-A
 Matrix: Water
 Analysis Batch: 300591

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 298062

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
p-Terphenyl-d14 (Surr)	87		45 - 120
2,4,6-Tribromophenol	94		28 - 127
2-Fluorophenol	61		17 - 120
Nitrobenzene-d5	75		27 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-297984/1-A
 Matrix: Water
 Analysis Batch: 299101

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 297984

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		01/23/23 18:55	01/27/23 15:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	70		20 - 139	01/23/23 18:55	01/27/23 15:42	1
DCB Decachlorobiphenyl (Surr)	86		20 - 154	01/23/23 18:55	01/27/23 15:42	1

Lab Sample ID: LCS 570-297984/2-A
 Matrix: Water
 Analysis Batch: 299101

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 297984

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0307		ug/L		92	37 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	101		20 - 139
DCB Decachlorobiphenyl (Surr)	110		20 - 154

Lab Sample ID: LCSD 570-297984/3-A
 Matrix: Water
 Analysis Batch: 299101

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 297984

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	0.0333	0.0304		ug/L		91	37 - 140	1	36

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	92		20 - 139
DCB Decachlorobiphenyl (Surr)	96		20 - 154

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-297605/5
 Matrix: Water
 Analysis Batch: 297605

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			01/21/23 10:44	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 570-297605/5
Matrix: Water
Analysis Batch: 297605

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.10	0.020	mg/L			01/21/23 10:44	1

Lab Sample ID: LCS 570-297605/6
Matrix: Water
Analysis Batch: 297605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.49		mg/L		100	90 - 110
Nitrate as N	5.00	4.97		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-297605/7
Matrix: Water
Analysis Batch: 297605

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.48		mg/L		99	90 - 110	0	15
Nitrate as N	5.00	4.97		mg/L		99	90 - 110	0	15

Lab Sample ID: 570-124967-A-1 MS
Matrix: Water
Analysis Batch: 297605

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	0.044	J,DX	2.50	2.57		mg/L		101	80 - 120
Nitrate as N	0.33		5.00	5.43		mg/L		102	80 - 120

Lab Sample ID: 570-124967-A-1 MSD
Matrix: Water
Analysis Batch: 297605

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	0.044	J,DX	2.50	2.55		mg/L		100	80 - 120	1	20
Nitrate as N	0.33		5.00	5.45		mg/L		102	80 - 120	0	20

Lab Sample ID: MB 570-297606/5
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			01/21/23 10:44	1
Sulfate	ND		1.0	0.24	mg/L			01/21/23 10:44	1

Lab Sample ID: LCS 570-297606/6
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.9		mg/L		100	90 - 110
Sulfate	50.0	50.2		mg/L		100	90 - 110

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 570-297606/7
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	50.0		mg/L		100	90 - 110	0	15
Sulfate	50.0	50.1		mg/L		100	90 - 110	0	15

Lab Sample ID: 570-124967-A-1 MS
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.6		50.0	55.3		mg/L		103	80 - 120
Sulfate	10		50.0	63.2		mg/L		106	80 - 120

Lab Sample ID: 570-124967-A-1 MSD
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	3.6		50.0	55.2		mg/L		103	80 - 120	0	20
Sulfate	10		50.0	63.2		mg/L		106	80 - 120	0	20

Lab Sample ID: MB 570-297671/5
Matrix: Water
Analysis Batch: 297671

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.24	mg/L			01/23/23 07:14	1

Lab Sample ID: LCS 570-297671/6
Matrix: Water
Analysis Batch: 297671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	50.0	50.7		mg/L		101	90 - 110

Lab Sample ID: LCSD 570-297671/7
Matrix: Water
Analysis Batch: 297671

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	50.0	50.8		mg/L		102	90 - 110	0	15

Lab Sample ID: 570-124934-D-2 MS
Matrix: Water
Analysis Batch: 297671

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	36000		50.0	33600	BB	mg/L		-4496	80 - 120
Sulfate	17000		50.0	16200	BB	mg/L		-2028	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 570-124934-D-2 MSD
 Matrix: Water
 Analysis Batch: 297671

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	36000		50.0	336000	BB BA	mg/L		60014	80 - 120	164	20
Sulfate	17000		50.0	163000	BB BA	mg/L		29144	80 - 120	164	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-298791/7
 Matrix: Water
 Analysis Batch: 298791

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/27/23 01:50	1

Lab Sample ID: LCS 570-298791/8
 Matrix: Water
 Analysis Batch: 298791

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	24.7		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-298791/9
 Matrix: Water
 Analysis Batch: 298791

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	25.4		ug/L		102	85 - 115	3	15

Lab Sample ID: 570-125345-D-2 MS
 Matrix: Water
 Analysis Batch: 298791

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	41		50.0	94.2		ug/L		107	80 - 120

Lab Sample ID: 570-125345-D-2 MSD
 Matrix: Water
 Analysis Batch: 298791

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	41		50.0	93.8		ug/L		106	80 - 120	0	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-298096/1-A
 Matrix: Water
 Analysis Batch: 298201

Client Sample ID: Method Blank
 Prep Type: Total Recoverable
 Prep Batch: 298096

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		01/24/23 09:53	01/24/23 13:19	1
Copper	ND		2.0	0.32	ug/L		01/24/23 09:53	01/24/23 13:19	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-298096/1-A
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.142	J,DX	1.0	0.12	ug/L		01/24/23 09:53	01/24/23 13:19	1
Selenium	ND		2.0	0.52	ug/L		01/24/23 09:53	01/24/23 13:19	1
Iron	ND		20	3.7	ug/L		01/24/23 09:53	01/24/23 13:19	1
Zinc	ND		20	2.8	ug/L		01/24/23 09:53	01/24/23 13:19	1

Lab Sample ID: LCS 570-298096/2-A
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	81.9		ug/L		102	85 - 115
Copper	80.0	79.1		ug/L		99	85 - 115
Lead	80.0	80.5		ug/L		101	85 - 115
Selenium	80.0	80.1		ug/L		100	85 - 115
Iron	800	839		ug/L		105	85 - 115
Zinc	80.0	79.8		ug/L		100	85 - 115

Lab Sample ID: LCSD 570-298096/3-A
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Cadmium	80.0	80.8		ug/L		101	85 - 115	1	20
Copper	80.0	78.9		ug/L		99	85 - 115	0	20
Lead	80.0	81.6		ug/L		102	85 - 115	1	20
Selenium	80.0	77.8		ug/L		97	85 - 115	3	20
Iron	800	829		ug/L		104	85 - 115	1	20
Zinc	80.0	79.8		ug/L		100	85 - 115	0	20

Lab Sample ID: 570-124890-D-1-C MS
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	81.0		ug/L		101	80 - 120
Copper	1.4	J,DX	80.0	80.8		ug/L		99	80 - 120
Lead	ND		80.0	81.5		ug/L		102	80 - 120
Selenium	ND		80.0	78.3		ug/L		98	80 - 120
Iron	21		800	849		ug/L		103	80 - 120
Zinc	ND		80.0	81.4		ug/L		102	80 - 120

Lab Sample ID: 570-124890-D-1-D MSD
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Cadmium	ND		80.0	82.1		ug/L		103	80 - 120	1	20
Copper	1.4	J,DX	80.0	82.9		ug/L		102	80 - 120	3	20
Lead	ND		80.0	82.5		ug/L		103	80 - 120	1	20
Selenium	ND		80.0	79.0		ug/L		99	80 - 120	1	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-124890-D-1-D MSD
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	21		800	878		ug/L		107	80 - 120	3	20
Zinc	ND		80.0	82.0		ug/L		102	80 - 120	1	20

Lab Sample ID: MB 570-298550/1-A
Matrix: Water
Analysis Batch: 298597

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			01/25/23 14:41	1
Copper	ND		2.0	0.32	ug/L			01/25/23 14:41	1
Lead	ND		1.0	0.12	ug/L			01/25/23 14:41	1
Selenium	ND		2.0	0.52	ug/L			01/25/23 14:41	1
Iron	ND		20	3.7	ug/L			01/25/23 14:41	1
Zinc	ND		20	2.8	ug/L			01/25/23 14:41	1

Lab Sample ID: LCS 570-298550/2-A
Matrix: Water
Analysis Batch: 298597

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	77.8		ug/L		97	85 - 115
Copper	80.0	72.8		ug/L		91	85 - 115
Lead	80.0	78.4		ug/L		98	85 - 115
Selenium	80.0	77.7		ug/L		97	85 - 115
Iron	800	783		ug/L		98	85 - 115
Zinc	80.0	74.9		ug/L		94	85 - 115

Lab Sample ID: LCSD 570-298550/3-A
Matrix: Water
Analysis Batch: 298597

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	77.6		ug/L		97	85 - 115	0	20
Copper	80.0	73.5		ug/L		92	85 - 115	1	20
Lead	80.0	78.0		ug/L		97	85 - 115	1	20
Selenium	80.0	74.9		ug/L		94	85 - 115	4	20
Iron	800	768		ug/L		96	85 - 115	2	20
Zinc	80.0	75.4		ug/L		94	85 - 115	1	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-298289/1-A
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298289

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/24/23 17:46	01/25/23 15:38	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-298289/2-A
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298289

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.65		ug/L		108	85 - 115

Lab Sample ID: LCSD 570-298289/3-A
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298289

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.61		ug/L		108	85 - 115	0	10

Lab Sample ID: MB 570-298285/1-B
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 298287

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/24/23 18:15	01/25/23 15:14	1

Lab Sample ID: LCS 570-298285/2-B
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 298287

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.38		ug/L		105	85 - 115

Lab Sample ID: LCSD 570-298285/3-B
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 298287

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.19		ug/L		102	85 - 115	2	10

Lab Sample ID: 570-124873-A-3-E MS
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 298287

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.36		ug/L		105	85 - 115

Lab Sample ID: 570-124873-A-3-F MSD
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 298287

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.47		ug/L		106	85 - 115	1	10

Lab Sample ID: 570-124653-L-2-D MS
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 298289

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.55		ug/L		107	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: 570-124653-L-2-E MSD
 Matrix: Water
 Analysis Batch: 298644

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Dissolved
 Prep Batch: 298289

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.52	IB	ug/L		106	85 - 115	0	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-299646/5-A
 Matrix: Water
 Analysis Batch: 299684

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 299646

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		01/30/23 12:27	01/30/23 13:57	1

Lab Sample ID: LCS 570-299646/6-A
 Matrix: Water
 Analysis Batch: 299684

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 299646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.475		mg/L		95	90 - 110

Lab Sample ID: LCSD 570-299646/7-A
 Matrix: Water
 Analysis Batch: 299684

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 299646

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.482		mg/L		96	90 - 110	1	20

Lab Sample ID: 570-124924-X-1-A MS
 Matrix: Water
 Analysis Batch: 299684

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 299646

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	ND		0.500	0.495		mg/L		99	90 - 110

Lab Sample ID: 570-124924-X-1-B MSD
 Matrix: Water
 Analysis Batch: 299684

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 299646

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	ND		0.500	0.493		mg/L		99	90 - 110	1	25

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-297946/11
 Matrix: Water
 Analysis Batch: 297946

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			01/23/23 13:11	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: LCS 570-297946/14
Matrix: Water
Analysis Batch: 297946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	267		ug/L		107	90 - 110

Lab Sample ID: LCSD 570-297946/13
Matrix: Water
Analysis Batch: 297946

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	248		ug/L		99	90 - 110	7	20

Lab Sample ID: MRL 570-297946/10
Matrix: Water
Analysis Batch: 297946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	4.66	J,DX	ug/L		93	50 - 150

Lab Sample ID: 570-124243-S-1 MS
Matrix: Water
Analysis Batch: 297946

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	ND		250	216		ug/L		86	70 - 130

Lab Sample ID: 570-124243-S-1 MSD
Matrix: Water
Analysis Batch: 297946

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	ND		250	227		ug/L		91	70 - 130	5	30

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-297650/1
Matrix: Water
Analysis Batch: 297650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		101.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-297650/2
Matrix: Water
Analysis Batch: 297650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		101.0	99.0 - 101.0

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: SM 2130B - Turbidity (Continued)

Lab Sample ID: LCSSRM 570-297650/3
 Matrix: Water
 Analysis Batch: 297650

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

Lab Sample ID: 570-124868-E-1 DU
 Matrix: Water
 Analysis Batch: 297650

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	9.0		9.0		NTU		0.1	25

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-298303/1
 Matrix: Water
 Analysis Batch: 298303

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			01/24/23 18:23	1

Lab Sample ID: LCS 570-298303/2
 Matrix: Water
 Analysis Batch: 298303

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1000		mg/L		100	84 - 108

Lab Sample ID: LCSD 570-298303/3
 Matrix: Water
 Analysis Batch: 298303

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1020		mg/L		102	84 - 108	2	10

Lab Sample ID: 570-124934-C-2 DU
 Matrix: Water
 Analysis Batch: 298303

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	100000		101000		mg/L		3	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-297947/1
 Matrix: Water
 Analysis Batch: 297947

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			01/23/23 16:51	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 570-297947/2
 Matrix: Water
 Analysis Batch: 297947

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	92.0		mg/L		92	77 - 116

Lab Sample ID: LCSD 570-297947/3
 Matrix: Water
 Analysis Batch: 297947

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	93.0		mg/L		93	77 - 116	1	10

Lab Sample ID: 570-124773-C-1 DU
 Matrix: Water
 Analysis Batch: 297947

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	46		43.0		mg/L		7	10

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-297652/5-A
 Matrix: Water
 Analysis Batch: 297651

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 297652

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.30	0.054	mg/L		01/21/23 15:20	01/21/23 16:36	1

Lab Sample ID: LCS 570-297652/6-A
 Matrix: Water
 Analysis Batch: 297651

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 297652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	1.00	1.06		mg/L		106	85 - 111

Lab Sample ID: LCSD 570-297652/7-A
 Matrix: Water
 Analysis Batch: 297651

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 297652

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	1.00	1.06		mg/L		106	85 - 111	0	7

Lab Sample ID: 570-124873-A-1-A MS
 Matrix: Water
 Analysis Batch: 297651

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 297652

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	ND		1.00	1.16		mg/L		116	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: 570-124873-A-1-B MSD
 Matrix: Water
 Analysis Batch: 297651

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 297652

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	ND		1.00	1.15		mg/L		115	75 - 125	1	12

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 570-298979/2
 Matrix: Water
 Analysis Batch: 298979

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L			01/21/23 09:22	1

Lab Sample ID: LCS 570-298979/4
 Matrix: Water
 Analysis Batch: 298979

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	218		mg/L		110	84.6 - 115.4

Lab Sample ID: 570-124873-I-1 DU
 Matrix: Water
 Analysis Batch: 298979

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	ND		ND		mg/L		NC	25

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

GC/MS Semi VOA

Prep Batch: 298062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	625	
MB 570-298062/1-A	Method Blank	Total/NA	Water	625	
LCS 570-298062/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-298062/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 300591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	625.1 SIM	298062
MB 570-298062/1-A	Method Blank	Total/NA	Water	625.1 SIM	298062
LCS 570-298062/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	298062
LCSD 570-298062/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	298062

GC Semi VOA

Prep Batch: 297984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	608	
MB 570-297984/1-A	Method Blank	Total/NA	Water	608	
LCS 570-297984/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-297984/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 299101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-297984/1-A	Method Blank	Total/NA	Water	608.3	297984
LCS 570-297984/2-A	Lab Control Sample	Total/NA	Water	608.3	297984
LCSD 570-297984/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	297984

Analysis Batch: 299773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	608.3	297984

HPLC/IC

Analysis Batch: 297605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	300.0	
MB 570-297605/5	Method Blank	Total/NA	Water	300.0	
LCS 570-297605/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-297605/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-124967-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-124967-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 297606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	300.0	
MB 570-297606/5	Method Blank	Total/NA	Water	300.0	
LCS 570-297606/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-297606/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-124967-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-124967-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

HPLC/IC

Analysis Batch: 297671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1 - DL	Outfall002_20230121_Comp	Total/NA	Water	300.0	
MB 570-297671/5	Method Blank	Total/NA	Water	300.0	
LCS 570-297671/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-297671/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-124934-D-2 MS	Matrix Spike	Total/NA	Water	300.0	
570-124934-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 298163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	NO2NO3 Calc	

Analysis Batch: 298791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	314.0	
MB 570-298791/7	Method Blank	Total/NA	Water	314.0	
LCS 570-298791/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-298791/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-125345-D-2 MS	Matrix Spike	Total/NA	Water	314.0	
570-125345-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Metals

Prep Batch: 298096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total Recoverable	Water	200.8	
MB 570-298096/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-298096/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-298096/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-124890-D-1-C MS	Matrix Spike	Total Recoverable	Water	200.8	
570-124890-D-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	

Analysis Batch: 298201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-298096/1-A	Method Blank	Total Recoverable	Water	200.8	298096
LCS 570-298096/2-A	Lab Control Sample	Total Recoverable	Water	200.8	298096
LCSD 570-298096/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	298096
570-124890-D-1-C MS	Matrix Spike	Total Recoverable	Water	200.8	298096
570-124890-D-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	298096

Analysis Batch: 298215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total Recoverable	Water	200.8	298096

Filtration Batch: 298285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-3	Outfall002_20230121_Comp_F	Dissolved	Water	Filtration	
MB 570-298285/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-298285/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-298285/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-124873-A-3-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-124873-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Metals

Prep Batch: 298287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-3	Outfall002_20230121_Comp_F	Dissolved	Water	245.1	298285
MB 570-298285/1-B	Method Blank	Dissolved	Water	245.1	298285
LCS 570-298285/2-B	Lab Control Sample	Dissolved	Water	245.1	298285
LCSD 570-298285/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	298285
570-124873-A-3-E MS	Matrix Spike	Dissolved	Water	245.1	298285
570-124873-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	298285

Prep Batch: 298289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	245.1	
MB 570-298289/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-298289/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-298289/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-124653-L-2-D MS	Matrix Spike	Dissolved	Water	245.1	
570-124653-L-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	

Filtration Batch: 298550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-3	Outfall002_20230121_Comp_F	Dissolved	Water	Filtration	
MB 570-298550/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-298550/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-298550/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	

Analysis Batch: 298596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-3	Outfall002_20230121_Comp_F	Dissolved	Water	200.8	298550

Analysis Batch: 298597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-298550/1-A	Method Blank	Dissolved	Water	200.8	298550
LCS 570-298550/2-A	Lab Control Sample	Dissolved	Water	200.8	298550
LCSD 570-298550/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	298550

Analysis Batch: 298644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	245.1	298289
570-124887-3	Outfall002_20230121_Comp_F	Dissolved	Water	245.1	298287
MB 570-298285/1-B	Method Blank	Dissolved	Water	245.1	298287
MB 570-298289/1-A	Method Blank	Total/NA	Water	245.1	298289
LCS 570-298285/2-B	Lab Control Sample	Dissolved	Water	245.1	298287
LCS 570-298289/2-A	Lab Control Sample	Total/NA	Water	245.1	298289
LCSD 570-298285/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	298287
LCSD 570-298289/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	298289
570-124653-L-2-D MS	Matrix Spike	Dissolved	Water	245.1	298289
570-124653-L-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	298289
570-124873-A-3-E MS	Matrix Spike	Dissolved	Water	245.1	298287
570-124873-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	298287

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

General Chemistry

Analysis Batch: 297650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-297650/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-297650/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-297650/3	Lab Control Sample	Total/NA	Water	SM 2130B	
570-124868-E-1 DU	Duplicate	Total/NA	Water	SM 2130B	

Analysis Batch: 297651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	SM 5540C	297652
MB 570-297652/5-A	Method Blank	Total/NA	Water	SM 5540C	297652
LCS 570-297652/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	297652
LCSD 570-297652/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	297652
570-124873-A-1-A MS	Matrix Spike	Total/NA	Water	SM 5540C	297652
570-124873-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	297652

Prep Batch: 297652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	SM 5540C	
MB 570-297652/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-297652/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-297652/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-124873-A-1-A MS	Matrix Spike	Total/NA	Water	SM 5540C	
570-124873-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5540C	

Analysis Batch: 297946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	Kelada 01	
MB 570-297946/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-297946/14	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-297946/13	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-297946/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-124243-S-1 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-124243-S-1 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 297947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	SM 2540D	
MB 570-297947/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-297947/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-297947/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-124773-C-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 298303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	SM 2540C	
MB 570-298303/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-298303/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-298303/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-124934-C-2 DU	Duplicate	Total/NA	Water	SM 2540C	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

General Chemistry

Analysis Batch: 298979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	SM5210B	
USB 570-298979/2	Method Blank	Total/NA	Water	SM5210B	
LCS 570-298979/4	Lab Control Sample	Total/NA	Water	SM5210B	
570-124873-I-1 DU	Duplicate	Total/NA	Water	SM5210B	

Prep Batch: 299646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-299646/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-299646/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-299646/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
570-124924-X-1-A MS	Matrix Spike	Total/NA	Water	Distill/Ammonia	
570-124924-X-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 299684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	350.1	299646
MB 570-299646/5-A	Method Blank	Total/NA	Water	350.1	299646
LCS 570-299646/6-A	Lab Control Sample	Total/NA	Water	350.1	299646
LCSD 570-299646/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	299646
570-124924-X-1-A MS	Matrix Spike	Total/NA	Water	350.1	299646
570-124924-X-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	299646

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

Date Collected: 01/21/23 07:35

Matrix: Water

Date Received: 01/21/23 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1053.6 mL	2 mL	298062	01/24/23 08:32	OAJ3	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	300591	02/02/23 20:48	ULLI	EET CAL 4
		Instrument ID: GCMSJJJ								
Total/NA	Prep	608			1500 mL	1 mL	297984	01/23/23 18:56	USUL	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	299773	01/31/23 15:38	N5Y3	EET CAL 4
		Instrument ID: GC52A								
Total/NA	Analysis	300.0	DL	2	4 mL	4 mL	297671	01/23/23 23:24	PS	EET CAL 4
		Instrument ID: IC10								
Total/NA	Analysis	300.0		1	4 mL	4 mL	297605	01/21/23 12:25	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	300.0		1	4 mL	4 mL	297606	01/21/23 12:25	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	314.0		1	4 mL	4 mL	298791	01/27/23 05:17	PS	EET CAL 4
		Instrument ID: IC13								
Total/NA	Analysis	NO2NO3 Calc		1			298163	01/24/23 12:20	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total Recoverable	Prep	200.8			50 mL	50 mL	298096	01/24/23 09:53	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			298215	01/24/23 14:17	Y2WS	EET CAL 4
		Instrument ID: ICPMS09								
Total/NA	Prep	245.1			25 mL	50 mL	298289	01/24/23 17:46	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			298644	01/25/23 16:00	C0YH	EET CAL 4
		Instrument ID: HG8								
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	299646	01/30/23 12:27	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	299684	01/30/23 14:34	UXCH	EET CAL 4
		Instrument ID: ACA2								
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	297946	01/23/23 15:12	GG0B	EET CAL 4
		Instrument ID: LACHAT01								
Total/NA	Analysis	SM 2130B		1			297650	01/21/23 15:04	ZVB7	EET CAL 4
		Instrument ID: TUR4								
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	298303	01/24/23 18:23	ZL7L	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	297947	01/23/23 16:51	UWCT	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Prep	SM 5540C			100 mL	100 mL	297652	01/21/23 15:20	ZVB7	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	297651	01/21/23 16:45	ZVB7	EET CAL 4
		Instrument ID: UV9								
Total/NA	Analysis	SM5210B		1			298979	01/21/23 13:39	U7UR	EET CAL 4
		Instrument ID: BOD3								

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Client Sample ID: Outfall002_20230121_Comp_F

Lab Sample ID: 570-124887-3

Date Collected: 01/21/23 07:35

Matrix: Water

Date Received: 01/21/23 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	298550	01/25/23 13:28	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			298596	01/25/23 14:46	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Dissolved	Filtration	Filtration			25 mL	25 mL	298285	01/24/23 17:42	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	298287	01/24/23 18:15	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			298644	01/25/23 15:31	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	40CFR136A	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
SM5210B	BOD, 5 Day	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	EET CAL 4
625	Liquid-Liquid Extraction	40CFR136A	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
 EPA = US Environmental Protection Agency
 None = None
 SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124887-1	Outfall002_20230121_Comp	Water	01/21/23 07:35	01/21/23 11:40
570-124887-3	Outfall002_20230121_Comp_F	Water	01/21/23 07:35	01/21/23 11:40

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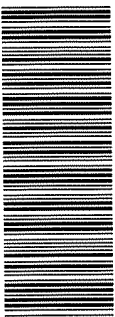
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CHAIN OF CUSTODY FORM

570-124887 Chain of Custody

Euro Ins Calscience Irvine

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 310 San Diego, CA 92108		Project: Hoeng-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 013 Outfall 002 Comp		ANALYSIS REQUIRED												Comments				
Euro Ins Calscience Irvine Contact: Christian Bondoc Irvine CA 92614 Tel: 949-280-3216		Project Manager: Katherine Mille 520.219.8606 520.904.6944 (cell) Field Manager: Mark Dominick 978.214.5033 818.599.0702 (cell)		Total Recoverable Metals (E200.7) Fe	Total Recoverable Metals, Mercury (E245.1) (E200.7) Fe	2,4,6-TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	alpha-BHC (E609)	Ammonia-N (350.2)	TSS (160.2 (SM2540D))	Turbidity TDS (SM2540C/E180.1)	Chloride (F200.1)	Chloride, Nitrate-N, Nitrite-N, NO3+NO2-N (F200.1)	Surfactants (MBAS) (SM540C/E425.1) (E405.1 (SM5210B_BODCalc))	BOD5 (20 degrees C) (E1613B)	TCPD (and all congeners) (E1613B)		Total Recoverable Metals (E200.8) Zn, Cu, Pb, Cd, Se	Total Recoverable Metals (E200.7) Fe		
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD												
Outfall 002_2-03012L_Comp		1/21/2023 / 10:35	WM	500 mL Poly	1	HNO3	50	No	Outfall 002 analyze for Fe.											
			WM	1 L Glass Amber	2	None	1-0	No												
			WM	1 L Poly	1	None	1-5	No												
			WM	500 mL Poly	2	None	1-0	No												
			WM	500 mL Poly	2	None	1-0	No												
			WM	500 mL Poly	1	None	1-0	No	48-hour holding time for turbidity											
			WM	500 mL Poly	1	H2SO4	110	No	48-hour holding time for turbidity											
			WM	1 L Glass Amber	2	None	1-0	No												
			WM	1 L Glass Amber	2	None	1-0	No												
			WM	1 L Poly	1	None	1-5	No												
			WM	1 L Glass Amber	2	None	1-0	No												
			WM	500 mL Poly	2	None	1-0	No												
			WM	500 mL Poly	2	None	1-0	No												
			WM	1 L Glass Amber	2	None	1-0	No												
			WM	1 L Glass Amber	2	None	1-0	No												

Relinquished By: STEVEN SUMNER Date/Time: 1-21-23/40 Company: HALEY ALDRICH

Relinquished By: RC Date/Time: 1-21-23 11:40 Company: RC

Relinquished By: _____ Date/Time: _____ Company: _____

Received By: _____ Date/Time: _____

Received By: _____ Date/Time: _____

Received By: _____ Date/Time: _____

Time-around time: (Check) _____
 24 Hour _____ 72 Hour _____ 10 Day _____ X
 48 Hour _____ 5 Day _____ Normal _____

Sample Integrity: (Check)
 In act: _____ On Ice: _____
 State samples for 6 months: _____
 Data Requirements: (Check)
 AI Level IV: _____ X

1-4/1-4/ 1-1/1-1 SC 11



124887

CHAIN OF CUSTODY FORM

Eurofins CalScience Irvine

Client Name/Address: Haleir & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine: Outfall 001, 002, 011, 013 Outfall 002 Comp		ANALYSIS REQU RED	
Eurofins CalScience Irvine Contact: Christian Bondoc Irvine CA 92614 Tel: 549-260-3218		Project Manager: Katherine Miller 520.239.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033 818.589.0702 (cell)		Chronic Toxicity Selenium M3117+M3115 (EPA-821-R-02-013)	
Sampling Location: Outfall002_20230121_Comp_F		Sampling Date/Time: 1/21/2023		Total Dissolved Metals (E200.7) Fe	
Sample ID: Outfall002_20230121_Comp_F		Sampling Matrix: WM		Total Dissolved Metals (E200.7) Cu, Pb, Cd, Se	
Container Type: 1L Poly		Preservative: None		Cyanide (SM4500-CN-E / E335.2)	
Container Volume: 1L		# of Containers: 1		Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	
Container Material: WM		Matrix: WM		ABC Labs in Ventura, CA	
Container Label: 10735		Matrix: WM		Filter and preserve w/in 24hrs of receipt at lab. Outfall 002 analyz for Fe.	
Container Label: 10735		Matrix: WM		Sample receiving (DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
Container Label: 10735		Matrix: WM		Unfiltered and unreserved analysis. Separate RUC onto another work order. Analyze duplicate, not MS/MSD.	
Container Label: 10735		Matrix: WM		Only test if first or second rain events of the year.	
Container Label: 10735		Matrix: WM		Outfall 002 Analyz for Fe.	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Received By: *EC* Date/Time: 1-21-23 11:40

Received By: *ALBERT* Date/Time: 1-21-23/1140

Received By: *ALBERT* Date/Time: 1-21-23/1140

Turnaround Time (Check): 24 Hour 72 Hour 10 Day 48 Hour 5 Day 10 Day

Sample Integrity (Check): Intact On Ice Store samples for 6 months. Data Requirements (Check): No Level IV All Level IV



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra		570-204878 1
Company: TestAmerica Laboratories, Inc.		Phone:	E-Mail:	State of Origin	Page
Address: 13715 Rider Trail North,			Virendra.Patel@et.eurofins.com	California	Page 1 of 1
City: Earth City		Due Date Requested	Accreditations Required (See note)		
State, Zip: MO, 63045		2/24/2023	State Program - California		
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		TAT Requested (days):	Job #:		
Email:			570-124887-3		
Project Name: Boeing SSFL NPDES - Outfall 002 - Comp		PO #:	Preservation Codes		
Site:		WO #:	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		
		Project #: 44024446	M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)		
		SSOW#:	Analysis Requested		
		Sample Date	Total Number of Containers		
		1/21/23	2		
		Sample Time	Special Instructions/Note:		
		07:35 Pacific	Boeing SSFL, DO NOT FILTER, use prep date from preservation		
		Sample Type (C=Comp, G=grab)			
		Water			
		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=alk)			
		Field Filtered Sample (Yes or No)			
		X			
		Perform MS/MSD (Yes or No)			
		X			
		901 Cs/Fill_Geo_D K-40 and Csium-137			
		A01R_U/Evaporation Gross Alpha/Beta			
		900.0/Evaporation Gross Alpha/Beta			
		903.0/PreSep_21 Radium-226			
		904.0/PreSep_0 Radium-228			
		906.0/PreSep_7 Strontium-90			
		906.0/LSC_Dist_Susp Tritium			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately if all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *[Signature]* Date/Time: 1/21/23 1330 Company
 Relinquished by: _____ Date/Time: _____ Company
 Relinquished by: _____ Date/Time: _____ Company

Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No Cooler Temperature(s) °C and Other Remarks:



Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM:	Carrier Tracking No(s):		COC No:	
Client Contact: Shipping/Receiving Eurofins Environment Testing Northern Ca Address: 880 Riverside Parkway, West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email: Project Name: Boeing SSFL NPDES - Outfall 002 - Comp Site:		Patel, Virendra E-Mail: Virendra.Patel@et.eurofins.com State of Origin: California	Patel, Virendra E-Mail: Virendra.Patel@et.eurofins.com State of Origin: California			570-204885 1 Page: Page 1 of 1 Job #: 570-124887-2	Preservation Codes M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other
Due Date Requested 2/9/2023 TAT Requested (days)		Analysis Requested					
PO #:		Perform MS/MSD (Yes or No)	X	1613B/1613B_Box_Sep_P Standard List w/ Totals			
WO #:		Field Filtered Sample (Yes or No)	X	1613B/1613B_Box_Sep_P Standard List w/ Totals			
Project #:	44024446	Sample Date	1/21/23	Sample Time	07 35 Pacific	Water	
SSOW#:		Sample Date	1/21/23	Sample Time	07 35 Pacific	Water	
		Sample Identification - Client ID (Lab ID)	Outfall002_20230121_Comp (570-124887-1)				
		Sample Identification - Client ID (Lab ID)	Outfall002_20230121_Comp_Extra (570-124887-2)				
		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=air)					
		Sample Type (C=Comp, G=grab)					
		Preservation Code:					
		Total Number of Containers	2				
		Special Instructions/Note:	See OAS, Boeing_w/u to zero, ug/L, Use Boeing glassware				
		Special Instructions/Note:	See OAS, Boeing_w/u to zero, ug/L, Use Boeing glassware.				
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.							
Possible Hazard Identification Unconfirmed Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank 2 Special Instructions/QC Requirements:							
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Empty Kit Relinquished by: _____ Date: _____ Relinquished by: _____ Date/Time: _____ Relinquished by: _____ Date/Time: _____ Relinquished by: _____ Date/Time: _____ Custody Seals Intact: _____ Custody Seal No _____ Cooler Temperature(s) °C and Other Remarks:							



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124887-1

Login Number: 124887

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-124887-2

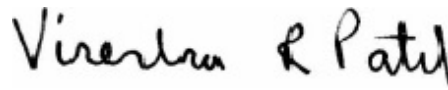
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Job ID: 570-124887-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-124887-2

Comments

No additional comments.

Receipt

The samples were received on 1/21/2023 11:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.4° C.

Dioxin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000024	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				1					
1,2,3,6,7,8-HxCDD	0.0000039	J,DX q MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8,9-HxCDD	0.0000031	J,DX q MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				8					
1,2,3,4,7,8-HxCDF	0.0000054	J,DX MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				5					
1,2,3,7,8,9-HxCDF	0.0000036	J,DX q MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				4					
2,3,4,6,7,8-HxCDF	0.0000024	J,DX q MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				2					
1,2,3,4,6,7,8-HpCDD	0.0000017	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				1					
1,2,3,4,6,7,8-HpCDF	0.0000095	J,DX q MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				8					
1,2,3,4,7,8,9-HpCDF	0.0000027	J,DX q MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				9					
OCDD	0.0000077	J,DX q MB	0.000095	0.0000004	ug/L	1		1613B	Total/NA
				1					
OCDF	0.0000012	J,DX MB	0.000095	0.0000002	ug/L	1		1613B	Total/NA
				6					
Total PeCDD	0.0000077	J,DX q	0.000047	0.0000003	ug/L	1		1613B	Total/NA
				0					
Total HxCDD	0.0000034	J,DX q MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				8					
Total HxCDF	0.0000011	J,DX q MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				2					
Total HpCDD	0.0000038	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				1					
Total HpCDF	0.0000016	J,DX q MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				8					

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

Date Collected: 01/21/23 07:35

Matrix: Water

Date Received: 01/21/23 11:40

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000006	ug/L		02/03/23 10:06	02/07/23 20:51	1
2,3,7,8-TCDF	ND		0.0000095	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,7,8-PeCDD	ND		0.000047	0.0000003	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,7,8-PeCDF	ND		0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
2,3,4,7,8-PeCDF	ND		0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,4,7,8-HxCDD	0.0000024	J,DX MB	0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,6,7,8-HxCDD	0.00000039	J,DX q MB	0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,7,8,9-HxCDD	0.00000031	J,DX q MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,4,7,8-HxCDF	0.00000054	J,DX MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,6,7,8-HxCDF	ND		0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,7,8,9-HxCDF	0.00000036	J,DX q MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
2,3,4,6,7,8-HxCDF	0.00000024	J,DX q MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,4,6,7,8-HpCDD	0.0000017	J,DX MB	0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,4,6,7,8-HpCDF	0.00000095	J,DX q MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
1,2,3,4,7,8,9-HpCDF	0.00000027	J,DX q MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
OCDD	0.0000077	J,DX q MB	0.000095	0.0000004	ug/L		02/03/23 10:06	02/07/23 20:51	1
OCDF	0.0000012	J,DX MB	0.000095	0.0000002	ug/L		02/03/23 10:06	02/07/23 20:51	1
Total TCDD	ND		0.0000095	0.0000006	ug/L		02/03/23 10:06	02/07/23 20:51	1
Total TCDF	ND		0.0000095	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
Total PeCDD	0.00000077	J,DX q	0.000047	0.0000003	ug/L		02/03/23 10:06	02/07/23 20:51	1
Total PeCDF	ND		0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
Total HxCDD	0.0000034	J,DX q MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
Total HxCDF	0.0000011	J,DX q MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
Total HpCDD	0.0000038	J,DX MB	0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 20:51	1
Total HpCDF	0.0000016	J,DX q MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 20:51	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	70		25 - 164				02/03/23 10:06	02/07/23 20:51	1
13C-2,3,7,8-TCDF	69		24 - 169				02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,7,8-PeCDD	72		25 - 181				02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,7,8-PeCDF	72		24 - 185				02/03/23 10:06	02/07/23 20:51	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230121_Comp
Date Collected: 01/21/23 07:35
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1
Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-2,3,4,7,8-PeCDF	66		21 - 178	02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,4,7,8-HxCDD	62		32 - 141	02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,6,7,8-HxCDD	72		28 - 130	02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,4,7,8-HxCDF	60		26 - 152	02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,6,7,8-HxCDF	71		26 - 123	02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,7,8,9-HxCDF	77		29 - 147	02/03/23 10:06	02/07/23 20:51	1
13C-2,3,4,6,7,8-HxCDF	78		28 - 136	02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,4,6,7,8-HpCDD	74		23 - 140	02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,4,6,7,8-HpCDF	66		28 - 143	02/03/23 10:06	02/07/23 20:51	1
13C-1,2,3,4,7,8,9-HpCDF	74		26 - 138	02/03/23 10:06	02/07/23 20:51	1
13C-OCDD	74		17 - 157	02/03/23 10:06	02/07/23 20:51	1
13C-OCDF	73		17 - 157	02/03/23 10:06	02/07/23 20:51	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	89		35 - 197	02/03/23 10:06	02/07/23 20:51	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-124887-1	Outfall002_20230121_Comp	89
MB 320-651610/1-A	Method Blank	91

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-651610/2-A	Lab Control Sample	89
LCSD 320-651610/3-A	Lab Control Sample Dup	91

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-124887-1	Outfall002_20230121_Comp	70	69	72	72	66	62	72	60
MB 320-651610/1-A	Method Blank	71	69	72	72	65	65	69	58

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-124887-1	Outfall002_20230121_Comp	71	77	78	74	66	74	74	73
MB 320-651610/1-A	Method Blank	70	78	78	71	64	72	71	70

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-651610/2-A	Lab Control Sample	67	66	70	69	68	67	72	62
LCSD 320-651610/3-A	Lab Control Sample Dup	71	69	74	73	69	65	74	62

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-651610/2-A	Lab Control Sample	71	75	74	69	66	70	71	70
LCSD 320-651610/3-A	Lab Control Sample Dup	73	78	78	73	67	74	76	74

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF

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Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-651610/1-A
Matrix: Water
Analysis Batch: 652417

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 651610

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,4,7,8-PeCDF	65		21 - 178	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,7,8-HxCDD	65		32 - 141	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,6,7,8-HxCDD	69		28 - 130	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,7,8-HxCDF	58		26 - 152	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,6,7,8-HxCDF	70		26 - 123	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,7,8,9-HxCDF	78		29 - 147	02/03/23 10:06	02/07/23 14:39	1
13C-2,3,4,6,7,8-HxCDF	78		28 - 136	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,6,7,8-HpCDD	71		23 - 140	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,6,7,8-HpCDF	64		28 - 143	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,7,8,9-HpCDF	72		26 - 138	02/03/23 10:06	02/07/23 14:39	1
13C-OCDD	71		17 - 157	02/03/23 10:06	02/07/23 14:39	1
13C-OCDF	70		17 - 157	02/03/23 10:06	02/07/23 14:39	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	91		35 - 197	02/03/23 10:06	02/07/23 14:39	1

Lab Sample ID: LCS 320-651610/2-A
Matrix: Water
Analysis Batch: 652417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 651610

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000226		ug/L		113	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00106		ug/L		106	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00107	MB	ug/L		107	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00107		ug/L		107	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00104	MB	ug/L		104	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00110	MB	ug/L		110	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00109	MB	ug/L		109	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00107	MB	ug/L		107	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00109	MB	ug/L		109	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00108	MB	ug/L		108	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00109	MB	ug/L		109	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00108	MB	ug/L		108	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00110	MB	ug/L		110	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00109	MB	ug/L		109	78 - 138
OCDD	0.00200	0.00214	MB	ug/L		107	78 - 144
OCDF	0.00200	0.00227	MB	ug/L		113	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	67		20 - 175
13C-2,3,7,8-TCDF	66		22 - 152
13C-1,2,3,7,8-PeCDD	70		21 - 227
13C-1,2,3,7,8-PeCDF	69		21 - 192
13C-2,3,4,7,8-PeCDF	68		13 - 328
13C-1,2,3,4,7,8-HxCDD	67		21 - 193
13C-1,2,3,6,7,8-HxCDD	72		25 - 163
13C-1,2,3,4,7,8-HxCDF	62		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-651610/2-A
Matrix: Water
Analysis Batch: 652417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 651610

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,6,7,8-HxCDF	71		21 - 159
13C-1,2,3,7,8,9-HxCDF	75		17 - 205
13C-2,3,4,6,7,8-HxCDF	74		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	69		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	66		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	70		20 - 186
13C-OCDD	71		13 - 199
13C-OCDF	70		13 - 199
Surrogate	LCS LCS		Limits
37Cl4-2,3,7,8-TCDD	89		31 - 191

Lab Sample ID: LCSD 320-651610/3-A
Matrix: Water
Analysis Batch: 652417

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 651610

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000220		ug/L		110	67 - 158	1	50	
2,3,7,8-TCDF	0.000200	0.000235		ug/L		117	75 - 158	4	50	
1,2,3,7,8-PeCDD	0.00100	0.00109		ug/L		109	70 - 142	3	50	
1,2,3,7,8-PeCDF	0.00100	0.00111	MB	ug/L		111	80 - 134	4	50	
2,3,4,7,8-PeCDF	0.00100	0.00111		ug/L		111	68 - 160	3	50	
1,2,3,4,7,8-HxCDD	0.00100	0.00115	MB	ug/L		115	70 - 164	10	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00108	MB	ug/L		108	76 - 134	1	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00118	MB	ug/L		118	64 - 162	8	50	
1,2,3,4,7,8-HxCDF	0.00100	0.00114	MB	ug/L		114	72 - 134	6	50	
1,2,3,6,7,8-HxCDF	0.00100	0.00111	MB	ug/L		111	84 - 130	1	50	
1,2,3,7,8,9-HxCDF	0.00100	0.00111	MB	ug/L		111	78 - 130	3	50	
2,3,4,6,7,8-HxCDF	0.00100	0.00112	MB	ug/L		112	70 - 156	3	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00112	MB	ug/L		112	70 - 140	4	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00114	MB	ug/L		114	82 - 122	3	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00112	MB	ug/L		112	78 - 138	3	50	
OCDD	0.00200	0.00221	MB	ug/L		111	78 - 144	3	50	
OCDF	0.00200	0.00234	MB	ug/L		117	63 - 170	3	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	71		20 - 175
13C-2,3,7,8-TCDF	69		22 - 152
13C-1,2,3,7,8-PeCDD	74		21 - 227
13C-1,2,3,7,8-PeCDF	73		21 - 192
13C-2,3,4,7,8-PeCDF	69		13 - 328
13C-1,2,3,4,7,8-HxCDD	65		21 - 193
13C-1,2,3,6,7,8-HxCDD	74		25 - 163
13C-1,2,3,4,7,8-HxCDF	62		19 - 202
13C-1,2,3,6,7,8-HxCDF	73		21 - 159
13C-1,2,3,7,8,9-HxCDF	78		17 - 205
13C-2,3,4,6,7,8-HxCDF	78		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	73		26 - 166

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-651610/3-A

Matrix: Water

Analysis Batch: 652417

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 651610

<u>Isotope Dilution</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
13C-1,2,3,4,6,7,8-HpCDF	67		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	74		20 - 186
13C-OCDD	76		13 - 199
13C-OCDF	74		13 - 199

<u>Surrogate</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
37Cl4-2,3,7,8-TCDD	91		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Specialty Organics

Prep Batch: 651610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	1613B	
MB 320-651610/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-651610/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-651610/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 652417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	1613B	651610
MB 320-651610/1-A	Method Blank	Total/NA	Water	1613B	651610
LCS 320-651610/2-A	Lab Control Sample	Total/NA	Water	1613B	651610
LCSD 320-651610/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	651610



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

Date Collected: 01/21/23 07:35

Matrix: Water

Date Received: 01/21/23 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1053.1 mL	20.0 uL	651610	02/03/23 10:06	CGB	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	652417	02/07/23 20:51	GRB	EET SAC

Instrument ID: 12D5

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23 *
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

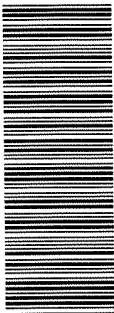
Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124887-1	Outfall002_20230121_Comp	Water	01/21/23 07:35	01/21/23 11:40

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1-4887



570-124887 Chain of Custody

CHAIN OF CUSTODY FORM

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 310 San Diego, CA 92108</p> <p>Euro Ins Calscience Irvine Contact: Christian Bondoc Irvine CA 92614 Tel: 949-280-3216</p>		<p>Project: Hoeng-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 013 Outfall 002 Comp</p>		<p>ANALYSIS REQUIRED</p> <p>Total Recoverable Metals (E200.7) Fe <input checked="" type="checkbox"/></p> <p>Total Recoverable Metals, Mercury (E245.1) <input checked="" type="checkbox"/></p> <p>(SVOCs E625) 2,4,6-TCP, 2,4-Dinitrochlorobenzene, Bis(2-ethylhexyl)phthalate, NDMA, PCP alpha-BHC (E609) Ammonia-N (350.2) TSS (160.2 (SM2540D)) Turbidity TDS (SM2540C/E180.1) Chloride (F200.1) Chloride, Sulfate, Nitrate-N, Nitrite-N, NO3+NO2-N Surfactants (MBAS) (SM540C/E425.1) BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc)) TCDD (and all congeners) (E1613B) Total Recoverable Metals (E200.8) Zn, Cu, Pb, Cd, Se</p>										
<p>Project Manager: Katherine Mille 520.219.8606 520.904.6944 (cell) Field Manager: Mark Dominick 978.214.5033 818.599.0702 (cell)</p>		<p>Container Type</p> <p>500 mL Poly</p> <p>1 L Glass Amber</p> <p>1 L Poly</p> <p>500 mL Poly</p> <p>500 mL Poly</p> <p>500 mL Poly</p> <p>500 mL Poly</p> <p>1 L Glass Amber</p> <p>1 L Glass Amber</p> <p>1 L Poly</p> <p>1 L Glass Amber</p> <p>500 mL Poly</p> <p>500 mL Poly</p> <p>1 L Glass Amber</p> <p>1 L Glass Amber</p>		<p>Preservative</p> <p>HNO3</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>H2SO4</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p>		<p># of Cont.</p> <p>1</p> <p>2</p> <p>1</p> <p>2</p> <p>2</p> <p>1</p> <p>1</p> <p>2</p> <p>2</p> <p>1</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p>		<p>MSMSD</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p>		<p>Comments</p> <p>Outfall 002 analyze for Fe.</p> <p>48 hour Holding Time NO3 & NO2</p> <p>48 hour holding time for turbidity</p>				

<p>Relinquished By: STEPHEN SUMNER</p>	<p>Date/Time: 1-21-23/40</p>	<p>Company: HALEY ALDRICH</p>	<p>Relinquished By: [Signature]</p>	<p>Date/Time: 1-21-23 11:40</p>	<p>Company: [Signature]</p>
<p>Relinquished By:</p>	<p>Date/Time:</p>	<p>Company:</p>	<p>Relinquished By:</p>	<p>Date/Time:</p>	<p>Company:</p>

1-4/1-4/ 1-1/1-1 SC 11



124887

CHAIN OF CUSTODY FORM

Eurofins CalScience Irvine

Client Name/Address: Haleir & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins CalScience Irvine Contact: Christian Bondoc 17461 Deerlan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2023 Routine: Outfall 002, 011, 013 Outfall 002 Comp		Project Manager: Katherine Miller 520.299.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033 818.589.0702 (cell)		MSMSD		ANALYSIS REQU RED		Comments	
Sample Description: Outfall002_20230121_Comp_F	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: 1L Poly	# of Cont: 1	Preservative: None	Batch #: 203	MSMSD: No	Total Dissolved Metals (E200.7): Zn, Cu, Pb, Cd, Se Cyanide (SM4500-CN-E / E335.2)	Total Dissolved Metals (E200.7): Fe	Total Dissolved Metals (E245.1): ABC Labs in Ventura, CA Chronic Toxicity Selenium (EPA-821-R-02-013) M3117+M3115	Filter and preserve w/in 24hrs of receipt at lab. Outfall 002 analyz for Fe.
Outfall 002	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: borosilicate vials	# of Cont: 1	Preservative: None	Batch #: 323	MSMSD: No	Total Dissolved Metals (E200.7): Zn, Cu, Pb, Cd, Se Cyanide (SM4500-CN-E / E335.2)	Total Dissolved Metals (E245.1): X	Total Dissolved Metals (E200.7): Fe	Sample receiving (DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
Outfall 002_20230121_Comp	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: 500 mL Poly 2.5 Gal Cube 1 L Glass Amber	# of Cont: 1 1 1	Preservative: NaOH None None	Batch #: 223 223 223	MSMSD: No No No	Total Dissolved Metals (E200.7): Zn, Cu, Pb, Cd, Se Cyanide (SM4500-CN-E / E335.2)	Total Dissolved Metals (E245.1): X	Total Dissolved Metals (E200.7): Fe	Unfiltered and unpreserved analysis. Separate Pd/C onto another work order. Analyze duplicate, not MSMSD.
Outfall 002_20230121_Comp	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: 1 Gal Cube	# of Cont: 1	Preservative: None	Batch #: 233	MSMSD: No	Total Dissolved Metals (E200.7): Zn, Cu, Pb, Cd, Se Cyanide (SM4500-CN-E / E335.2)	Total Dissolved Metals (E245.1): X	Total Dissolved Metals (E200.7): Fe	Only test if first or second rain events of the year. Outfall ABC Labs in Ventura, CA.

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Received By: *EC* **Date/Time:** 1-21-23 11:40
Company: Eurofins CalScience

Received By: *ALBERT* **Date/Time:** 1-21-23/11:40
Company: Eurofins CalScience

Received By: **Date/Time:**
Company:

Turnaround Time (Check):
 24 Hour 72 Hour 10 Day
 48 Hour 5 Day 10 Day

Sample Integrity (Check):
 Intact On Ice
 Store samples for 6 months. Data Requirements (Check)
 No Level IV All Level IV



Chain of Custody Record



Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email: Project Name: Boeing SSFL NPDES - Outfall 002 - Comp Site:				Lab PM: Patei, Virendra E-Mail: Virendra.Patei@et.eurofins.com Accreditations Required (See note) State Program - California										
Due Date Requested 2/24/2023 TAT Requested (days):		Carrier Tracking No(s): COG No: 570-204878 1 Page: Page 1 of 1 Job #: 570-124887-3												
Analysis Requested				Preservation Codes M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:										
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=alk)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901 Cs/Fill_Geo_D K-40 and Csium-137	A01R_U/Evaporation Gross Alpha/Beta	903.0/PreSep_21 Radium-226	904.0/PreSep_0 Radium-228	906.0/PreSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
Outfall002_20230121_Comp (570-124887-1)	1/21/23	07:35 Pacific		Water	X	X	X	X	X	X	X	X	2	Boeing SSFL, DO NOT FILTER, use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately if all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) Return To Client Disposal By Lab Archive For Months

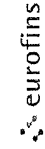
Special Instructions/QC Requirements:

Empty Kit Relinquished by _____ Date: _____
 Relinquished by _____ Date/Time: _____
 Relinquished by _____ Date/Time: _____
 Relinquished by _____ Date/Time: _____

Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____

Cooler Temperature(s) °C and Other Remarks: _____
 Custody Seal No. _____
 Δ Yes Δ No

Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494



Chain of Custody Record

Client Information (Sub Contract Lab)	Sampler	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving	Patel, Virendra	Patel, Virendra	State of Origin: California	570-204885 1
Company: Eurofins Environment Testing Northern Ca	Phone: Virendra.Patel@et.eurofinsus.com	E-Mail: Virendra.Patel@et.eurofinsus.com	Page: Page 1 of 1	Job #: 570-124887-2
Address: 880 Riverside Parkway, West Sacramento State, Zip: CA, 95605	Due Date Requested 2/9/2023	Accreditations Required (See note): State Program - California	Preservation Codes A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other	
PO #: WO #: Project #: Boeing SSFL NPDES - Outfall 002 - Comp	TAT Requested (days)	Analysis Requested	M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - HZSO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizina Z - other (specify)	
Site: Boeing SSFL NPDES - Outfall 002 - Comp	Sample Date	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=Tissue, A=air)	Total Number of Containers

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Box_Sep_P Standard List w/ Totals	1613B/1613B_Box_Sep_P Standard List w/ Totals	(Hold)	Special Instructions/Note:
Outfall002_20230121_Comp (570-124887-1)	1/21/23	07 35 Pacific	Water		X	X				See OAS, Boeing_w/lu to zero, ug/L, Use Boeing glassware
Outfall002_20230121_Comp_Extra (570-124887-2)	1/21/23	07 35 Pacific	Water			X				See OAS, Boeing_w/lu to zero, ug/L, Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank 2

Special Instructions/QC Requirements:
 Return To Client Disposal By Lab Archive For _____ Months

Empty Kit Relinquished by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks:

Ver 06/08/2021

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Virendra Patel, Virendra Patel, Virendra	Lab PM: Virendra Patel, Virendra Patel	Carrier Tracking No(s):	COC No: 570-204885.1
Client Contact: Shipping/Receiving		Phone: Virendra.Patel@et.eurofins.com	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - California		Job #: 570-124887-2	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		Due Date Requested: 2/9/2023	Analysis Requested		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		TAT Requested (days):	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals
Email:		PO #:	Matrix (W=Water, S=solid, O=water/oil, BT=Tissue, A=Air)	Sample Type (C=Comp, G=grab)	Sample Date
Project Name: Boeing SSFL NPDES - Outfall 002 - Comp		WO #:	Sample Time	Sample Date	Sample Date
Site: 44024446		Project #: 44024446	Preservation Code:	Sample Date	Sample Date
SSOW#:		SSOW#:	Sample Date	Sample Date	Sample Date
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Date	Sample Date
Outfall002_20230121_Comp (570-124887-1)	1/21/23	07:35 Pacific	Water	X	2
Outfall002_20230121_Comp_Extra (570-124887-2)	1/21/23	07:35 Pacific	Water	X	2
Special Instructions/Note:		See QAS, Boeing_w/lu to zero, ug/L; Use Boeing glassware.			
See QAS, Boeing_w/lu to zero, ug/L; Use Boeing glassware.		See QAS, Boeing_w/lu to zero, ug/L; Use Boeing glassware.			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/mainx being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: Date: Method of Shipment:
 Relinquished by: Date/Time: Company
 Relinquished by: Date/Time: Company
 Relinquished by: Date/Time: Company
 Cooler Temperature(s) °C and Other Remarks: 1.8



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124887-2

Login Number: 124887

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124887-2

Login Number: 124887

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 01/24/23 11:32 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8c 1.6c 2.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-124887-3

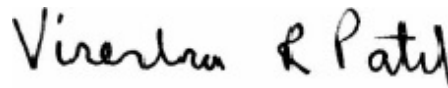
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Qualifiers

Rad

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Job ID: 570-124887-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124887-3

Comments

No additional comments.

Receipt

The samples were received on 1/21/2023 11:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.4° C.

Receipt Exceptions

The reference method requires samples to have a pH of 2. The following samples were received with a pH of 6. The samples were adjusted to the appropriate pH in the laboratory.

Job#: 570-124887 R-1
Job#: 570-124898 R-1
Job #: 570-124868 R-1
Job #: 570-124873 R-1
Job #: 570-124890 K-1
Job #: 570-124891 J-1

RAD

Method 900.0: Gross Alpha and Gross Beta batch 598963

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230121_Comp (570-124887-1), (LCS 160-598963/2-A), (LCSB 160-598963/3-A), (MB 160-598963/1-A), (570-124887-R-1-J DU), (570-124887-R-1-H MS) and (570-124887-R-1-I MSBT)

Method 900.0: Gross Alpha Beta prep batch 160-598963:

The matrix spike (MS) recoveries for preparation batch 160-598963 and analytical batch 160-600333 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.(570-124887-R-1-H MS)

Method 901.1: Gamma Prep Batch 160-598560

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Job ID: 570-124887-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230121_Comp (570-124887-1), (570-124868-R-1-E) and (570-124868-R-1-F DU)

Methods 903.0, 9315: Radium-226 prep batch 160-598272:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230121_Comp (570-124887-1), (LCS 160-598272/2-A), (LCSD 160-598272/3-A) and (MB 160-598272/1-A)

Methods 904.0, 9320: Radium-228 batch 598275

The LCS/LCSD recovered at (LCS 131% / LCSD 129%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required

(LCS 160-598275/2-A) and (LCSD 160-598275/3-A)

Methods 904.0, 9320: Gamma prep batch 160-598275:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230121_Comp (570-124887-1), (LCS 160-598275/2-A), (LCSD 160-598275/3-A) and (MB 160-598275/1-A)

Method 905: Strontium-90 prep batch 160-598546:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230121_Comp (570-124887-1), (LCS 160-598546/2-A), (LCSD 160-598546/3-A) and (MB 160-598546/1-A)

Method 906.0: Tritium 598717

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230121_Comp (570-124887-1), (LCS 160-598717/2-A), (MB 160-598717/1-A), (570-124392-Q-1-A), (570-124392-Q-1-B DU), (570-124868-Q-1-A) and (570-124868-Q-1-B MS)

Method A-01-R: Isotopic Uranium batch 598317

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Job ID: 570-124887-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

applied as the Activity Reference Date.

Outfall002_20230121_Comp (570-124887-1), (LCS 160-598317/2-A), (MB 160-598317/1-A), (570-124898-R-1-C) and (570-124898-R-1-D DU)

Method PrecSep_0: Radium-228 Prep Batch 160-598275

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230121_Comp (570-124887-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep_0: Radium-228 Prep Batch 160-598275

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall002_20230121_Comp (570-124887-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-598272

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230121_Comp (570-124887-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-598272

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall002_20230121_Comp (570-124887-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 160-598546

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall002_20230121_Comp (570-124887-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230121_Comp
 Date Collected: 01/21/23 07:35
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.648	U	1.44	1.44	3.00	2.55	pCi/L	02/02/23 12:38	02/14/23 20:02	1
Gross Beta	1.93		0.687	0.713	4.00	0.914	pCi/L	02/02/23 12:38	02/14/23 20:02	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230121_Comp
Date Collected: 01/21/23 07:35
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-0.471	U	8.00	8.00	20.0	9.86	pCi/L	01/27/23 16:27	02/22/23 11:30	1
Potassium-40	32.6	U	68.0	68.1		93.7	pCi/L	01/27/23 16:27	02/22/23 11:30	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230121_Comp
 Date Collected: 01/21/23 07:35
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0393	U	0.0690	0.0691	1.00	0.121	pCi/L	01/26/23 09:36	02/21/23 17:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.3		30 - 110					01/26/23 09:36	02/21/23 17:55	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230121_Comp
Date Collected: 01/21/23 07:35
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.369	U	0.472	0.473	1.00	0.784	pCi/L	01/26/23 09:50	02/01/23 12:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.3		30 - 110					01/26/23 09:50	02/01/23 12:08	1
Y Carrier	84.1		30 - 110					01/26/23 09:50	02/01/23 12:08	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230121_Comp
 Date Collected: 01/21/23 07:35
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0490	U	0.190	0.190	3.00	0.333	pCi/L	01/27/23 12:54	02/08/23 15:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	83.7		30 - 110					01/27/23 12:54	02/08/23 15:59	1
Y Carrier	84.5		30 - 110					01/27/23 12:54	02/08/23 15:59	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230121_Comp
Date Collected: 01/21/23 07:35
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	55.9	U	157	157	500	272	pCi/L	01/31/23 12:11	02/02/23 02:48	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230121_Comp
Date Collected: 01/21/23 07:35
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124887-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.388		0.173	0.175	1.00	0.129	pCi/L	01/26/23 16:02	02/13/23 13:57	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
570-124887-1	Outfall002_20230121_Comp	96.3	
LCS 160-598272/2-A	Lab Control Sample	101	
LCSD 160-598272/3-A	Lab Control Sample Dup	105	
MB 160-598272/1-A	Method Blank	96.9	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
570-124887-1	Outfall002_20230121_Comp	96.3	84.1
LCS 160-598275/2-A	Lab Control Sample	101	85.6
LCSD 160-598275/3-A	Lab Control Sample Dup	105	86.4
MB 160-598275/1-A	Method Blank	96.9	85.6
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)
570-124887-1	Outfall002_20230121_Comp	83.7	84.5
LCS 160-598546/2-A	Lab Control Sample	85.4	87.5
LCSD 160-598546/3-A	Lab Control Sample Dup	88.3	86.4
MB 160-598546/1-A	Method Blank	87.1	87.1
Tracer/Carrier Legend			
Sr = Sr Carrier			
Y = Y Carrier			

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
570-124898-R-1-D DU	Duplicate	83.0	
LCS 160-598317/2-A	Lab Control Sample	82.4	
MB 160-598317/1-A	Method Blank	86.3	
Tracer/Carrier Legend			
U-232 = Uranium-232			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-598963/1-A
Matrix: Water
Analysis Batch: 600139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598963

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.09917	U	0.402	0.402	3.00	0.768	pCi/L	02/02/23 12:38	02/13/23 20:06	1
Gross Beta	-0.06316	U	0.387	0.387	4.00	0.721	pCi/L	02/02/23 12:38	02/13/23 20:06	1

Lab Sample ID: LCS 160-598963/2-A
Matrix: Water
Analysis Batch: 600139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	47.32		7.04	3.00	1.92	pCi/L	94	75 - 125

Lab Sample ID: LCSB 160-598963/3-A
Matrix: Water
Analysis Batch: 600139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.7	69.87		7.52	4.00	0.802	pCi/L	95	75 - 125

Lab Sample ID: 570-124887-1 MS
Matrix: Water
Analysis Batch: 600333

Client Sample ID: Outfall002_20230121_Comp
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Alpha	0.648	U	50.5	21.15	F1	4.07	3.00	2.28	pCi/L	41	60 - 140

Lab Sample ID: 570-124887-1 MSBT
Matrix: Water
Analysis Batch: 600333

Client Sample ID: Outfall002_20230121_Comp
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Beta	1.93		73.7	72.66		7.82	4.00	0.963	pCi/L	96	60 - 140

Lab Sample ID: 570-124887-1 DU
Matrix: Water
Analysis Batch: 600334

Client Sample ID: Outfall002_20230121_Comp
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER Limit
					Uncert. (2σ+/-)					
Gross Alpha	0.648	U	0.1221	U	0.967	3.00	1.85	pCi/L	0.22	1
Gross Beta	1.93		1.198		0.572	4.00	0.785	pCi/L	0.57	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-598560/1-A
Matrix: Water
Analysis Batch: 601380

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598560

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	2.540	U	4.68	4.69	20.0	5.50	pCi/L	01/27/23 16:27	02/22/23 04:55	1
Potassium-40	29.54	U	87.5	87.6		89.2	pCi/L	01/27/23 16:27	02/22/23 04:55	1

Lab Sample ID: LCS 160-598560/2-A
Matrix: Water
Analysis Batch: 601377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598560

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	135000	145200		17300		291	pCi/L	107	75 - 125
Cesium-137	40900	41940		5000	20.0	80.3	pCi/L	102	75 - 125
Cobalt-60	18000	18820		2240		41.1	pCi/L	104	75 - 125

Lab Sample ID: 570-124868-R-1-F DU
Matrix: Water
Analysis Batch: 601377

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 598560

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER	
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit	
Cesium-137	-1.28	U	-4.041	U	9.43	20.0	11.3	pCi/L		0.16	1
Potassium-40	35.2	U	-70.31	U	114		149	pCi/L		0.59	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-598272/1-A
Matrix: Water
Analysis Batch: 601085

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598272

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.02830	U	0.0410	0.0411	1.00	0.0968	pCi/L	01/26/23 09:36	02/21/23 17:54	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	96.9		30 - 110				01/26/23 09:36	02/21/23 17:54	1	

Lab Sample ID: LCS 160-598272/2-A
Matrix: Water
Analysis Batch: 601085

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598272

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	10.88		1.10	1.00	0.0974	pCi/L	96	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	101		30 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-598272/3-A
Matrix: Water
Analysis Batch: 601085

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 598272

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	RER Limit
									Limits	RER		
Radium-226	11.3	10.61		1.07	1.00	0.0992	pCi/L	94	75 - 125	0.13		1
Carrier		LCS	LCS									
	%Yield	Qualifier	Limits									
Ba Carrier	105		30 - 110									

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-598275/1-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598275

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Carrier		MB	Limits					Prepared	Analyzed	Dil Fac
	%Yield	Qualifier								
Ba Carrier	96.9		30 - 110					01/26/23 09:50	02/01/23 12:04	1
Y Carrier	85.6		30 - 110					01/26/23 09:50	02/01/23 12:04	1

Lab Sample ID: LCS 160-598275/2-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598275

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
									Limits	RER
Radium-228	8.23	10.75		1.38	1.00	0.513	pCi/L	131	75 - 125	
Carrier		LCS	LCS							
	%Yield	Qualifier	Limits							
Ba Carrier	101		30 - 110							
Y Carrier	85.6		30 - 110							

Lab Sample ID: LCSD 160-598275/3-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 598275

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	RER Limit
									Limits	RER		
Radium-228	8.23	10.62		1.34	1.00	0.390	pCi/L	129	75 - 125	0.05		1
Carrier		LCS	LCS									
	%Yield	Qualifier	Limits									
Ba Carrier	105		30 - 110									
Y Carrier	86.4		30 - 110									

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-598546/1-A
Matrix: Water
Analysis Batch: 599671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598546

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.1970	U	0.181	0.182	3.00	0.291	pCi/L	01/27/23 12:54	02/08/23 15:57	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Sr Carrier	87.1		30 - 110					01/27/23 12:54	02/08/23 15:57	1
Y Carrier	87.1		30 - 110		01/27/23 12:54	02/08/23 15:57	1			

Lab Sample ID: LCS 160-598546/2-A
Matrix: Water
Analysis Batch: 599671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598546

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Strontium-90	7.37	7.382		0.816	3.00	0.271	pCi/L	100	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Sr Carrier	85.4		30 - 110						
Y Carrier	87.5		30 - 110						

Lab Sample ID: LCSD 160-598546/3-A
Matrix: Water
Analysis Batch: 599671

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 598546

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Strontium-90	7.37	7.433		0.819	3.00	0.316	pCi/L	101	75 - 125	0.03	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Sr Carrier	88.3		30 - 110								
Y Carrier	86.4		30 - 110								

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-598717/1-A
Matrix: Water
Analysis Batch: 599486

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598717

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-27.93	U	147	147	500	270	pCi/L	01/31/23 12:11	02/01/23 21:31	1

Lab Sample ID: LCS 160-598717/2-A
Matrix: Water
Analysis Batch: 599486

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598717

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Tritium	2110	1839		333	500	270	pCi/L	87	75 - 125

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 570-124868-Q-1-B MS
 Matrix: Water
 Analysis Batch: 599486

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 598717

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual						
Tritium	123	U	2160	2177		373	500	286	pCi/L	95	60 - 140

Lab Sample ID: 570-124392-Q-1-B DU
 Matrix: Water
 Analysis Batch: 599486

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 598717

Analyte	Sample	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Tritium	0.901	U	2.703	U	159	500	289	pCi/L	0.01	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-598317/1-A
 Matrix: Water
 Analysis Batch: 600238

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 598317

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.1240		0.1019	0.1021	1.00	0.124	pCi/L	01/26/23 16:02	02/13/23 13:57	1

Lab Sample ID: LCS 160-598317/2-A
 Matrix: Water
 Analysis Batch: 600239

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 598317

Analyte	Spike Added	LCS	LCS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual						
Uranium-234	12.7	13.54		1.51	1.00	0.165	pCi/L	106	75 - 125
Uranium-238	13.0	14.49		1.59	1.00	0.112	pCi/L	111	75 - 125

Tracer	LCS %Yield	LCS Qualifier	Limits
Uranium-232	82.4		30 - 110

Lab Sample ID: 570-124898-R-1-D DU
 Matrix: Water
 Analysis Batch: 600216

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 598317

Analyte	Sample	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Total Uranium	0.0800	U	0.1269	U	0.138	1.00	0.198	pCi/L	0.20	1

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Rad

Prep Batch: 598272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	PrecSep-21	
MB 160-598272/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-598272/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-598272/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 598275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	PrecSep_0	
MB 160-598275/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-598275/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-598275/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 598317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	ExtChrom	
MB 160-598317/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-598317/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-124898-R-1-D DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 598546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	PrecSep-7	
MB 160-598546/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-598546/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-598546/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 598560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-598560/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-598560/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-124868-R-1-F DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 598717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-598717/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-598717/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-124868-Q-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
570-124392-Q-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 598963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124887-1	Outfall002_20230121_Comp	Total/NA	Water	Evaporation	
MB 160-598963/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-598963/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSE 160-598963/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-124887-1 MS	Outfall002_20230121_Comp	Total/NA	Water	Evaporation	
570-124887-1 MSBT	Outfall002_20230121_Comp	Total/NA	Water	Evaporation	
570-124887-1 DU	Outfall002_20230121_Comp	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Client Sample ID: Outfall002_20230121_Comp

Lab Sample ID: 570-124887-1

Date Collected: 01/21/23 07:35

Matrix: Water

Date Received: 01/21/23 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.01 mL	1.0 g	598963	02/02/23 12:38	MST	EET SL
Total/NA	Analysis	900.0		1			600333	02/14/23 20:02	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 mL	598560	01/27/23 16:27	SAC	EET SL
Total/NA	Analysis	901.1		1			601378	02/22/23 11:30	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			757.83 mL	1.0 g	598272	01/26/23 09:36	DJP	EET SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	601085	02/21/23 17:55	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			757.83 mL	1.0 g	598275	01/26/23 09:50	DJP	EET SL
Total/NA	Analysis	904.0		1			598876	02/01/23 12:08	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			998.01 mL	1.0 g	598546	01/27/23 12:54	DJP	EET SL
Total/NA	Analysis	905		1			599671	02/08/23 15:59	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			100.74 mL	1.0 g	598717	01/31/23 12:11	SEH	EET SL
Total/NA	Analysis	906.0		1			599486	02/02/23 02:48	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			504.91 mL	1.0 mL	598317	01/26/23 16:02	MAL	EET SL
Total/NA	Analysis	A-01-R		1			600245	02/13/23 13:57	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-124887-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124887-1	Outfall002_20230121_Comp	Water	01/21/23 07:35	01/21/23 11:40

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124887

CHAIN OF CUSTODY FORM

Eurofins CalScience Irvine

Client Name/Address: Haleir & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins CalScience Irvine Contact: Christian Bondoc 17461 Deeran Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2023 Routine: Outfall 001, 002, 011, 013 Outfall 002 Comp		Project Manager: Katherine Miller 520.299.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033 818.589.0702 (cell)		MSMSD		ANALYSIS REQU RED		Comments	
Sample Description: Outfall002_20230121_Comp_F	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: 1L Poly	# of Cont: 1	Preservative: None	Batch #: 203	MSMSD: No	Total Dissolved Metals (E200.7): Cu, Pb, Cd, Se	Total Dissolved Metals (E200.7): Fe	Total Dissolved Metals (E245.1): ABC Labs in Ventura, CA	Total Dissolved Metals (E200.7): Fe
Outfall 002	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: borosilicate vials	# of Cont: 1	Preservative: None	Batch #: 323	MSMSD: No	Total Dissolved Metals (E200.7): Zn	Total Dissolved Metals (E200.7): X	Total Dissolved Metals (E245.1): X	Total Dissolved Metals (E200.7): X
Outfall 002_20230121_Comp	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: 500 mL Poly	# of Cont: 1	Preservative: NaOH	Batch #: 223	MSMSD: No	Total Dissolved Metals (E200.7): Zn	Total Dissolved Metals (E200.7): X	Total Dissolved Metals (E245.1): X	Total Dissolved Metals (E200.7): X
Outfall 002_20230121_Comp	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: 2.5 Gal Cube	# of Cont: 1	Preservative: None	Batch #: 223	MSMSD: No	Total Dissolved Metals (E200.7): Zn	Total Dissolved Metals (E200.7): X	Total Dissolved Metals (E245.1): X	Total Dissolved Metals (E200.7): X
Outfall 002_20230121_Comp	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: 1 L Glass Amber	# of Cont: 1	Preservative: None	Batch #: 233	MSMSD: No	Total Dissolved Metals (E200.7): Zn	Total Dissolved Metals (E200.7): X	Total Dissolved Metals (E245.1): X	Total Dissolved Metals (E200.7): X
Outfall 002_20230121_Comp	Sampling Date/Time: 1/21/2023 <i>10:35</i>	Sample Matrix: WM	Container Type: 1 Gal Cube	# of Cont: 6	Preservative: None	Batch #: 233	MSMSD: No	Total Dissolved Metals (E200.7): Zn	Total Dissolved Metals (E200.7): X	Total Dissolved Metals (E245.1): X	Total Dissolved Metals (E200.7): X

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Received By: *EC* **Date/Time:** 1-21-23 11:40
Company: Eurofins CalScience

Received By: *ALBERT* **Date/Time:** 1-21-23/11:40
Company: Eurofins CalScience

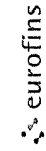
Received By: **Date/Time:**
Company:

Turnaround Time (Check):
 24 Hour 72 Hour 10 Day
 48 Hour 5 Day 15 Day

Sample Integrity (Check):
 Intact On Ice
 Store samples for 6 months
 Data Requirements (Check)
 No Level IV All Level IV



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No																				
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra		570-204878 1																				
Company: TestAmerica Laboratories, Inc.		E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1																					
Address: 13715 Rider Trail North, Earth City, MO, 63045		Phone: 314-298-8566(Tel) 314-298-8757(Fax)	Accreditations Required (See note): State Program - California	Job #: 570-124887-3																					
Due Date Requested: 2/24/2023		PO #:	Analysis Requested																						
TAT Requested (days):		WO #:	<table border="1"> <tr> <th>Analysis Requested</th> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>901 Cs/Fill_Geo_D K-40 and Csium-137</th> <th>900.0/Evaporation Gross Alpha/Beta</th> <th>903.0/PreSep_21 Radium-226</th> <th>904.0/PreSep_0 Radium-228</th> <th>906.0/PreSep_7 Strontium-90</th> <th>906.0/LSC_Dist_Susp Tritium</th> <th>Total Number of Containers</th> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>2</td> </tr> </table>			Analysis Requested	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901 Cs/Fill_Geo_D K-40 and Csium-137	900.0/Evaporation Gross Alpha/Beta	903.0/PreSep_21 Radium-226	904.0/PreSep_0 Radium-228	906.0/PreSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of Containers		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	X	X	X	X	X	2
Analysis Requested	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901 Cs/Fill_Geo_D K-40 and Csium-137	900.0/Evaporation Gross Alpha/Beta	903.0/PreSep_21 Radium-226	904.0/PreSep_0 Radium-228	906.0/PreSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of Containers																
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	X	X	X	X	X	2																
Project Name: Boeing SSFL NPDES - Outfall 002 - Comp		Project #: 44024446	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=air)	Preservation Codes																					
Site:		SSOW#:	Sample Type (C=Comp, G=grab)	Sample Date	Sample Time	Preservation Code	M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:																		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Preservation Code	Special Instructions/Note:																				
Outfall002_20230121_Comp (570-124887-1)		1/21/23	07:35 Pacific	Water	Boeing SSFL, DO NOT FILTER, use prep date from preservation																				

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately if all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) _____

Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by: _____ Date: _____ Time: _____

Relinquished by: *[Signature]* Date/Time: 1/21/23 1350 Company: Company

Relinquished by: _____ Date/Time: _____ Company: Company

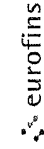
Relinquished by: _____ Date/Time: _____ Company: Company

Custody Seals Intact: Yes No Δ No No
 Cooler Temperature(s) °C and Other Remarks: _____

Ver: 06/08/2021



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-204885 1
Client Contact: Shipping/Receiving		Phone: Virendra.Patel@eurofins.com	E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - California		Job #:	570-124887-2
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		Due Date Requested: 2/9/2023	Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		
City: West Sacramento		TAT Requested (days):	M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - HZSO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)		
State: CA, 95605		PO #:	1613B/1613B_Box_Sep_P Standard List w/ Totals 1613B/1613B_Box_Sep_P Standard List w/ Totals 1613B/1613B_Box_Sep_P Standard List w/ Totals 1613B/1613B_Box_Sep_P Standard List w/ Totals		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		WO #:	Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Total Number of Containers: 2		
Email:		Project #: 44024446	Special Instructions/Note: See OAS, Boeing_w/lu to zero, ug/L, Use Boeing glassware See OAS, Boeing_w/lu to zero, ug/L, Use Boeing glassware.		
Site: Boeing SSFL NPDES - Outfall 002 - Comp		SSOW#:	Sample Identification - Client ID (Lab ID) Outfall002_20230121_Comp (570-124887-1) Outfall002_20230121_Comp_Extra (570-124887-2)		
Sample Date		Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=air)	Preservation Code:
1/21/23	07 35 Pacific	Water			
1/21/23	07 35 Pacific	Water			
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.					
Possible Hazard Identification Unconfirmed Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank 2					
Empty Kit Relinquished by:		Date:	Time:		
Relinquished by:		Date/Time:	Company:	Received by:	
Relinquished by:		Date/Time:	Company:	Date/Time:	
Relinquished by:		Date/Time:	Company:	Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:			



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Lab Tracking No(s):	COC No:	
Client Contact:		Patel, Virendra	Patel, Virendra	570-204878-1	570-204878-1	
Shipping/Receiving:		Phone:	E-Mail:	State of Origin:	Page:	
Company:		Virendra.Patel@eurofins.com	Virendra.Patel@eurofins.com	California	Page 1 of 1	
Address:		Accreditations Required (See note):				
13715 Rider Trail North,		State Program - California				
City:		Analysis Requested				
Earth City						
State, Zip:						
MO, 63045						
Phone:						
314-298-8566(Tel) 314-298-8757(Fax)						
Email:						
Project Name:						
Boeing SSFL NPDES - Outfall 002 - Comp						
Site:						
Outfall002_20230121_Comp (570-124887-1)						
Sample Identification - Client ID (Lab ID)						
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, B=tissue, A=air)	Preservation Code:	Field Filtered Sample (Yes or No)	
1/21/23	07:35 Pacific		Water		X	
Perform MS/MSD (Yes or No)		901.1_CaFill_Geo_K-40 and Csium-137				X
Field Filtered Sample (Yes or No)		A01R_U/ExChrom_Actin Total Uranium				X
		900.0/Evaporation Gross Alpha/Beta				X
		903.0/PrecSep_21 Radium-226				X
		904.0/PrecSep_0 Radium-228				X
		905.5r90/PrecSep_7 Strontium-90				X
		906.0/LSOC_Dist_Susp Tritium				X
		Total Number of containers				2
		Special Instructions/Note:				Boeing SSFL; DO NOT FILTER; use prep date from preservation
		Preservation Codes:				M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)
		Other:				

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *[Signature]* Date/Time: 1/21/23 1350 Company: _____
 Relinquished by: *[Signature]* Date/Time: _____ Company: _____
 Relinquished by: *[Signature]* Date/Time: _____ Company: _____
 Custody Seal Intact: Yes No
 Cooler Temperature(s) °C and Other Remarks:



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124887-3

Login Number: 124887

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124887-3

Login Number: 124887

List Number: 2

Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis

List Creation: 01/24/23 11:44 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/16/2023 4:10:08 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - GRAB

JOB NUMBER

570-125743-1

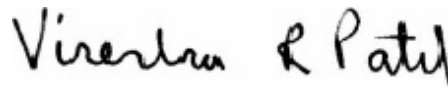
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
2/16/2023 4:10:08 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-125743-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Qualifiers

General Chemistry

Qualifier	Qualifier Description
MB	Analyte present in the method blank

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

Job ID: 570-125743-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-125743-1

Comments

No additional comments.

Receipt

The samples were received on 1/30/2023 5:39 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.2° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-300046. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Method SM 2510B: The method blank for analytical batch 570-300404 contained conductivity above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-300575.
Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-125743-1

Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Client Sample ID: Outfall002_20230130_Grab

Lab Sample ID: 570-125743-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	980	MB	1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: TB-20230130

Lab Sample ID: 570-125743-3

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
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- 11
- 12
- 13
- 14
- 15

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230130_Grab

Date Collected: 01/30/23 07:25

Date Received: 01/30/23 17:39

Lab Sample ID: 570-125743-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/31/23 17:53	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/31/23 17:53	1
Trichloroethene	ND		0.50	0.17	ug/L			01/31/23 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		60 - 140		01/31/23 17:53	1
Toluene-d8 (Surr)	99		60 - 140		01/31/23 17:53	1

Client Sample ID: TB-20230130

Date Collected: 01/30/23 07:25

Date Received: 01/30/23 17:39

Lab Sample ID: 570-125743-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/31/23 17:31	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/31/23 17:31	1
Trichloroethene	ND		0.50	0.17	ug/L			01/31/23 17:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		60 - 140		01/31/23 17:31	1
Toluene-d8 (Surr)	96		60 - 140		01/31/23 17:31	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

General Chemistry

Client Sample ID: Outfall002_20230130_Grab
Date Collected: 01/30/23 07:25
Date Received: 01/30/23 17:39

Lab Sample ID: 570-125743-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	ND		0.99	0.51	mg/L		02/02/23 09:27	02/02/23 13:57	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance (SM 2510B)	980	MB	1.0	1.0	umhos/cm			02/01/23 15:50	1
Settleable Solids (SM 2540F)	ND		1.0	1.0	mL/L			01/31/23 14:11	1

- 1
- 2
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- 11
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- 13
- 14
- 15

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL
		(60-140)	(60-140)
570-125743-1	Outfall002_20230130_Grab	102	99
570-125743-3	TB-20230130	101	96
LCS 570-300046/1003	Lab Control Sample	101	99
LCSD 570-300046/4	Lab Control Sample Dup	97	98
MB 570-300046/6	Method Blank	98	103

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-300046/6
Matrix: Water
Analysis Batch: 300046

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/31/23 17:08	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/31/23 17:08	1
Trichloroethene	ND		0.50	0.17	ug/L			01/31/23 17:08	1
Surrogate	MB	MB	Limits				Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	98		60 - 140					01/31/23 17:08	1
Toluene-d8 (Surr)	103		60 - 140					01/31/23 17:08	1

Lab Sample ID: LCS 570-300046/1003
Matrix: Water
Analysis Batch: 300046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1-Dichloroethene	10.0	11.6		ug/L		116	50 - 150
1,2-Dichloroethane	10.0	10.1		ug/L		101	70 - 130
Trichloroethene	10.0	10.6		ug/L		106	65 - 135
Surrogate	LCS	LCS	Limits			%Rec	
	%Recovery	Qualifier					
4-Bromofluorobenzene (Surr)	101		60 - 140				
Toluene-d8 (Surr)	99		60 - 140				

Lab Sample ID: LCSD 570-300046/4
Matrix: Water
Analysis Batch: 300046

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
		Result	Qualifier						
1,1-Dichloroethene	10.0	10.8		ug/L		108	50 - 150	8	32
1,2-Dichloroethane	10.0	9.85		ug/L		99	70 - 130	3	49
Trichloroethene	10.0	10.3		ug/L		103	65 - 135	3	48
Surrogate	LCSD	LCSD	Limits			%Rec			
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	97		60 - 140						
Toluene-d8 (Surr)	98		60 - 140						

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-300575/1-A
Matrix: Water
Analysis Batch: 300701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300575

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HEM: Oil and Grease	ND		1.0	0.51	mg/L		02/02/23 09:27	02/02/23 13:57	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 570-300575/2-A
Matrix: Water
Analysis Batch: 300701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	36.8		mg/L		92	78 - 114

Lab Sample ID: LCSD 570-300575/3-A
Matrix: Water
Analysis Batch: 300701

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300575

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	38.2		mg/L		95	78 - 114	4	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-300404/8
Matrix: Water
Analysis Batch: 300404

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	2.94		1.0	1.0	umhos/cm			02/01/23 14:31	1

Lab Sample ID: 570-125906-F-1 DU
Matrix: Water
Analysis Batch: 300404

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	510	MB	508		umhos/cm		0.4	25

Method: SM 2540F - Solids, Settleable

Lab Sample ID: 570-125819-A-1 DU
Matrix: Water
Analysis Batch: 300010

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Settleable Solids	ND		ND		mL/L		NC	10

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

GC/MS VOA

Analysis Batch: 300046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125743-1	Outfall002_20230130_Grab	Total/NA	Water	624.1	
570-125743-3	TB-20230130	Total/NA	Water	624.1	
MB 570-300046/6	Method Blank	Total/NA	Water	624.1	
LCS 570-300046/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-300046/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 300010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125743-1	Outfall002_20230130_Grab	Total/NA	Water	SM 2540F	
570-125819-A-1 DU	Duplicate	Total/NA	Water	SM 2540F	

Analysis Batch: 300404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125743-1	Outfall002_20230130_Grab	Total/NA	Water	SM 2510B	
MB 570-300404/8	Method Blank	Total/NA	Water	SM 2510B	
570-125906-F-1 DU	Duplicate	Total/NA	Water	SM 2510B	

Prep Batch: 300575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125743-1	Outfall002_20230130_Grab	Total/NA	Water	1664A	
MB 570-300575/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-300575/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-300575/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 300701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125743-1	Outfall002_20230130_Grab	Total/NA	Water	1664A	300575
MB 570-300575/1-A	Method Blank	Total/NA	Water	1664A	300575
LCS 570-300575/2-A	Lab Control Sample	Total/NA	Water	1664A	300575
LCSD 570-300575/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	300575

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

Client Sample ID: Outfall002_20230130_Grab

Lab Sample ID: 570-125743-1

Date Collected: 01/30/23 07:25

Matrix: Water

Date Received: 01/30/23 17:39

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	300046	01/31/23 17:53	A1W	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			1007 mL	1000 mL	300575	02/02/23 09:27	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			300701	02/02/23 13:57	L6IE	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2510B		1			300404	02/01/23 15:50	BDH9	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	100 mL	1 L	300010	01/31/23 14:11	TXA8	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230130

Lab Sample ID: 570-125743-3

Date Collected: 01/30/23 07:25

Matrix: Water

Date Received: 01/30/23 17:39

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	300046	01/31/23 17:31	A1W	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

- 1664A = EPA-821-98-002
- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - GRAB

Job ID: 570-125743-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-125743-1	Outfall002_20230130_Grab	Water	01/30/23 07:25	01/30/23 17:39
570-125743-3	TB-20230130	Water	01/30/23 07:25	01/30/23 17:39

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125743

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

T.R.A.C. 17973

Client Name/Address:		Project:		Field Readings (Include units)									
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Grab		Time of Readings: 0725									
Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		DO 27.2 mg/L pH 7.46 pH unit Temp 55.5 °C/F									
*TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement # 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Field readings QC									
Sampler: Adrian Mobeka				Checked by: <i>[Signature]</i> Date/Time: 1-30-2023/0725									
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	M/MS/SD	Oil & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Settleable Solids (E160.5 (M2540F))	Conductivity (SM2510B / E120.1)	Comments
Outfall 002	Outfall002_20230130_Grab	1/30/2023 / 0725	WM	1 L Glass Amber	2	HCl	15	No	X				
			WM	40 mL VOA	3	HCl	30	No		X			
			WM	1L Poly	1	None	70	No					
			WM	500 mL Poly	1	None	75	No					
			WM	1 L Glass Amber	2	HCl	15	No	H				Hold
	Outfall002_20230130_Grab_Extra	1/30/2023 / 0725	WM	40 mL VOA	3	HCl	30	No	H				Hold
			WM	500 mL Poly	1	None	75	No					Hold
Trip Blanks	TB-20230130	1/30/2023 / 0725	WQ	40 mL VOA	3	HCl	30	No	X				
570-125743 Chain of Custody													
													
Legend: R=Routine													
Relinquished By: <i>[Signature]</i>	Date/Time: 1-30-2023 / 1739	Company: H.A	Received By: <i>[Signature]</i> Date/Time: 1-30-23 1330										
Relinquished By: <i>[Signature]</i>	Date/Time: 1-30-2023 / 1739	Company: EC	Received By: <i>[Signature]</i> Date/Time: 1/30/23 1739										
Relinquished By: <i>[Signature]</i>	Date/Time: 1-30-2023 / 1739	Company: Company	Received By: <i>[Signature]</i> Date/Time: 1/30/23 1739										
Turn-around time (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X 48 Hour ___ 5 Day ___ Normal ___													
Sample Integrity (Check) Intact: ___ On loss: ___ Store samples for 6 months. Data Requirements (Check) No Level IV: ___ All Level IV: ___ X													



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125743-1

Login Number: 125743

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/16/2023 4:31:04 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-125840-1

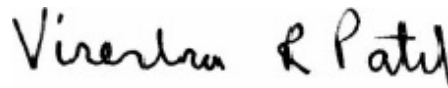
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Job ID: 570-125840-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-125840-1**

Comments

No additional comments.

Receipt

The samples were received on 1/31/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.0° C, 1.2° C, 1.3° C and 1.7° C.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

Method 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-300156 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Chloride and Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method 300.0: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 570-300156 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method 314.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-300242 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Perchlorate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 608.3: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-300913 and analytical batch 570-302161 recovered outside control limits for the following analytes: alpha-BHC.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230131_Comp_F (570-125840-3), Outfall002_20230131_Comp_F (570-125840-3[MS]) and Outfall002_20230131_Comp_F (570-125840-3[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230131_Comp_F (570-125840-3), Outfall002_20230131_Comp_F (570-125840-3[MS]) and Outfall002_20230131_Comp_F (570-125840-3[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-300913. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 608LL

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Job ID: 570-125840-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-300946. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 625.1 Sim

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Client Sample ID: Outfall002_20230131_Comp

Lab Sample ID: 570-125840-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.53		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate - DL	160		10	2.4	mg/L	10		300.0	Total/NA
Nitrate Nitrite as N	0.53		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	1.4	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Iron	14	J,DX	20	3.7	ug/L	1		200.8	Total Recoverable
Turbidity	0.30		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	470		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.0		1.0	0.83	mg/L	1		SM 2540D	Total/NA
Biochemical Oxygen Demand	4.8		2.0	1.0	mg/L	1		SM5210B	Total/NA

Client Sample ID: Outfall002_20230131_Comp_F

Lab Sample ID: 570-125840-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.4	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Iron	8.7	J,DX BU	20	3.7	ug/L	1		200.8	Dissolved
Zinc	3.0	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved
Mercury	0.15	J,DX BU	0.20	0.12	ug/L	1		245.1	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230131_Comp

Lab Sample ID: 570-125840-1

Date Collected: 01/31/23 08:00

Matrix: Water

Date Received: 01/31/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.95	0.13	ug/L		02/03/23 09:57	02/06/23 15:29	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		02/03/23 09:57	02/06/23 15:29	1
Bis(2-ethylhexyl) phthalate	ND		4.7	3.4	ug/L		02/03/23 09:57	02/06/23 15:29	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		02/03/23 09:57	02/06/23 15:29	1
Pentachlorophenol	ND		0.95	0.80	ug/L		02/03/23 09:57	02/06/23 15:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	44		31 - 120	02/03/23 09:57	02/06/23 15:29	1
Phenol-d6 (Surr)	21		10 - 120	02/03/23 09:57	02/06/23 15:29	1
p-Terphenyl-d14 (Surr)	59		45 - 120	02/03/23 09:57	02/06/23 15:29	1
2,4,6-Tribromophenol	71		28 - 127	02/03/23 09:57	02/06/23 15:29	1
2-Fluorophenol	30		17 - 120	02/03/23 09:57	02/06/23 15:29	1
Nitrobenzene-d5	52		27 - 120	02/03/23 09:57	02/06/23 15:29	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 40CFR136A 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230131_Comp

Date Collected: 01/31/23 08:00

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		02/03/23 08:24	02/09/23 11:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Tetrachloro-m-xylene</i>	67		20 - 139				02/03/23 08:24	02/09/23 11:33	1
<i>DCB Decachlorobiphenyl (Surr)</i>	31		20 - 154				02/03/23 08:24	02/09/23 11:33	1

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- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230131_Comp

Date Collected: 01/31/23 08:00

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18		1.0	0.36	mg/L			02/01/23 08:25	1
Nitrite as N	ND		0.10	0.043	mg/L			02/01/23 08:25	1
Nitrate as N	0.53		0.10	0.020	mg/L			02/01/23 08:25	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: EPA 300.0 - Anions, Ion Chromatography - DL

Client Sample ID: Outfall002_20230131_Comp

Date Collected: 01/31/23 08:00

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	160		10	2.4	mg/L			02/01/23 11:06	10

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230131_Comp
Date Collected: 01/31/23 08:00
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			02/01/23 16:45	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230131_Comp

Date Collected: 01/31/23 08:00

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.53		0.10	0.020	mg/L			02/03/23 18:31	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230131_Comp

Date Collected: 01/31/23 08:00

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		02/02/23 07:00	02/02/23 11:46	1
Copper	1.4	J,DX	2.0	0.32	ug/L		02/02/23 07:00	02/02/23 11:46	1
Lead	ND		1.0	0.12	ug/L		02/02/23 07:00	02/02/23 11:46	1
Selenium	ND		2.0	0.52	ug/L		02/02/23 07:00	02/02/23 11:46	1
Iron	14	J,DX	20	3.7	ug/L		02/02/23 07:00	02/02/23 11:46	1
Zinc	ND		20	2.8	ug/L		02/02/23 07:00	02/02/23 11:46	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230131_Comp_F

Date Collected: 01/31/23 08:00

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	BU	1.0	0.13	ug/L			02/01/23 14:45	1
Copper	1.4	J,DX BU	2.0	0.32	ug/L			02/01/23 14:45	1
Lead	ND	BU	1.0	0.12	ug/L			02/01/23 14:45	1
Selenium	ND	BU	2.0	0.52	ug/L			02/01/23 14:45	1
Iron	8.7	J,DX BU	20	3.7	ug/L			02/01/23 14:45	1
Zinc	3.0	J,DX BU	20	2.8	ug/L			02/01/23 14:45	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230131_Comp
Date Collected: 01/31/23 08:00
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		02/02/23 17:34	02/03/23 15:18	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230131_Comp_F
Date Collected: 01/31/23 08:00
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.15	J,DX BU	0.20	0.12	ug/L		02/02/23 17:45	02/03/23 14:11	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

General Chemistry

Client Sample ID: Outfall002_20230131_Comp

Lab Sample ID: 570-125840-1

Date Collected: 01/31/23 08:00

Matrix: Water

Date Received: 01/31/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		02/07/23 11:35	02/07/23 13:57	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			02/03/23 16:36	1
Turbidity (SM 2130B)	0.30		0.05	0.05	NTU			01/31/23 20:26	1
Total Dissolved Solids (SM 2540C)	470		10	8.7	mg/L			02/03/23 13:24	1
Total Suspended Solids (SM 2540D)	1.0		1.0	0.83	mg/L			02/06/23 17:00	1
MBAS (SM 5540C)	ND		0.20	0.050	mg/L		01/31/23 20:30	01/31/23 21:53	1
Biochemical Oxygen Demand (SM5210B)	4.8		2.0	1.0	mg/L			02/01/23 11:26	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-125840-1	Outfall002_20230131_Comp	44	21	59	71	30	52
LCS 570-300946/2-A	Lab Control Sample	69	40	78	89	59	72
LCSD 570-300946/3-A	Lab Control Sample Dup	73	41	80	95	62	76
MB 570-300946/1-A	Method Blank	44	20	56	71	28	49

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 TBP = 2,4,6-Tribromophenol
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (20-139)	DCB1 (20-154)
570-125840-1	Outfall002_20230131_Comp	67	31
MB 570-300913/1-A	Method Blank	70	96

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (20-139)	DCB1 (20-154)
LCS 570-300913/2-A	Lab Control Sample	93	84
LCSD 570-300913/3-A	Lab Control Sample Dup	88	78

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-300946/1-A
Matrix: Water
Analysis Batch: 301419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300946

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		02/03/23 09:57	02/06/23 16:50	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		02/03/23 09:57	02/06/23 16:50	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		02/03/23 09:57	02/06/23 16:50	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		02/03/23 09:57	02/06/23 16:50	1
Pentachlorophenol	ND		1.0	0.84	ug/L		02/03/23 09:57	02/06/23 16:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	44		31 - 120	02/03/23 09:57	02/06/23 16:50	1
Phenol-d6 (Surr)	20		10 - 120	02/03/23 09:57	02/06/23 16:50	1
p-Terphenyl-d14 (Surr)	56		45 - 120	02/03/23 09:57	02/06/23 16:50	1
2,4,6-Tribromophenol	71		28 - 127	02/03/23 09:57	02/06/23 16:50	1
2-Fluorophenol	28		17 - 120	02/03/23 09:57	02/06/23 16:50	1
Nitrobenzene-d5	49		27 - 120	02/03/23 09:57	02/06/23 16:50	1

Lab Sample ID: LCS 570-300946/2-A
Matrix: Water
Analysis Batch: 301419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300946

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	18.7		ug/L		94	52 - 129
2,4-Dinitrotoluene	20.0	19.6		ug/L		98	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	19.2		ug/L		96	29 - 137
N-Nitrosodimethylamine	20.0	11.8		ug/L		59	20 - 120
Pentachlorophenol	20.0	18.2		ug/L		91	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	69		31 - 120
Phenol-d6 (Surr)	40		10 - 120
p-Terphenyl-d14 (Surr)	78		45 - 120
2,4,6-Tribromophenol	89		28 - 127
2-Fluorophenol	59		17 - 120
Nitrobenzene-d5	72		27 - 120

Lab Sample ID: LCSD 570-300946/3-A
Matrix: Water
Analysis Batch: 301419

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300946

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	19.2		ug/L		96	52 - 129	3	35
2,4-Dinitrotoluene	20.0	19.9		ug/L		99	48 - 127	1	25
Bis(2-ethylhexyl) phthalate	20.0	20.1		ug/L		100	29 - 137	5	50
N-Nitrosodimethylamine	20.0	12.0		ug/L		60	20 - 120	2	21
Pentachlorophenol	20.0	19.3		ug/L		97	38 - 152	6	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	73		31 - 120
Phenol-d6 (Surr)	41		10 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-300946/3-A
Matrix: Water
Analysis Batch: 301419

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300946

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
p-Terphenyl-d14 (Surr)	80		45 - 120
2,4,6-Tribromophenol	95		28 - 127
2-Fluorophenol	62		17 - 120
Nitrobenzene-d5	76		27 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-300913/1-A
Matrix: Water
Analysis Batch: 302161

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300913

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		02/03/23 08:24	02/09/23 10:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	70		20 - 139	02/03/23 08:24	02/09/23 10:49	1
DCB Decachlorobiphenyl (Surr)	96		20 - 154	02/03/23 08:24	02/09/23 10:49	1

Lab Sample ID: LCS 570-300913/2-A
Matrix: Water
Analysis Batch: 301248

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300913

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0238		ug/L		71	37 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	93		20 - 139
DCB Decachlorobiphenyl (Surr)	84		20 - 154

Lab Sample ID: LCSD 570-300913/3-A
Matrix: Water
Analysis Batch: 301248

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300913

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	0.0333	0.0218		ug/L		65	37 - 140	9	36

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	88		20 - 139
DCB Decachlorobiphenyl (Surr)	78		20 - 154

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-300156/5
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			02/01/23 04:54	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 570-300156/5
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.24	mg/L			02/01/23 04:54	1

Lab Sample ID: LCS 570-300156/6
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.3		mg/L		97	90 - 110
Sulfate	50.0	48.4		mg/L		97	90 - 110

Lab Sample ID: LCSD 570-300156/7
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	48.3		mg/L		97	90 - 110	0	15
Sulfate	50.0	48.4		mg/L		97	90 - 110	0	15

Lab Sample ID: 570-125930-P-4 MS
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	58		50.0	112	EY	mg/L		108	80 - 120
Sulfate	370	EY	50.0	427	EY BB	mg/L		115	80 - 120

Lab Sample ID: 570-125930-P-4 MSD
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	58		50.0	111	EY	mg/L		108	80 - 120	0	20
Sulfate	370	EY	50.0	425	EY BB	mg/L		112	80 - 120	0	20

Lab Sample ID: MB 570-300157/5
Matrix: Water
Analysis Batch: 300157

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			02/01/23 04:54	1
Nitrate as N	ND		0.10	0.020	mg/L			02/01/23 04:54	1

Lab Sample ID: LCS 570-300157/6
Matrix: Water
Analysis Batch: 300157

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.49		mg/L		100	90 - 110
Nitrate as N	5.00	4.82		mg/L		96	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 570-300157/7
 Matrix: Water
 Analysis Batch: 300157

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.51		mg/L		100	90 - 110	1	15
Nitrate as N	5.00	4.82		mg/L		96	90 - 110	0	15

Lab Sample ID: 570-125930-P-4 MS
 Matrix: Water
 Analysis Batch: 300157

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	ND		2.50	2.38		mg/L		95	80 - 120
Nitrate as N	ND		5.00	4.92		mg/L		98	80 - 120

Lab Sample ID: 570-125930-P-4 MSD
 Matrix: Water
 Analysis Batch: 300157

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	ND		2.50	2.43		mg/L		97	80 - 120	2	20
Nitrate as N	ND		5.00	4.90		mg/L		98	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-300242/7
 Matrix: Water
 Analysis Batch: 300242

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			02/01/23 11:53	1

Lab Sample ID: LCS 570-300242/8
 Matrix: Water
 Analysis Batch: 300242

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	25.7		ug/L		103	85 - 115

Lab Sample ID: LCSD 570-300242/9
 Matrix: Water
 Analysis Batch: 300242

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	24.8		ug/L		99	85 - 115	4	15

Lab Sample ID: 570-125769-W-2 MS
 Matrix: Water
 Analysis Batch: 300242

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	550		500	1100	EY	ug/L		109	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 570-125769-W-2 MSD
 Matrix: Water
 Analysis Batch: 300242

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	550		500	1080	EY	ug/L		105	80 - 120	1	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-300523/1-A
 Matrix: Water
 Analysis Batch: 300699

Client Sample ID: Method Blank
 Prep Type: Total Recoverable
 Prep Batch: 300523

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		02/02/23 06:30	02/02/23 10:37	1
Copper	ND		2.0	0.32	ug/L		02/02/23 06:30	02/02/23 10:37	1
Lead	ND		1.0	0.12	ug/L		02/02/23 06:30	02/02/23 10:37	1
Selenium	ND		2.0	0.52	ug/L		02/02/23 06:30	02/02/23 10:37	1
Iron	ND		20	3.7	ug/L		02/02/23 06:30	02/02/23 10:37	1
Zinc	ND		20	2.8	ug/L		02/02/23 06:30	02/02/23 10:37	1

Lab Sample ID: LCS 570-300523/2-A
 Matrix: Water
 Analysis Batch: 300699

Client Sample ID: Lab Control Sample
 Prep Type: Total Recoverable
 Prep Batch: 300523

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	79.0		ug/L		99	85 - 115
Copper	80.0	76.9		ug/L		96	85 - 115
Lead	80.0	74.8		ug/L		94	85 - 115
Selenium	80.0	73.9		ug/L		92	85 - 115
Iron	800	806		ug/L		101	85 - 115
Zinc	80.0	76.0		ug/L		95	85 - 115

Lab Sample ID: LCSD 570-300523/3-A
 Matrix: Water
 Analysis Batch: 300699

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total Recoverable
 Prep Batch: 300523

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	82.0		ug/L		103	85 - 115	4	20
Copper	80.0	80.1		ug/L		100	85 - 115	4	20
Lead	80.0	76.7		ug/L		96	85 - 115	2	20
Selenium	80.0	75.2		ug/L		94	85 - 115	2	20
Iron	800	815		ug/L		102	85 - 115	1	20
Zinc	80.0	78.5		ug/L		98	85 - 115	3	20

Lab Sample ID: 570-125840-1 MS
 Matrix: Water
 Analysis Batch: 300699

Client Sample ID: Outfall002_20230131_Comp
 Prep Type: Total Recoverable
 Prep Batch: 300523

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	78.7		ug/L		98	80 - 120
Copper	1.4	J,DX	80.0	79.2		ug/L		97	80 - 120
Lead	ND		80.0	75.4		ug/L		94	80 - 120
Selenium	ND		80.0	72.8		ug/L		91	80 - 120
Iron	14	J,DX	800	812		ug/L		100	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-125840-1 MS
Matrix: Water
Analysis Batch: 300699

Client Sample ID: Outfall002_20230131_Comp
Prep Type: Total Recoverable
Prep Batch: 300523

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	ND		80.0	76.9		ug/L		96	80 - 120

Lab Sample ID: 570-125840-1 MSD
Matrix: Water
Analysis Batch: 300699

Client Sample ID: Outfall002_20230131_Comp
Prep Type: Total Recoverable
Prep Batch: 300523

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	76.0		ug/L		95	80 - 120	3	20
Copper	1.4	J,DX	80.0	77.7		ug/L		95	80 - 120	2	20
Lead	ND		80.0	75.0		ug/L		94	80 - 120	1	20
Selenium	ND		80.0	73.0		ug/L		91	80 - 120	0	20
Iron	14	J,DX	800	793		ug/L		97	80 - 120	2	20
Zinc	ND		80.0	75.8		ug/L		95	80 - 120	2	20

Lab Sample ID: MB 570-300322/1-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			02/01/23 14:38	1
Copper	ND		2.0	0.32	ug/L			02/01/23 14:38	1
Lead	ND		1.0	0.12	ug/L			02/01/23 14:38	1
Selenium	ND		2.0	0.52	ug/L			02/01/23 14:38	1
Iron	ND		20	3.7	ug/L			02/01/23 14:38	1
Zinc	ND		20	2.8	ug/L			02/01/23 14:38	1

Lab Sample ID: LCS 570-300322/2-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	74.6		ug/L		93	85 - 115
Copper	80.0	73.4		ug/L		92	85 - 115
Lead	80.0	76.3		ug/L		95	85 - 115
Selenium	80.0	70.7		ug/L		88	85 - 115
Iron	800	760		ug/L		95	85 - 115
Zinc	80.0	71.9		ug/L		90	85 - 115

Lab Sample ID: LCSD 570-300322/3-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	74.8		ug/L		94	85 - 115	0	20
Copper	80.0	73.3		ug/L		92	85 - 115	0	20
Lead	80.0	74.3		ug/L		93	85 - 115	3	20
Selenium	80.0	69.8		ug/L		87	85 - 115	1	20
Iron	800	749		ug/L		94	85 - 115	1	20
Zinc	80.0	71.3		ug/L		89	85 - 115	1	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-125840-3 MS
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Outfall002_20230131_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND	BU	80.0	75.6	BU	ug/L		94	80 - 120
Copper	1.4	J,DX BU	80.0	70.5	BU	ug/L		86	80 - 120
Lead	ND	BU	80.0	71.8	BU	ug/L		90	80 - 120
Selenium	ND	BU	80.0	77.1	BU	ug/L		96	80 - 120
Iron	8.7	J,DX BU	800	721	BU	ug/L		89	80 - 120
Zinc	3.0	J,DX BU	80.0	70.3	BU	ug/L		84	80 - 120

Lab Sample ID: 570-125840-3 MSD
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Outfall002_20230131_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND	BU	80.0	75.9	BU	ug/L		95	80 - 120	0	20
Copper	1.4	J,DX BU	80.0	71.3	BU	ug/L		87	80 - 120	1	20
Lead	ND	BU	80.0	72.3	BU	ug/L		90	80 - 120	1	20
Selenium	ND	BU	80.0	76.4	BU	ug/L		95	80 - 120	1	20
Iron	8.7	J,DX BU	800	735	BU	ug/L		91	80 - 120	2	20
Zinc	3.0	J,DX BU	80.0	70.5	BU	ug/L		84	80 - 120	0	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-300791/1-A
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300791

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		02/02/23 17:34	02/03/23 15:13	1

Lab Sample ID: LCS 570-300791/2-A
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300791

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.30		ug/L		104	85 - 115

Lab Sample ID: LCSD 570-300791/3-A
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300791

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.46		ug/L		106	85 - 115	2	10

Lab Sample ID: 570-125840-1 MS
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Outfall002_20230131_Comp
Prep Type: Total/NA
Prep Batch: 300791

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.03		ug/L		100	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-125840-1 MSD
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Outfall002_20230131_Comp
Prep Type: Total/NA
Prep Batch: 300791

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	7.74		ug/L		97	85 - 115	4	10

Lab Sample ID: MB 570-300793/1-B
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 300795

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		02/02/23 17:45	02/03/23 14:06	1

Lab Sample ID: LCS 570-300793/2-B
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 300795

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.11		ug/L		101	85 - 115

Lab Sample ID: LCSD 570-300793/3-B
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 300795

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.06		ug/L		101	85 - 115	1	10

Lab Sample ID: 570-125840-3 MS
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Outfall002_20230131_Comp_F
Prep Type: Dissolved
Prep Batch: 300795

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.15	J,DX BU	8.00	7.99	BU	ug/L		98	85 - 115

Lab Sample ID: 570-125840-3 MSD
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Outfall002_20230131_Comp_F
Prep Type: Dissolved
Prep Batch: 300795

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.15	J,DX BU	8.00	8.10	BU	ug/L		99	85 - 115	1	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-302061/5-A
Matrix: Water
Analysis Batch: 301897

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 302061

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		02/07/23 11:35	02/07/23 13:15	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 570-302061/6-A
Matrix: Water
Analysis Batch: 301897

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 302061

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.482		mg/L		96	90 - 110

Lab Sample ID: LCSD 570-302061/7-A
Matrix: Water
Analysis Batch: 301897

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 302061

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.486		mg/L		97	90 - 110	1	20

Lab Sample ID: 570-125629-U-2-A MS
Matrix: Water
Analysis Batch: 301897

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 302061

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	ND		0.500	0.498		mg/L		100	90 - 110

Lab Sample ID: 570-125629-U-2-B MSD
Matrix: Water
Analysis Batch: 301897

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 302061

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	ND		0.500	0.470		mg/L		94	90 - 110	6	25

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-301139/11
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			02/03/23 11:39	1

Lab Sample ID: LCS 570-301139/13
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	249		ug/L		100	90 - 110

Lab Sample ID: LCSD 570-301139/14
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	240		ug/L		96	90 - 110	4	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: MRL 570-301139/10
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	6.41		ug/L		128	50 - 150

Lab Sample ID: 570-125231-D-7 MS
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	6.7		250	334	LM	ug/L		131	70 - 130

Lab Sample ID: 570-125231-D-7 MSD
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	6.7		250	315		ug/L		123	70 - 130	6	30

Lab Sample ID: 570-125231-F-7 DU
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	6.7		7.30		ug/L		8	

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-299996/1
Matrix: Water
Analysis Batch: 299996

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		100.6	99.0 - 101.0

Lab Sample ID: LCSSRM 570-299996/2
Matrix: Water
Analysis Batch: 299996

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		101.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-299996/3
Matrix: Water
Analysis Batch: 299996

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: SM 2130B - Turbidity (Continued)

Lab Sample ID: 570-125769-AJ-2 DU
 Matrix: Water
 Analysis Batch: 299996

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	1.1		1.2		NTU		3	25

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-301037/1
 Matrix: Water
 Analysis Batch: 301037

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			02/03/23 13:24	1

Lab Sample ID: LCS 570-301037/2
 Matrix: Water
 Analysis Batch: 301037

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1020		mg/L		102	84 - 108

Lab Sample ID: LCSD 570-301037/3
 Matrix: Water
 Analysis Batch: 301037

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1050		mg/L		105	84 - 108	3	10

Lab Sample ID: 570-125958-G-1 DU
 Matrix: Water
 Analysis Batch: 301037

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	5100		5190		mg/L		2	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-301570/1
 Matrix: Water
 Analysis Batch: 301570

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			02/06/23 17:00	1

Lab Sample ID: LCS 570-301570/2
 Matrix: Water
 Analysis Batch: 301570

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	91.0		mg/L		91	77 - 116

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCSD 570-301570/3
 Matrix: Water
 Analysis Batch: 301570

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	92.0		mg/L		92	77 - 116	1	10

Lab Sample ID: 570-126206-C-1 DU
 Matrix: Water
 Analysis Batch: 301570

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	91		96.0		mg/L		5	10

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-300341/5-A
 Matrix: Water
 Analysis Batch: 300138

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 300341

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.20	0.050	mg/L		01/31/23 20:30	01/31/23 21:48	1

Lab Sample ID: LCS 570-300341/6-A
 Matrix: Water
 Analysis Batch: 300138

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 300341

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	0.500	0.487		mg/L		97	85 - 111

Lab Sample ID: LCSD 570-300341/7-A
 Matrix: Water
 Analysis Batch: 300138

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 300341

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	0.500	0.479		mg/L		96	85 - 111	2	7

Lab Sample ID: 570-125840-1 MS
 Matrix: Water
 Analysis Batch: 300138

Client Sample ID: Outfall002_20230131_Comp
 Prep Type: Total/NA
 Prep Batch: 300341

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	ND		0.500	0.456		mg/L		91	75 - 125

Lab Sample ID: 570-125840-1 MSD
 Matrix: Water
 Analysis Batch: 300138

Client Sample ID: Outfall002_20230131_Comp
 Prep Type: Total/NA
 Prep Batch: 300341

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	ND		0.500	0.480		mg/L		96	75 - 125	5	12

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 570-301538/2
Matrix: Water
Analysis Batch: 301538

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L			02/01/23 10:56	1

Lab Sample ID: LCS 570-301538/4
Matrix: Water
Analysis Batch: 301538

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	191		mg/L		96	84.6 - 115.4

Lab Sample ID: 570-125840-1 DU
Matrix: Water
Analysis Batch: 301538

Client Sample ID: Outfall002_20230131_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	4.8		4.54		mg/L		5	25

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

GC/MS Semi VOA

Prep Batch: 300946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	625	
MB 570-300946/1-A	Method Blank	Total/NA	Water	625	
LCS 570-300946/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-300946/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 301419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	625.1 SIM	300946
MB 570-300946/1-A	Method Blank	Total/NA	Water	625.1 SIM	300946
LCS 570-300946/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	300946
LCSD 570-300946/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	300946

GC Semi VOA

Prep Batch: 300913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	608	
MB 570-300913/1-A	Method Blank	Total/NA	Water	608	
LCS 570-300913/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-300913/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 301248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-300913/2-A	Lab Control Sample	Total/NA	Water	608.3	300913
LCSD 570-300913/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	300913

Analysis Batch: 302161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	608.3	300913
MB 570-300913/1-A	Method Blank	Total/NA	Water	608.3	300913

HPLC/IC

Analysis Batch: 300156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	300.0	
570-125840-1 - DL	Outfall002_20230131_Comp	Total/NA	Water	300.0	
MB 570-300156/5	Method Blank	Total/NA	Water	300.0	
LCS 570-300156/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-300156/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-125930-P-4 MS	Matrix Spike	Total/NA	Water	300.0	
570-125930-P-4 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 300157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	300.0	
MB 570-300157/5	Method Blank	Total/NA	Water	300.0	
LCS 570-300157/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-300157/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-125930-P-4 MS	Matrix Spike	Total/NA	Water	300.0	
570-125930-P-4 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

HPLC/IC

Analysis Batch: 300242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	314.0	
MB 570-300242/7	Method Blank	Total/NA	Water	314.0	
LCS 570-300242/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-300242/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-125769-W-2 MS	Matrix Spike	Total/NA	Water	314.0	
570-125769-W-2 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Analysis Batch: 301152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 300322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-3	Outfall002_20230131_Comp_F	Dissolved	Water	Filtration	
MB 570-300322/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-300322/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-300322/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-125840-3 MS	Outfall002_20230131_Comp_F	Dissolved	Water	Filtration	
570-125840-3 MSD	Outfall002_20230131_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 300368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-3	Outfall002_20230131_Comp_F	Dissolved	Water	200.8	300322
MB 570-300322/1-A	Method Blank	Dissolved	Water	200.8	300322
LCS 570-300322/2-A	Lab Control Sample	Dissolved	Water	200.8	300322
LCSD 570-300322/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	300322
570-125840-3 MS	Outfall002_20230131_Comp_F	Dissolved	Water	200.8	300322
570-125840-3 MSD	Outfall002_20230131_Comp_F	Dissolved	Water	200.8	300322

Prep Batch: 300523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total Recoverable	Water	200.8	
MB 570-300523/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-300523/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-300523/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-125840-1 MS	Outfall002_20230131_Comp	Total Recoverable	Water	200.8	
570-125840-1 MSD	Outfall002_20230131_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 300699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total Recoverable	Water	200.8	300523
MB 570-300523/1-A	Method Blank	Total Recoverable	Water	200.8	300523
LCS 570-300523/2-A	Lab Control Sample	Total Recoverable	Water	200.8	300523
LCSD 570-300523/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	300523
570-125840-1 MS	Outfall002_20230131_Comp	Total Recoverable	Water	200.8	300523
570-125840-1 MSD	Outfall002_20230131_Comp	Total Recoverable	Water	200.8	300523

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Metals

Prep Batch: 300791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	245.1	
MB 570-300791/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-300791/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-300791/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-125840-1 MS	Outfall002_20230131_Comp	Total/NA	Water	245.1	
570-125840-1 MSD	Outfall002_20230131_Comp	Total/NA	Water	245.1	

Filtration Batch: 300793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-3	Outfall002_20230131_Comp_F	Dissolved	Water	Filtration	
MB 570-300793/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-300793/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-300793/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-125840-3 MS	Outfall002_20230131_Comp_F	Dissolved	Water	Filtration	
570-125840-3 MSD	Outfall002_20230131_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 300795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-3	Outfall002_20230131_Comp_F	Dissolved	Water	245.1	300793
MB 570-300793/1-B	Method Blank	Dissolved	Water	245.1	300793
LCS 570-300793/2-B	Lab Control Sample	Dissolved	Water	245.1	300793
LCSD 570-300793/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	300793
570-125840-3 MS	Outfall002_20230131_Comp_F	Dissolved	Water	245.1	300793
570-125840-3 MSD	Outfall002_20230131_Comp_F	Dissolved	Water	245.1	300793

Analysis Batch: 301067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	245.1	300791
570-125840-3	Outfall002_20230131_Comp_F	Dissolved	Water	245.1	300795
MB 570-300791/1-A	Method Blank	Total/NA	Water	245.1	300791
MB 570-300793/1-B	Method Blank	Dissolved	Water	245.1	300795
LCS 570-300791/2-A	Lab Control Sample	Total/NA	Water	245.1	300791
LCS 570-300793/2-B	Lab Control Sample	Dissolved	Water	245.1	300795
LCSD 570-300791/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	300791
LCSD 570-300793/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	300795
570-125840-1 MS	Outfall002_20230131_Comp	Total/NA	Water	245.1	300791
570-125840-1 MSD	Outfall002_20230131_Comp	Total/NA	Water	245.1	300791
570-125840-3 MS	Outfall002_20230131_Comp_F	Dissolved	Water	245.1	300795
570-125840-3 MSD	Outfall002_20230131_Comp_F	Dissolved	Water	245.1	300795

General Chemistry

Analysis Batch: 299996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-299996/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-299996/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-299996/3	Lab Control Sample	Total/NA	Water	SM 2130B	
570-125769-AJ-2 DU	Duplicate	Total/NA	Water	SM 2130B	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

General Chemistry

Analysis Batch: 300138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	SM 5540C	300341
MB 570-300341/5-A	Method Blank	Total/NA	Water	SM 5540C	300341
LCS 570-300341/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	300341
LCSD 570-300341/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	300341
570-125840-1 MS	Outfall002_20230131_Comp	Total/NA	Water	SM 5540C	300341
570-125840-1 MSD	Outfall002_20230131_Comp	Total/NA	Water	SM 5540C	300341

Prep Batch: 300341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	SM 5540C	
MB 570-300341/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-300341/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-300341/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-125840-1 MS	Outfall002_20230131_Comp	Total/NA	Water	SM 5540C	
570-125840-1 MSD	Outfall002_20230131_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 301037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	SM 2540C	
MB 570-301037/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-301037/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-301037/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-125958-G-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 301139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	Kelada 01	
MB 570-301139/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-301139/13	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-301139/14	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-301139/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-125231-D-7 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-125231-D-7 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	
570-125231-F-7 DU	Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 301538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	SM5210B	
USB 570-301538/2	Method Blank	Total/NA	Water	SM5210B	
LCS 570-301538/4	Lab Control Sample	Total/NA	Water	SM5210B	
570-125840-1 DU	Outfall002_20230131_Comp	Total/NA	Water	SM5210B	

Analysis Batch: 301570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	SM 2540D	
MB 570-301570/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-301570/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-301570/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-126206-C-1 DU	Duplicate	Total/NA	Water	SM 2540D	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

General Chemistry

Analysis Batch: 301897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	350.1	302061
MB 570-302061/5-A	Method Blank	Total/NA	Water	350.1	302061
LCS 570-302061/6-A	Lab Control Sample	Total/NA	Water	350.1	302061
LCSD 570-302061/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	302061
570-125629-U-2-A MS	Matrix Spike	Total/NA	Water	350.1	302061
570-125629-U-2-B MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	302061

Prep Batch: 302061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	Distill/Ammonia	302061
MB 570-302061/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	302061
LCS 570-302061/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	302061
LCSD 570-302061/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	302061
570-125629-U-2-A MS	Matrix Spike	Total/NA	Water	Distill/Ammonia	302061
570-125629-U-2-B MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/Ammonia	302061

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Client Sample ID: Outfall002_20230131_Comp

Lab Sample ID: 570-125840-1

Date Collected: 01/31/23 08:00

Matrix: Water

Date Received: 01/31/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1053 mL	2 mL	300946	02/03/23 09:57	H1SH	EET CAL 4
Total/NA	Analysis	625.1 SIM Instrument ID: GCMSJJJ		1	1 mL	1 mL	301419	02/06/23 15:29	ULLI	EET CAL 4
Total/NA	Prep	608			1500 mL	1 mL	300913	02/03/23 08:24	OAJ3	EET CAL 4
Total/NA	Analysis	608.3 Instrument ID: GC52A		1	1 mL	1 mL	302161	02/09/23 11:33	N5Y3	EET CAL 4
Total/NA	Analysis	300.0 Instrument ID: IC15		1	4 mL	4 mL	300156	02/01/23 08:25	PS	EET CAL 4
Total/NA	Analysis	300.0 Instrument ID: IC15		1	4 mL	4 mL	300157	02/01/23 08:25	PS	EET CAL 4
Total/NA	Analysis	300.0 Instrument ID: IC15	DL	10	4 mL	4 mL	300156	02/01/23 11:06	PS	EET CAL 4
Total/NA	Analysis	314.0 Instrument ID: IC13		1	4 mL	4 mL	300242	02/01/23 16:45	M5Z3	EET CAL 4
Total/NA	Analysis	NO2NO3 Calc Instrument ID: NOEQUIP		1			301152	02/03/23 18:31	WH6J	EET CAL 4
Total Recoverable	Prep	200.8			50 mL	50 mL	300523	02/02/23 07:00	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8 Instrument ID: ICPMS10		1			300699	02/02/23 11:46	Y2WS	EET CAL 4
Total/NA	Prep	245.1			25 mL	50 mL	300791	02/02/23 17:34	CS5Z	EET CAL 4
Total/NA	Analysis	245.1 Instrument ID: HG8		1			301067	02/03/23 15:18	C0YH	EET CAL 4
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	302061	02/07/23 11:35	UXCH	EET CAL 4
Total/NA	Analysis	350.1 Instrument ID: ACA2		1	5 mL	5 mL	301897	02/07/23 13:57	UXCH	EET CAL 4
Total/NA	Analysis	Kelada 01 Instrument ID: LACHAT01		1	8 mL	8 mL	301139	02/03/23 16:36	GG0B	EET CAL 4
Total/NA	Analysis	SM 2130B Instrument ID: TUR4		1			299996	01/31/23 20:26	TXA8	EET CAL 4
Total/NA	Analysis	SM 2540C Instrument ID: NOEQUIP		1	100 mL	1000 mL	301037	02/03/23 13:24	ZL7L	EET CAL 4
Total/NA	Analysis	SM 2540D Instrument ID: BAL71		1	1000 mL	1000 mL	301570	02/06/23 17:00	UWCT	EET CAL 4
Total/NA	Prep	SM 5540C			100 mL	100 mL	300341	01/31/23 20:30	ZVB7	EET CAL 4
Total/NA	Analysis	SM 5540C Instrument ID: UV9		1	100 mL	100 mL	300138	01/31/23 21:53	ZVB7	EET CAL 4
Total/NA	Analysis	SM5210B Instrument ID: BOD3		1			301538	02/01/23 11:26	U7UR	EET CAL 4

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Client Sample ID: Outfall002_20230131_Comp_F

Lab Sample ID: 570-125840-3

Date Collected: 01/31/23 08:00

Matrix: Water

Date Received: 01/31/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	300322	02/01/23 13:29	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			300368	02/01/23 14:45	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Dissolved	Filtration	Filtration			25 mL	25 mL	300793	02/02/23 17:35	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	300795	02/02/23 17:45	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			301067	02/03/23 14:11	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	40CFR136A	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
SM5210B	BOD, 5 Day	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	EET CAL 4
625	Liquid-Liquid Extraction	40CFR136A	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-125840-1	Outfall002_20230131_Comp	Water	01/31/23 08:00	01/31/23 19:25
570-125840-3	Outfall002_20230131_Comp_F	Water	01/31/23 08:00	01/31/23 19:25

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125840-1

Login Number: 125840

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is < /= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is < 6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-125840-2

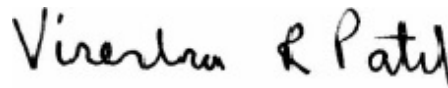
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Job ID: 570-125840-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-125840-2

Comments

No additional comments.

Receipt

The samples were received on 1/31/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.0° C, 1.2° C, 1.3° C and 1.7° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: Outfall002_20230131_Comp (570-125840-1), (CCV 320-652668/2) and (MB 320-651919/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Client Sample ID: Outfall002_20230131_Comp

Lab Sample ID: 570-125840-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDD	0.00000032	J,DX MB q	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				2					
1,2,3,7,8-PeCDF	0.00000050	J,DX MB	0.000047	0.00000011	ug/L	1		1613B	Total/NA
2,3,4,7,8-PeCDF	0.00000026	J,DX MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,7,8-HxCDD	0.00000023	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				4					
1,2,3,6,7,8-HxCDD	0.00000044	J,DX MB q	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				2					
1,2,3,7,8,9-HxCDD	0.00000070	J,DX MB q	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				0					
1,2,3,4,7,8-HxCDF	0.00000048	J,DX MB q	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				6					
1,2,3,6,7,8-HxCDF	0.00000040	J,DX MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				3					
1,2,3,7,8,9-HxCDF	0.00000076	J,DX MB	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				90					
2,3,4,6,7,8-HxCDF	0.00000019	J,DX MB q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				86					
1,2,3,4,6,7,8-HpCDD	0.00000015	J,DX MB	0.000047	0.00000011	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.00000011	J,DX MB q	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				4					
1,2,3,4,7,8,9-HpCDF	0.00000029	J,DX MB q	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				0					
OCDD	0.00000062	J,DX MB	0.000095	0.0000002	ug/L	1		1613B	Total/NA
				8					
OCDF	0.00000011	J,DX MB q	0.000095	0.0000001	ug/L	1		1613B	Total/NA
				8					
Total TCDF	0.00000019	J,DX MB q	0.0000095	0.0000000	ug/L	1		1613B	Total/NA
				83					
Total PeCDD	0.00000068	J,DX MB q	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				2					
Total PeCDF	0.00000076	J,DX MB	0.000047	0.00000011	ug/L	1		1613B	Total/NA
Total HxCDD	0.00000034	J,DX MB q	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				0					
Total HxCDF	0.00000018	J,DX MB q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				86					
Total HpCDD	0.00000032	J,DX MB	0.000047	0.00000011	ug/L	1		1613B	Total/NA
Total HpCDF	0.00000014	J,DX MB q	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				0					

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230131_Comp

Lab Sample ID: 570-125840-1

Date Collected: 01/31/23 08:00

Matrix: Water

Date Received: 01/31/23 19:25

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,7,8-PeCDD	0.00000032	J,DX MB q	0.000047	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,7,8-PeCDF	0.00000050	J,DX MB	0.000047	0.00000011	ug/L		02/06/23 05:11	02/08/23 19:46	1
2,3,4,7,8-PeCDF	0.00000026	J,DX MB	0.000047	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,4,7,8-HxCDD	0.00000023	J,DX MB	0.000047	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,6,7,8-HxCDD	0.00000044	J,DX MB q	0.000047	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,7,8,9-HxCDD	0.00000070	J,DX MB q	0.000047	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,4,7,8-HxCDF	0.00000048	J,DX MB q	0.000047	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,6,7,8-HxCDF	0.00000040	J,DX MB	0.000047	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,7,8,9-HxCDF	0.00000076	J,DX MB	0.000047	0.0000000	ug/L		02/06/23 05:11	02/08/23 19:46	1
2,3,4,6,7,8-HxCDF	0.00000019	J,DX MB q	0.000047	0.0000000	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,4,6,7,8-HpCDD	0.00000015	J,DX MB	0.000047	0.00000011	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,4,6,7,8-HpCDF	0.00000011	J,DX MB q	0.000047	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
1,2,3,4,7,8,9-HpCDF	0.00000029	J,DX MB q	0.000047	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
OCDD	0.00000062	J,DX MB	0.000095	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
OCDF	0.00000011	J,DX MB q	0.000095	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:46	1
Total TCDD	ND		0.0000095	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
Total TCDF	0.00000019	J,DX MB q	0.000095	0.0000000	ug/L		02/06/23 05:11	02/08/23 19:46	1
Total PeCDD	0.00000068	J,DX MB q	0.000047	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
Total PeCDF	0.00000076	J,DX MB	0.000047	0.00000011	ug/L		02/06/23 05:11	02/08/23 19:46	1
Total HxCDD	0.00000034	J,DX MB q	0.000047	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
Total HxCDF	0.00000018	J,DX MB q	0.000047	0.0000000	ug/L		02/06/23 05:11	02/08/23 19:46	1
Total HpCDD	0.00000032	J,DX MB	0.000047	0.00000011	ug/L		02/06/23 05:11	02/08/23 19:46	1
Total HpCDF	0.00000014	J,DX MB q	0.000047	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	76		25 - 164				02/06/23 05:11	02/08/23 19:46	1
13C-2,3,7,8-TCDF	74		24 - 169				02/06/23 05:11	02/08/23 19:46	1
13C-1,2,3,7,8-PeCDD	69		25 - 181				02/06/23 05:11	02/08/23 19:46	1
13C-1,2,3,7,8-PeCDF	73		24 - 185				02/06/23 05:11	02/08/23 19:46	1
13C-2,3,4,7,8-PeCDF	61		21 - 178				02/06/23 05:11	02/08/23 19:46	1
13C-1,2,3,4,7,8-HxCDD	51		32 - 141				02/06/23 05:11	02/08/23 19:46	1
13C-1,2,3,6,7,8-HxCDD	63		28 - 130				02/06/23 05:11	02/08/23 19:46	1
13C-1,2,3,4,7,8-HxCDF	44		26 - 152				02/06/23 05:11	02/08/23 19:46	1
13C-1,2,3,6,7,8-HxCDF	56		26 - 123				02/06/23 05:11	02/08/23 19:46	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230131_Comp
Date Collected: 01/31/23 08:00
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,7,8,9-HxCDF	86		29 - 147	02/06/23 05:11	02/08/23 19:46	1
13C-2,3,4,6,7,8-HxCDF	82		28 - 136	02/06/23 05:11	02/08/23 19:46	1
13C-1,2,3,4,6,7,8-HpCDD	76		23 - 140	02/06/23 05:11	02/08/23 19:46	1
13C-1,2,3,4,6,7,8-HpCDF	56		28 - 143	02/06/23 05:11	02/08/23 19:46	1
13C-1,2,3,4,7,8,9-HpCDF	81		26 - 138	02/06/23 05:11	02/08/23 19:46	1
13C-OCDD	81		17 - 157	02/06/23 05:11	02/08/23 19:46	1
13C-OCDF	79		17 - 157	02/06/23 05:11	02/08/23 19:46	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	85		35 - 197	02/06/23 05:11	02/08/23 19:46	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall002_20230131_Comp
Date Collected: 01/31/23 08:00
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.0000095	0.0000004	ug/L		02/06/23 05:11	02/09/23 17:35	1
				9					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	64		24 - 169				02/06/23 05:11	02/09/23 17:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	89		35 - 197				02/06/23 05:11	02/09/23 17:35	1

- 1
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- 12
- 13
- 14
- 15
- 16

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-125840-1	Outfall002_20230131_Comp	85
570-125840-1 - RA	Outfall002_20230131_Comp	89
MB 320-651919/1-A	Method Blank	87
MB 320-651919/1-A - RA	Method Blank	90

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-651919/2-A	Lab Control Sample	85
LCSD 320-651919/3-A	Lab Control Sample Dup	89

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-125840-1	Outfall002_20230131_Comp	76	74	69	73	61	51	63	44
570-125840-1 - RA	Outfall002_20230131_Comp		64						
MB 320-651919/1-A	Method Blank	68	65	64	66	62	57	63	53
MB 320-651919/1-A - RA	Method Blank		55						

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	¹³ CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-125840-1	Outfall002_20230131_Comp	56	86	82	76	56	81	81	79
570-125840-1 - RA	Outfall002_20230131_Comp								
MB 320-651919/1-A	Method Blank	62	74	72	65	57	67	66	64
MB 320-651919/1-A - RA	Method Blank								

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- ¹³CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-651919/2-A	Lab Control Sample	69	67	63	65	57	51	60	47
LCSD 320-651919/3-A	Lab Control Sample Dup	74	72	72	75	67	58	66	50

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	¹³ CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-651919/2-A	Lab Control Sample	57	77	73	67	54	71	72	69
LCSD 320-651919/3-A	Lab Control Sample Dup	62	82	78	74	60	79	84	81

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF

Eurofins Calscience

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-125840-2

Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

HxCDD = 13C-1,2,3,4,7,8-HxCDD

HxDD = 13C-1,2,3,6,7,8-HxCDD

HxCDF = 13C-1,2,3,4,7,8-HxCDF

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-651919/1-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 651919

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDF	66		24 - 185	02/06/23 05:11	02/08/23 14:21	1
13C-2,3,4,7,8-PeCDF	62		21 - 178	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,7,8-HxCDD	57		32 - 141	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,6,7,8-HxCDD	63		28 - 130	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,6,7,8-HxCDF	62		26 - 123	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,7,8,9-HxCDF	74		29 - 147	02/06/23 05:11	02/08/23 14:21	1
13C-2,3,4,6,7,8-HxCDF	72		28 - 136	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,6,7,8-HpCDD	65		23 - 140	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,6,7,8-HpCDF	57		28 - 143	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,7,8,9-HpCDF	67		26 - 138	02/06/23 05:11	02/08/23 14:21	1
13C-OCDD	66		17 - 157	02/06/23 05:11	02/08/23 14:21	1
13C-OCDF	64		17 - 157	02/06/23 05:11	02/08/23 14:21	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	87		35 - 197	02/06/23 05:11	02/08/23 14:21	1

Lab Sample ID: LCS 320-651919/2-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 651919

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000235	MB	ug/L		118	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00102	MB	ug/L		102	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00105	MB	ug/L		105	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00105	MB	ug/L		105	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00101	MB	ug/L		101	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00106	MB	ug/L		106	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00136	MB	ug/L		136	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00104	MB	ug/L		104	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00106	MB	ug/L		106	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00104	MB	ug/L		104	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00105	MB	ug/L		105	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00106	MB	ug/L		106	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00108	MB	ug/L		108	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00106	MB	ug/L		106	78 - 138
OCDD	0.00200	0.00209	MB	ug/L		105	78 - 144
OCDF	0.00200	0.00223	MB	ug/L		112	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	69		20 - 175
13C-2,3,7,8-TCDF	67		22 - 152
13C-1,2,3,7,8-PeCDD	63		21 - 227
13C-1,2,3,7,8-PeCDF	65		21 - 192
13C-2,3,4,7,8-PeCDF	57		13 - 328
13C-1,2,3,4,7,8-HxCDD	51		21 - 193
13C-1,2,3,6,7,8-HxCDD	60		25 - 163

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-651919/2-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 651919

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDF	47		19 - 202
13C-1,2,3,6,7,8-HxCDF	57		21 - 159
13C-1,2,3,7,8,9-HxCDF	77		17 - 205
13C-2,3,4,6,7,8-HxCDF	73		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	67		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	54		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	71		20 - 186
13C-OCDD	72		13 - 199
13C-OCDF	69		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	85		31 - 191

Lab Sample ID: LCSD 320-651919/3-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 651919

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000214		ug/L		107	67 - 158	1	50	
2,3,7,8-TCDF	0.000200	0.000231	MB	ug/L		115	75 - 158	2	50	
1,2,3,7,8-PeCDD	0.00100	0.00104	MB	ug/L		104	70 - 142	2	50	
1,2,3,7,8-PeCDF	0.00100	0.00103	MB	ug/L		103	80 - 134	2	50	
2,3,4,7,8-PeCDF	0.00100	0.00105	MB	ug/L		105	68 - 160	0	50	
1,2,3,4,7,8-HxCDD	0.00100	0.00105	MB	ug/L		105	70 - 164	3	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00104	MB	ug/L		104	76 - 134	2	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00128	MB	ug/L		128	64 - 162	6	50	
1,2,3,4,7,8-HxCDF	0.00100	0.00107	MB	ug/L		107	72 - 134	3	50	
1,2,3,6,7,8-HxCDF	0.00100	0.00105	MB	ug/L		105	84 - 130	1	50	
1,2,3,7,8,9-HxCDF	0.00100	0.00105	MB	ug/L		105	78 - 130	1	50	
2,3,4,6,7,8-HxCDF	0.00100	0.00104	MB	ug/L		104	70 - 156	1	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00106	MB	ug/L		106	70 - 140	0	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00107	MB	ug/L		107	82 - 122	1	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00107	MB	ug/L		107	78 - 138	0	50	
OCDD	0.00200	0.00207	MB	ug/L		103	78 - 144	1	50	
OCDF	0.00200	0.00220	MB	ug/L		110	63 - 170	1	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	74		20 - 175
13C-2,3,7,8-TCDF	72		22 - 152
13C-1,2,3,7,8-PeCDD	72		21 - 227
13C-1,2,3,7,8-PeCDF	75		21 - 192
13C-2,3,4,7,8-PeCDF	67		13 - 328
13C-1,2,3,4,7,8-HxCDD	58		21 - 193
13C-1,2,3,6,7,8-HxCDD	66		25 - 163
13C-1,2,3,4,7,8-HxCDF	50		19 - 202
13C-1,2,3,6,7,8-HxCDF	62		21 - 159
13C-1,2,3,7,8,9-HxCDF	82		17 - 205
13C-2,3,4,6,7,8-HxCDF	78		22 - 176

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-651919/3-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 651919

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,4,6,7,8-HpCDD	74		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	60		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	79		20 - 186
13C-OCDD	84		13 - 199
13C-OCDF	81		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	89		31 - 191

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-651919/1-A
Matrix: Water
Analysis Batch: 652668

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 651919

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>EDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,3,7,8-TCDF - RA	ND		0.000010	0.0000005	ug/L		02/06/23 05:11	02/09/23 15:44	1

<i>Isotope Dilution</i>	<i>MB MB</i>		<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
13C-2,3,7,8-TCDF - RA	55		24 - 169	02/06/23 05:11	02/09/23 15:44	1

<i>Surrogate</i>	<i>MB MB</i>		<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
37Cl4-2,3,7,8-TCDD - RA	90		35 - 197	02/06/23 05:11	02/09/23 15:44	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Specialty Organics

Prep Batch: 651919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1 - RA	Outfall002_20230131_Comp	Total/NA	Water	1613B	
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	1613B	
MB 320-651919/1-A - RA	Method Blank	Total/NA	Water	1613B	
MB 320-651919/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-651919/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-651919/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 652545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	1613B	651919
MB 320-651919/1-A	Method Blank	Total/NA	Water	1613B	651919
LCS 320-651919/2-A	Lab Control Sample	Total/NA	Water	1613B	651919
LCSD 320-651919/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	651919

Analysis Batch: 652668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1 - RA	Outfall002_20230131_Comp	Total/NA	Water	1613B	651919
MB 320-651919/1-A - RA	Method Blank	Total/NA	Water	1613B	651919

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Client Sample ID: Outfall002_20230131_Comp

Lab Sample ID: 570-125840-1

Date Collected: 01/31/23 08:00

Matrix: Water

Date Received: 01/31/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B	RA		1057.5 mL	20.0 uL	651919	02/06/23 05:11	FC	EET SAC
Total/NA	Analysis	1613B	RA	1	1 uL	1 uL	652668	02/09/23 17:35	DB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1057.5 mL	20.0 uL	651919	02/06/23 05:11	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	652545	02/08/23 19:46	GRB	EET SAC
Instrument ID: 12D5										

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23 *
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-125840-1	Outfall002_20230131_Comp	Water	01/31/23 08:00	01/31/23 19:25

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CHAIN OF CUSTODY FORM

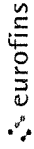
Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Denian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 001, 002, 011, 018 Outfall 002 Comp		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5083, 818.599.0702 (cell)		Cyanide (SM4500-CN-E / E335.2) Total Dissolved Metals (E200.8) Zn, Pb, Cd, Se Total Dissolved Metals (E200.8) Fe Total Dissolved Metals Mercury (E245.1)		Comments Filter and preserve w/in 24hrs of receipt at lab. Outfall 002 analyze for Fe. Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.			
Sample Description: 3 Outfall002_20230131_Comp_F	Sampling Date/Time: 1/31/2023 / 10:00	Sample Matrix: WM	Container Type: 1L Poly	# of Cont. 1	Preservative: None	Bottle #: 200	MS/MSD: No	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Radium 226 (E903.0 or E903.1) & Combined Radium 226 (E903.0 or E903.1) & CS-137 (E901.0 or E901.1)	Total Dissolved Metals Mercury (E245.1)	Total Dissolved Metals (E200.8) Fe	Comments: Filter and preserve w/in 24hrs of receipt at lab. Outfall 002 analyze for Fe.
Sample Description: 1 Outfall002_20230131_Comp	Sampling Date/Time: 1/31/2023 / 10:50	Sample Matrix: WM	Container Type: borosilicate vials	# of Cont. 1	Preservative: None	Bottle #: 320	MS/MSD: No	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Radium 226 (E903.0 or E903.1) & Combined Radium 226 (E903.0 or E903.1) & CS-137 (E901.0 or E901.1)	Total Dissolved Metals Mercury (E245.1)	Total Dissolved Metals (E200.8) Fe	Comments: Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
Sample Description: 1 Outfall002_20230131_Comp	Sampling Date/Time: 1/31/2023 / 10:50	Sample Matrix: WM	Container Type: 500 mL Poly	# of Cont. 1	Preservative: NaOH	Bottle #: 220	MS/MSD: No	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Radium 226 (E903.0 or E903.1) & Combined Radium 226 (E903.0 or E903.1) & CS-137 (E901.0 or E901.1)	Total Dissolved Metals Mercury (E245.1)	Total Dissolved Metals (E200.8) Fe	Comments: Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
Sample Description: 1 Outfall002_20230131_Comp	Sampling Date/Time: 1/31/2023 / 10:50	Sample Matrix: WM	Container Type: 2.5 Gall Cans	# of Cont. 1	Preservative: None	Bottle #: 225	MS/MSD: No	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Radium 226 (E903.0 or E903.1) & Combined Radium 226 (E903.0 or E903.1) & CS-137 (E901.0 or E901.1)	Total Dissolved Metals Mercury (E245.1)	Total Dissolved Metals (E200.8) Fe	Comments: Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
Sample Description: 1 Outfall002_20230131_Comp	Sampling Date/Time: 1/31/2023 / 10:50	Sample Matrix: WM	Container Type: 1L Glass Amber	# of Cont. 1	Preservative: None	Bottle #: 230	MS/MSD: No	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Radium 226 (E903.0 or E903.1) & Combined Radium 226 (E903.0 or E903.1) & CS-137 (E901.0 or E901.1)	Total Dissolved Metals Mercury (E245.1)	Total Dissolved Metals (E200.8) Fe	Comments: Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: Mark Dominick Date/Time: 1/31/23 1405	Received By: HIA Date/Time: 1/31/23 1405 EC	Turn-around time: (Check) 24 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 10 Day <input checked="" type="checkbox"/> 48 Hour <input type="checkbox"/> 5 Day <input type="checkbox"/> Normal <input type="checkbox"/>
Relinquished By: HIA Date/Time: 1/31/23 1925	Received By: EC Date/Time: 1/31/23 1925	Sample Integrity: (Check) Intact: <input type="checkbox"/> On Ice: <input type="checkbox"/> Store samples for 6 months. Data Requirements: (Check) No Level IV: <input type="checkbox"/> All Level IV: <input checked="" type="checkbox"/>



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s):	COC No.
Client Contact: 2841 Dow Avenue Suite 100, Tustin, CA 92780, Phone: 714-895-5494		Patel, Virendra	Patel, Virendra	State of Origin: California	570-206097-1
Shipping/Receiving Company: TestAmerica Laboratornes Inc.		E-Mail: Virendra.Patel@et.eurofins.com	State P Program - California	Page 1 of 1	
Address: 13715 Rider Trail North, Earth City, MO, 63045		Due Date Requested: 3/7/2023	Analysis Requested	Job #: 570-125840-3	Preservation Codes
City: Earth City, State: MO, Zip: 63045		TAT Requested (days)	901 1 Cs/Fill_Geo_0 K-40 and Cesium-137		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		PO #:	900.0/Evaporation Gross Alpha/Beta		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SSO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)
Email:		WO #:	A01r U/Exchrom_Actin Total Uranium		
Project Name: Boeing SSFL NPDES - Outfall 002 - Comp		Project #: 44024446	903.0/PreSep_21 Radium-226		
Site:		SSOW#:	904.0/PreSep_0 Radium-228		
Sample Identification - Client ID (Lab ID)		Sample Date	905_Sr90/PreSep_7 Strontium-90		
Outfall002_20230131_Comp (570-125840-1)	Sample Type (C=Comp, G=grab)	1/31/23	906.0/LSC_Dist_Susp Tritium		
	Sample Time	08 00 Pacific			
	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=air)	Water			
	Preservation Code:				
	Field Filtered Sample (Yes or No)				
	Perform MS/MSD (Yes or No)				
	Total Number of Containers				
	Special Instructions/Note:				Boeing SSFL, DO NOT FILTER, use prep date from preservation

Note: Since laboratory accreditations are subject to change Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date	Time
Relinquished by:	2/2/23	1312
Relinquished by:		
Relinquished by:		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No	

Method of Shipment: _____
 Date/Time: _____
 Date/Time: _____
 Date/Time: _____
 Cooler Temperature(s) °C and Other Remarks:



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125840-2

Login Number: 125840

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125840-2

Login Number: 125840

List Number: 2

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 02/02/23 05:11 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/6/2023 4:37:32 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 002 - Comp

JOB NUMBER

570-125840-3

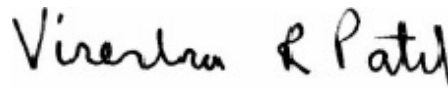
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
F1	MS and/or MSD recovery exceeds control limits.
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Job ID: 570-125840-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-125840-3

Comments

No additional comments.

Receipt

The samples were received on 1/31/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.0° C, 1.2° C, 1.3° C and 1.7° C.

RAD

Method 900.0: Gross Alpha and Gross Beta batch 599624

The matrix spike (MS) recoveries for Gross Alpha were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (240-179737-P-1-B MS)

Method 900.0: Gross Alpha and Gross Beta batch 599624

The matrix spike / matrix spike duplicate (MS/MSD) precision for Gross Beta was outside control limits. However the MS/MSD precision for Gross Alpha was within the acceptable QC limits. Original results will be reported (240-179737-P-1-F MSBTD)

Method 900.0: Gross Alpha and Gross Beta batch 599624

The detection goal was not met for the following sample due to a reduction of the sample size attributed to high residual mass: (240-179737-P-1-C). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha and Gross Beta batch 599624

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230131_Comp (570-125840-1), (LCS 160-599624/2-A), (LCSB 160-599624/3-A), (MB 160-599624/1-A), (240-179737-P-1-C), (240-179737-P-1-B MS), (240-179737-P-1-E MSBT), (240-179737-P-1-F MSBTD) and (240-179737-P-1-D MSD)

Method 901.1: Gamma Prep Batch 160-601388

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Job ID: 570-125840-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Bi-214 Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230131_Comp (570-125840-1), (570-125746-U-1-K) and (570-125746-U-1-L DU)

Methods 903.0, 9315: Radium-226 prep batch 160-599777:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230131_Comp (570-125840-1), (LCS 160-599777/2-A), (MB 160-599777/1-A), (160-48840-A-1-A) and (160-48840-B-1-B DU)

Methods 904.0, 9320: Radium-228 batch 599779

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230131_Comp (570-125840-1), (LCS 160-599779/2-A), (MB 160-599779/1-A), (160-48840-A-1-B) and (160-48840-B-1-C DU)

Method 905: Strontium-90 prep batch 160-600473:

The following sample counted on a detector that failed the beta daily (check). The efficiency is set at 3% and the check efficiency was 3.3%. The daily (check) run the day prior to and following the sample count, passed. Additionally the affected sample achieved its detection goal and had activity well below the MDC. The potential for bias is so minimal that the lab does not believe it to negatively impact the data being reported. Outfall002_20230131_Comp (570-125840-1)

Methods 905, SR-03-RC: Strontium-90 prep batch 160-600473:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230131_Comp (570-125840-1), (LCS 160-600473/2-A), (LCSD 160-600473/3-A) and (MB 160-600473/1-A)

Method 906.0: Tritium 599699

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230131_Comp (570-125840-1), (LCS 160-599699/2-A), (MB 160-599699/1-A), (570-125746-S-2-A), (570-125746-S-2-B MS), (570-125930-D-5-A) and (570-125930-D-5-B DU)

Method A-01-R: Isotopic Uranium Batch 599667

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230131_Comp (570-125840-1), (LCS 160-599667/2-A), (MB 160-599667/1-A), (570-125839-J-1-B) and (570-125839-J-1-C DU)

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Job ID: 570-125840-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method ExtChrom: Uranium Prep Batch 160-599667:

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall002_20230131_Comp (570-125840-1).

Method PrecSep_0:

Method PrecSep-21:

Method PrecSep-7: Strontium-90 Prep Batch 160-600473

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230131_Comp (570-125840-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Client Sample ID: Outfall002_20230131_Comp

Lab Sample ID: 570-125840-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230131_Comp
Date Collected: 01/31/23 08:00
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.426	U	0.877	0.879	3.00	1.81	pCi/L	02/08/23 08:13	02/16/23 20:26	1
Gross Beta	0.807	U F	0.548	0.554	4.00	0.845	pCi/L	02/08/23 08:13	02/16/23 20:26	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230131_Comp
Date Collected: 01/31/23 08:00
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-2.46	U	7.76	7.77	20.0	10.3	pCi/L	02/23/23 09:06	03/03/23 09:21	1
Potassium-40	-45.1	U	80.4	80.6		116	pCi/L	02/23/23 09:06	03/03/23 09:21	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230131_Comp
 Date Collected: 01/31/23 08:00
 Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0357	U	0.0895	0.0895	1.00	0.162	pCi/L	02/09/23 09:26	03/03/23 08:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.9		30 - 110					02/09/23 09:26	03/03/23 08:37	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230131_Comp
Date Collected: 01/31/23 08:00
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.408	U	0.528	0.530	1.00	0.879	pCi/L	02/09/23 09:57	02/14/23 12:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.9		30 - 110					02/09/23 09:57	02/14/23 12:05	1
Y Carrier	86.0		30 - 110					02/09/23 09:57	02/14/23 12:05	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230131_Comp
 Date Collected: 01/31/23 08:00
 Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.369	U	0.318	0.320	3.00	0.504	pCi/L	02/15/23 12:32	02/27/23 16:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	87.5		30 - 110					02/15/23 12:32	02/27/23 16:11	1
Y Carrier	86.4		30 - 110					02/15/23 12:32	02/27/23 16:11	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230131_Comp
 Date Collected: 01/31/23 08:00
 Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	11.7	U	188	188	500	351	pCi/L	02/08/23 13:19	02/10/23 02:28	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230131_Comp
 Date Collected: 01/31/23 08:00
 Date Received: 01/31/23 19:25

Lab Sample ID: 570-125840-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.247	U	0.213	0.214	1.00	0.263	pCi/L	02/08/23 11:16	02/23/23 13:00	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	80.6		30 - 110					02/08/23 11:16	02/23/23 13:00	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
160-48840-B-1-B DU	Duplicate	89.4	
570-125840-1	Outfall002_20230131_Comp	86.9	
LCS 160-599777/2-A	Lab Control Sample	87.7	
MB 160-599777/1-A	Method Blank	95.4	

Tracer/Carrier Legend
Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
160-48840-B-1-C DU	Duplicate	89.4	84.5
570-125840-1	Outfall002_20230131_Comp	86.9	86.0
LCS 160-599779/2-A	Lab Control Sample	87.7	84.1
MB 160-599779/1-A	Method Blank	95.4	87.9

Tracer/Carrier Legend
Ba = Ba Carrier
Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)
570-125840-1	Outfall002_20230131_Comp	87.5	86.4
LCS 160-600473/2-A	Lab Control Sample	88.4	80.4
LCSD 160-600473/3-A	Lab Control Sample Dup	87.1	84.5
MB 160-600473/1-A	Method Blank	89.3	75.9

Tracer/Carrier Legend
Sr = Sr Carrier
Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
570-125839-J-1-C DU	Duplicate	85.7	
570-125840-1	Outfall002_20230131_Comp	80.6	
LCS 160-599667/2-A	Lab Control Sample	79.6	
MB 160-599667/1-A	Method Blank	91.1	

Tracer/Carrier Legend
U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-599624/1-A
Matrix: Water
Analysis Batch: 600533

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 599624

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.1272	U	0.434	0.435	3.00	0.907	pCi/L	02/08/23 08:13	02/16/23 20:18	1
Gross Beta	-0.2369	U	0.499	0.499	4.00	0.934	pCi/L	02/08/23 08:13	02/16/23 20:18	1

Lab Sample ID: LCS 160-599624/2-A
Matrix: Water
Analysis Batch: 600533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	57.56		8.21	3.00	1.80	pCi/L	114	75 - 125

Lab Sample ID: LCSB 160-599624/3-A
Matrix: Water
Analysis Batch: 600533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.7	71.23		7.65	4.00	0.872	pCi/L	97	75 - 125

Lab Sample ID: 240-179737-P-1-B MS
Matrix: Water
Analysis Batch: 600561

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Alpha	34.4	G	158	122.0	F1	24.1	3.00	13.7	pCi/L	56	60 - 140

Lab Sample ID: 240-179737-P-1-D MSD
Matrix: Water
Analysis Batch: 600561

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
						Uncert. (2σ+/-)							
Gross Alpha	34.4	G	158	174.3		32.6	3.00	17.3	pCi/L	89	60 - 140	0.92	1

Lab Sample ID: 240-179737-P-1-E MSBT
Matrix: Water
Analysis Batch: 600561

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Beta	8.27	F G	230	182.7	G	21.7	4.00	5.31	pCi/L	76	60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 240-179737-P-1-F MSBTD
 Matrix: Water
 Analysis Batch: 600561

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 599624

Analyte	Sample	Sample	Spike Added	MSBTD	MSBTD	Total	RL	MDC	Unit	%Rec	%Rec	RER	RER
	Result	Qual		Result	Qual	Uncert. (2σ+/-)					Limits		Limit
Gross Beta	8.27	F G	230	286.6	G F	32.4	4.00	7.23	pCi/L	121	60 - 140	1.92	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-601388/1-A
 Matrix: Water
 Analysis Batch: 602173

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 601388

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Cesium-137	-5.312	U	13.3	13.3	20.0	10.7	pCi/L	02/23/23 09:06	03/02/23 20:11	1
Potassium-40	-36.44	U	92.7	92.8		125	pCi/L	02/23/23 09:06	03/02/23 20:11	1

Lab Sample ID: LCS 160-601388/2-A
 Matrix: Water
 Analysis Batch: 602169

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 601388

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec
									Limits
Americium-241	135000	149400		17800		304	pCi/L	111	75 - 125
Cesium-137	40900	39950		4760	20.0	111	pCi/L	98	75 - 125
Cobalt-60	18000	17720		2110		63.9	pCi/L	99	75 - 125

Lab Sample ID: 570-125746-U-1-L DU
 Matrix: Water
 Analysis Batch: 602250

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 601388

Analyte	Sample	Sample	DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Cesium-137	-0.147	U	0.9257	U	4.70	20.0	6.06	pCi/L		0.07
Potassium-40	31.6	U	24.08	U	66.9		108	pCi/L		0.04

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-599777/1-A
 Matrix: Water
 Analysis Batch: 602334

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 599777

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-226	-0.001220	U	0.0339	0.0339	1.00	0.0748	pCi/L	02/09/23 09:26	03/03/23 08:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.4		30 - 110					02/09/23 09:26	03/03/23 08:31	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-599777/2-A
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599777

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-226	11.3	11.45		1.17	1.00	0.0795	pCi/L	101	75 - 125	
Carrier	%Yield	LCS Qualifier	LCS Limits							
Ba Carrier	87.7		30 - 110							

Lab Sample ID: 160-48840-B-1-B DU
Matrix: Water
Analysis Batch: 602335

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 599777

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.00835	U	0.02211	U	0.0608	1.00	0.112	pCi/L	0.12	1
Carrier	%Yield	DU Qualifier	DU Limits							
Ba Carrier	89.4		30 - 110							

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-599779/1-A
Matrix: Water
Analysis Batch: 600303

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 599779

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2043	U	0.291	0.292	1.00	0.491	pCi/L	02/09/23 09:57	02/14/23 11:55	1
Carrier	%Yield	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac		
Ba Carrier	95.4		30 - 110			02/09/23 09:57	02/14/23 11:55	1		
Y Carrier	87.9		30 - 110			02/09/23 09:57	02/14/23 11:55	1		

Lab Sample ID: LCS 160-599779/2-A
Matrix: Water
Analysis Batch: 600303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599779

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.19	9.775		1.32	1.00	0.457	pCi/L	119	75 - 125
Carrier	%Yield	LCS Qualifier	LCS Limits						
Ba Carrier	87.7		30 - 110						
Y Carrier	84.1		30 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 160-48840-B-1-C DU
Matrix: Water
Analysis Batch: 600333

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 599779

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.894		0.2475	U	0.264	1.00	0.423	pCi/L	0.92	1
Carrier	%Yield	DU Qualifier	Limits							
Ba Carrier	89.4		30 - 110							
Y Carrier	84.5		30 - 110							

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-600473/1-A
Matrix: Water
Analysis Batch: 601722

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 600473

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.2660	U	0.215	0.216	3.00	0.340	pCi/L	02/15/23 12:32	02/27/23 15:56	1
Carrier	%Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Sr Carrier	89.3		30 - 110				02/15/23 12:32		02/27/23 15:56	1
Y Carrier	75.9		30 - 110				02/15/23 12:32		02/27/23 15:56	1

Lab Sample ID: LCS 160-600473/2-A
Matrix: Water
Analysis Batch: 601722

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 600473

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Strontium-90	7.36	7.214		0.809	3.00	0.290	pCi/L	98	75 - 125
Carrier	%Yield	LCS Qualifier	Limits						
Sr Carrier	88.4		30 - 110						
Y Carrier	80.4		30 - 110						

Lab Sample ID: LCSD 160-600473/3-A
Matrix: Water
Analysis Batch: 601722

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 600473

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Strontium-90	7.36	7.818		0.859	3.00	0.335	pCi/L	106	75 - 125	0.36	1
Carrier	%Yield	LCSD Qualifier	Limits								
Sr Carrier	87.1		30 - 110								
Y Carrier	84.5		30 - 110								

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-599699/1-A
 Matrix: Water
 Analysis Batch: 600150

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 599699

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-31.08	U	168	168	500	314	pCi/L	02/08/23 13:19	02/09/23 23:19	1

Lab Sample ID: LCS 160-599699/2-A
 Matrix: Water
 Analysis Batch: 600150

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 599699

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Tritium	2110	1939		387	500	324	pCi/L	92	75 - 125

Lab Sample ID: 570-125746-S-2-B MS
 Matrix: Water
 Analysis Batch: 600150

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 599699

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Tritium	0.000	U	2150	1817		372	500	320	pCi/L	85	60 - 140

Lab Sample ID: 570-125930-D-5-B DU
 Matrix: Water
 Analysis Batch: 600150

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 599699

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Tritium	-82.4	U	-1.351	U	173	500	318	pCi/L	0.24	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-599667/1-A
 Matrix: Water
 Analysis Batch: 601420

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 599667

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.1885		0.150	0.150	1.00	0.173	pCi/L	02/08/23 11:16	02/23/23 13:00	1
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	91.1		30 - 110					02/08/23 11:16	02/23/23 13:00	1

Lab Sample ID: LCS 160-599667/2-A
 Matrix: Water
 Analysis Batch: 601483

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 599667

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Uranium-234	12.7	12.45		1.48	1.00	0.151	pCi/L	98	75 - 125
Uranium-238	13.0	13.17		1.55	1.00	0.164	pCi/L	101	75 - 125

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-599667/2-A
Matrix: Water
Analysis Batch: 601483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599667

<i>Tracer</i>	<i>LCS</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	79.6		30 - 110

Lab Sample ID: 570-125839-J-1-C DU
Matrix: Water
Analysis Batch: 601424

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 599667

<i>Analyte</i>	<i>Sample</i>		<i>DU</i>		<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>RER</i>	<i>RER Limit</i>
	<i>Result</i>	<i>Qual</i>	<i>Result</i>	<i>Qual</i>						
Total Uranium	1.85		1.656		0.399	1.00	0.135	pCi/L	0.23	1

<i>Tracer</i>	<i>DU</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	85.7		30 - 110

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

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Prep Batch: 599624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	Evaporation	
MB 160-599624/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-599624/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-599624/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
240-179737-P-1-B MS	Matrix Spike	Total/NA	Water	Evaporation	
240-179737-P-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
240-179737-P-1-E MSBT	Matrix Spike	Total/NA	Water	Evaporation	
240-179737-P-1-F MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 599667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	ExtChrom	
MB 160-599667/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-599667/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-125839-J-1-C DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 599699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-599699/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-599699/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-125746-S-2-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
570-125930-D-5-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 599777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	PrecSep-21	
MB 160-599777/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-599777/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-48840-B-1-B DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 599779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	PrecSep_0	
MB 160-599779/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-599779/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-48840-B-1-C DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 600473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	PrecSep-7	
MB 160-600473/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-600473/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-600473/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 601388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125840-1	Outfall002_20230131_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-601388/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-601388/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-125746-U-1-L DU	Duplicate	Total/NA	Water	Fill_Geo-0	

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Client Sample ID: Outfall002_20230131_Comp

Lab Sample ID: 570-125840-1

Date Collected: 01/31/23 08:00

Matrix: Water

Date Received: 01/31/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.00 mL	1.0 g	599624	02/08/23 08:13	MST	EET SL
Total/NA	Analysis	900.0		1			600561	02/16/23 20:26	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	601388	02/23/23 09:06	SRE	EET SL
Total/NA	Analysis	901.1		1			602249	03/03/23 09:21	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			759.23 mL	1.0 g	599777	02/09/23 09:26	DJP	EET SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	602335	03/03/23 08:37	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			759.23 mL	1.0 g	599779	02/09/23 09:57	DJP	EET SL
Total/NA	Analysis	904.0		1			600305	02/14/23 12:05	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			498.23 mL	1.0 g	600473	02/15/23 12:32	DJP	EET SL
Total/NA	Analysis	905		1			601808	02/27/23 16:11	SCB	EET SL
Instrument ID: GFPCORANGE										
Total/NA	Prep	LSC_Dist_Susp			104.43 mL	1.0 g	599699	02/08/23 13:19	SEH	EET SL
Total/NA	Analysis	906.0		1			600150	02/10/23 02:28	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			302.32 mL	1.0 mL	599667	02/08/23 11:16	MAL	EET SL
Total/NA	Analysis	A-01-R		1			601484	02/23/23 13:00	EJS	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 002 - Comp

Job ID: 570-125840-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-125840-1	Outfall002_20230131_Comp	Water	01/31/23 08:00	01/31/23 19:25

1

2

3

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15

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Lab Tracking No(s):	COC No:
Client Contact: Earth City		Patel, Virendra	Patel, Virendra	570-206097.1	570-206097.1
Shipping/Receiving: MO, 63045		Phone:	E-Mail:	State of Origin:	Page
Company: TestAmerica Laboratories, Inc.			Virendra.Patel@eurofins.com	California	Page 1 of 1
Address: 13715 Rider Trail North,		Accreditations Required (See note):		Job #	Job #
City: Earth City		State Program - California		570-125840-3	570-125840-3
State, Zip: MO, 63045		Analysis Requested			
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Due Date Requested: 3/7/2023			
Email:		TAT Requested (days):			
Project #: 44024446		PO #:			
Site: Boeing SSFL NPDES - Outfall 002 - Comp		WO #:			
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time	
Outfall002_20230131_Comp (570-125840-1)	1/31/23	08:00	Pacific	Field Filtered Sample (Yes or No)	
				Perform MS/MSD (Yes or No)	
				Matrix (W=water, S=solid, O=organics, B=biomass, A=air)	
				Sample Type (C=Comp, G=grab)	
				Preservation Code:	
				Water	
				Sample Date	
				Sample Time	
				Sample Type	
				Preservation Code	
				Matrix	
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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125840-3

Login Number: 125840

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125840-3

Login Number: 125840

List Number: 3

Creator: Hoerchler, Elizabeth M

List Source: Eurofins St. Louis

List Creation: 02/07/23 12:51 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/12/2023 9:59:22 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 002 - Comp

JOB NUMBER

570-128840-1

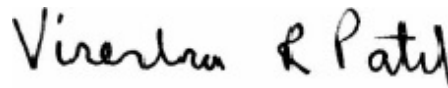
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
3/12/2023 9:59:22 AM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
LQ	LCS/LCSD recovery above method control limits

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-128840-1

Job ID: 570-128840-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-128840-1**

Comments

No additional comments.

Receipt

The samples were received on 2/24/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.1° C, 1.6° C and 1.7° C.

GC/MS Semi VOA

Method 625.1 SIM: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-307149 and analytical batch 570-307279 recovered outside control limits for the following analytes: 2,4-Dinitrotoluene, 4,6-Dinitro-2-methylphenol, Di-n-octyl phthalate and Di-n-butyl phthalate. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 625.1 SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-307149 and analytical batch 570-307279 recovered outside control limits for the following analytes: 4-Nitroaniline, 2-Chloronaphthalene and Benzidine.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC

Method 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Nitrite as N for analytical batch 570-307036 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 200.8: The method blank for preparation batch 570-307361 and analytical batch 570-307391 contained Iron above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 200.8: The method blank for preparation batch 570-307908 and analytical batch 570-308055 contained Iron above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230224_Comp_F (570-128840-3), Outfall002_20230224_Comp_F (570-128840-3[MS]) and Outfall002_20230224_Comp_F (570-128840-3[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230224_Comp_F (570-128840-3), Outfall002_20230224_Comp_F (570-128840-3[MS]) and Outfall002_20230224_Comp_F (570-128840-3[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-128840-1

Job ID: 570-128840-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-308323. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 608LL

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-307149. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Method 625.1 Sim

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	38		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.075	J,DX	0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate - DL	240		10	2.4	mg/L	10		300.0	Total/NA
Nitrate Nitrite as N	0.075	J,DX	0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	0.90	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Iron	37	MB	20	3.7	ug/L	1		200.8	Total Recoverable
Lead	0.13	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Turbidity	0.60		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	720		10	8.7	mg/L	1		SM 2540C	Total/NA
Biochemical Oxygen Demand	1.5	J,DX	2.0	1.0	mg/L	1		SM5210B	Total/NA

Client Sample ID: Outfall002_20230224_Comp_F

Lab Sample ID: 570-128840-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	0.97	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Iron	8.0	J,DX BU MB	20	3.7	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.95	0.13	ug/L		02/27/23 05:32	02/27/23 21:19	1
2,4-Dinitrotoluene	ND	LQ	0.19	0.11	ug/L		02/27/23 05:32	02/27/23 21:19	1
Bis(2-ethylhexyl) phthalate	ND		4.8	3.4	ug/L		02/27/23 05:32	02/27/23 21:19	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		02/27/23 05:32	02/27/23 21:19	1
Pentachlorophenol	ND		0.95	0.80	ug/L		02/27/23 05:32	02/27/23 21:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	63		31 - 120	02/27/23 05:32	02/27/23 21:19	1
Phenol-d6 (Surr)	18		10 - 120	02/27/23 05:32	02/27/23 21:19	1
p-Terphenyl-d14 (Surr)	68		45 - 120	02/27/23 05:32	02/27/23 21:19	1
2,4,6-Tribromophenol	89		28 - 127	02/27/23 05:32	02/27/23 21:19	1
2-Fluorophenol	29		17 - 120	02/27/23 05:32	02/27/23 21:19	1
Nitrobenzene-d5	75		27 - 120	02/27/23 05:32	02/27/23 21:19	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: EPA 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230224_Comp

Date Collected: 02/24/23 07:35

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		03/02/23 08:41	03/09/23 16:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	49		20 - 139				03/02/23 08:41	03/09/23 16:22	1
DCB Decachlorobiphenyl (Surr)	37		20 - 154				03/02/23 08:41	03/09/23 16:22	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230224_Comp

Date Collected: 02/24/23 07:35

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	38		1.0	0.36	mg/L			02/25/23 07:55	1
Nitrite as N	ND		0.10	0.043	mg/L			02/25/23 07:55	1
Nitrate as N	0.075	J,DX	0.10	0.020	mg/L			02/25/23 07:55	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-1

Method: EPA 300.0 - Anions, Ion Chromatography - DL

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	240		10	2.4	mg/L			02/25/23 15:48	10

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230224_Comp

Date Collected: 02/24/23 07:35

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			02/28/23 21:32	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.075	J,DX	0.10	0.020	mg/L			03/02/23 11:19	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-128840-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/01/23 06:30	03/01/23 10:55	1
Copper	0.90	J,DX	2.0	0.32	ug/L		03/01/23 06:30	03/01/23 10:55	1
Iron	37	MB	20	3.7	ug/L		03/01/23 06:30	03/01/23 10:55	1
Lead	0.13	J,DX	1.0	0.12	ug/L		03/01/23 06:30	03/01/23 10:55	1
Selenium	ND		2.0	0.52	ug/L		03/01/23 06:30	03/01/23 10:55	1
Zinc	ND		20	2.8	ug/L		03/01/23 06:30	03/01/23 10:55	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230224_Comp_F

Lab Sample ID: 570-128840-3

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	BU	1.0	0.13	ug/L			02/27/23 14:37	1
Copper	0.97	J,DX BU	2.0	0.32	ug/L			02/27/23 14:37	1
Iron	8.0	J,DX BU MB	20	3.7	ug/L			02/27/23 14:37	1
Lead	ND	BU	1.0	0.12	ug/L			02/27/23 14:37	1
Selenium	ND	BU	2.0	0.52	ug/L			02/27/23 14:37	1
Zinc	ND	BU	20	2.8	ug/L			02/27/23 14:37	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230224_Comp

Date Collected: 02/24/23 07:35

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		02/28/23 18:31	03/01/23 18:30	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230224_Comp_F

Date Collected: 02/24/23 07:35

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		03/06/23 18:07	03/07/23 13:17	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

General Chemistry

Client Sample ID: Outfall002_20230224_Comp

Date Collected: 02/24/23 07:35

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		03/07/23 11:01	03/07/23 13:19	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/03/23 20:26	1
Turbidity (SM 2130B)	0.60		0.05	0.05	NTU			02/25/23 15:28	1
Total Dissolved Solids (SM 2540C)	720		10	8.7	mg/L			03/02/23 16:19	1
Total Suspended Solids (SM 2540D)	ND		1.7	1.4	mg/L			03/02/23 13:32	1
MBAS (SM 5540C)	ND		0.20	0.050	mg/L		02/25/23 09:30	02/25/23 11:12	1
Biochemical Oxygen Demand (SM5210B)	1.5	J,DX	2.0	1.0	mg/L			02/25/23 10:22	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-128840-1	Outfall002_20230224_Comp	63	18	68	89	29	75
LCS 570-307149/2-A	Lab Control Sample	84	34	106	107	48	76
LCSD 570-307149/3-A	Lab Control Sample Dup	69	31	86	95	44	66
MB 570-307149/1-A	Method Blank	60	29	78	81	42	68

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 TBP = 2,4,6-Tribromophenol
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (20-139)	DCB1 (20-154)
570-128840-1	Outfall002_20230224_Comp	49	37

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-307149/1-A
Matrix: Water
Analysis Batch: 307279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307149

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		02/27/23 05:32	02/27/23 17:25	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		02/27/23 05:32	02/27/23 17:25	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		02/27/23 05:32	02/27/23 17:25	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		02/27/23 05:32	02/27/23 17:25	1
Pentachlorophenol	ND		1.0	0.84	ug/L		02/27/23 05:32	02/27/23 17:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	60		31 - 120	02/27/23 05:32	02/27/23 17:25	1
Phenol-d6 (Surr)	29		10 - 120	02/27/23 05:32	02/27/23 17:25	1
p-Terphenyl-d14 (Surr)	78		45 - 120	02/27/23 05:32	02/27/23 17:25	1
2,4,6-Tribromophenol	81		28 - 127	02/27/23 05:32	02/27/23 17:25	1
2-Fluorophenol	42		17 - 120	02/27/23 05:32	02/27/23 17:25	1
Nitrobenzene-d5	68		27 - 120	02/27/23 05:32	02/27/23 17:25	1

Lab Sample ID: LCS 570-307149/2-A
Matrix: Water
Analysis Batch: 307279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307149

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	21.3		ug/L		107	52 - 129
2,4-Dinitrotoluene	20.0	25.8	LQ	ug/L		129	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	25.7		ug/L		128	29 - 137
N-Nitrosodimethylamine	20.0	9.35		ug/L		47	20 - 120
Pentachlorophenol	20.0	14.9		ug/L		74	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	84		31 - 120
Phenol-d6 (Surr)	34		10 - 120
p-Terphenyl-d14 (Surr)	106		45 - 120
2,4,6-Tribromophenol	107		28 - 127
2-Fluorophenol	48		17 - 120
Nitrobenzene-d5	76		27 - 120

Lab Sample ID: LCSD 570-307149/3-A
Matrix: Water
Analysis Batch: 307279

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307149

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
2,4,6-Trichlorophenol	20.0	17.5		ug/L		88	52 - 129	20	35
2,4-Dinitrotoluene	20.0	21.5		ug/L		107	48 - 127	18	25
Bis(2-ethylhexyl) phthalate	20.0	22.7		ug/L		114	29 - 137	12	50
N-Nitrosodimethylamine	20.0	9.77		ug/L		49	20 - 120	4	21
Pentachlorophenol	20.0	12.6		ug/L		63	38 - 152	16	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	69		31 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-307149/3-A
 Matrix: Water
 Analysis Batch: 307279

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 307149

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
Phenol-d6 (Surr)	31		10 - 120
p-Terphenyl-d14 (Surr)	86		45 - 120
2,4,6-Tribromophenol	95		28 - 127
2-Fluorophenol	44		17 - 120
Nitrobenzene-d5	66		27 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-307036/5
 Matrix: Water
 Analysis Batch: 307036

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			02/25/23 07:04	1
Nitrate as N	ND		0.10	0.020	mg/L			02/25/23 07:04	1

Lab Sample ID: LCS 570-307036/6
 Matrix: Water
 Analysis Batch: 307036

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.54		mg/L		102	90 - 110
Nitrate as N	5.00	4.90		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-307036/7
 Matrix: Water
 Analysis Batch: 307036

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.49		mg/L		99	90 - 110	2	15
Nitrate as N	5.00	4.92		mg/L		98	90 - 110	0	15

Lab Sample ID: MB 570-307037/5
 Matrix: Water
 Analysis Batch: 307037

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			02/25/23 07:04	1
Sulfate	ND		1.0	0.24	mg/L			02/25/23 07:04	1

Lab Sample ID: LCS 570-307037/6
 Matrix: Water
 Analysis Batch: 307037

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.3		mg/L		97	90 - 110
Sulfate	50.0	48.0		mg/L		96	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 570-307037/7
 Matrix: Water
 Analysis Batch: 307037

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	48.5		mg/L		97	90 - 110	0	15
Sulfate	50.0	48.3		mg/L		97	90 - 110	1	15

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-307808/7
 Matrix: Water
 Analysis Batch: 307808

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			02/28/23 19:27	1

Lab Sample ID: LCS 570-307808/8
 Matrix: Water
 Analysis Batch: 307808

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	24.2		ug/L		97	85 - 115

Lab Sample ID: LCSD 570-307808/9
 Matrix: Water
 Analysis Batch: 307808

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	24.1		ug/L		96	85 - 115	0	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-307908/1-A
 Matrix: Water
 Analysis Batch: 308055

Client Sample ID: Method Blank
 Prep Type: Total Recoverable
 Prep Batch: 307908

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/01/23 06:30	03/01/23 10:48	1
Copper	ND		2.0	0.32	ug/L		03/01/23 06:30	03/01/23 10:48	1
Iron	3.80	J,DX	20	3.7	ug/L		03/01/23 06:30	03/01/23 10:48	1
Lead	ND		1.0	0.12	ug/L		03/01/23 06:30	03/01/23 10:48	1
Selenium	ND		2.0	0.52	ug/L		03/01/23 06:30	03/01/23 10:48	1
Zinc	ND		20	2.8	ug/L		03/01/23 06:30	03/01/23 10:48	1

Lab Sample ID: LCS 570-307908/2-A
 Matrix: Water
 Analysis Batch: 308055

Client Sample ID: Lab Control Sample
 Prep Type: Total Recoverable
 Prep Batch: 307908

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	77.6		ug/L		97	85 - 115
Copper	80.0	75.9		ug/L		95	85 - 115
Iron	800	825		ug/L		103	85 - 115
Lead	80.0	76.9		ug/L		96	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-307908/2-A
Matrix: Water
Analysis Batch: 308055

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 307908

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Selenium	80.0	77.6		ug/L		97	85 - 115
Zinc	80.0	76.6		ug/L		96	85 - 115

Lab Sample ID: LCSD 570-307908/3-A
Matrix: Water
Analysis Batch: 308055

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 307908

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	77.0		ug/L		96	85 - 115	1	20
Copper	80.0	76.3		ug/L		95	85 - 115	1	20
Iron	800	814		ug/L		102	85 - 115	1	20
Lead	80.0	78.0		ug/L		97	85 - 115	1	20
Selenium	80.0	74.8		ug/L		93	85 - 115	4	20
Zinc	80.0	77.1		ug/L		96	85 - 115	1	20

Lab Sample ID: 570-128840-1 MS
Matrix: Water
Analysis Batch: 308055

Client Sample ID: Outfall002_20230224_Comp
Prep Type: Total Recoverable
Prep Batch: 307908

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	76.8		ug/L		96	80 - 120
Copper	0.90	J,DX	80.0	73.7		ug/L		91	80 - 120
Iron	37	MB	800	812		ug/L		97	80 - 120
Lead	0.13	J,DX	80.0	75.2		ug/L		94	80 - 120
Selenium	ND		80.0	79.3		ug/L		99	80 - 120
Zinc	ND		80.0	75.6		ug/L		95	80 - 120

Lab Sample ID: 570-128840-1 MSD
Matrix: Water
Analysis Batch: 308055

Client Sample ID: Outfall002_20230224_Comp
Prep Type: Total Recoverable
Prep Batch: 307908

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	76.1		ug/L		95	80 - 120	1	20
Copper	0.90	J,DX	80.0	72.8		ug/L		90	80 - 120	1	20
Iron	37	MB	800	821		ug/L		98	80 - 120	1	20
Lead	0.13	J,DX	80.0	74.8		ug/L		93	80 - 120	1	20
Selenium	ND		80.0	79.2		ug/L		99	80 - 120	0	20
Zinc	ND		80.0	73.6		ug/L		92	80 - 120	3	20

Lab Sample ID: MB 570-307361/1-A
Matrix: Water
Analysis Batch: 307391

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			02/27/23 14:15	1
Copper	ND		2.0	0.32	ug/L			02/27/23 14:15	1
Iron	8.15	J,DX	20	3.7	ug/L			02/27/23 14:15	1
Lead	ND		1.0	0.12	ug/L			02/27/23 14:15	1
Selenium	ND		2.0	0.52	ug/L			02/27/23 14:15	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-307361/1-A
Matrix: Water
Analysis Batch: 307391

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	2.8	ug/L			02/27/23 14:15	1

Lab Sample ID: LCS 570-307361/2-A
Matrix: Water
Analysis Batch: 307391

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	81.6		ug/L		102	85 - 115
Copper	80.0	78.9		ug/L		99	85 - 115
Iron	800	821		ug/L		103	85 - 115
Lead	80.0	77.7		ug/L		97	85 - 115
Selenium	80.0	76.2		ug/L		95	85 - 115
Zinc	80.0	79.5		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-307361/3-A
Matrix: Water
Analysis Batch: 307391

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	81.6		ug/L		102	85 - 115	0	20
Copper	80.0	79.3		ug/L		99	85 - 115	1	20
Iron	800	815		ug/L		102	85 - 115	1	20
Lead	80.0	78.1		ug/L		98	85 - 115	0	20
Selenium	80.0	74.9		ug/L		94	85 - 115	2	20
Zinc	80.0	79.0		ug/L		99	85 - 115	1	20

Lab Sample ID: 570-128840-3 MS
Matrix: Water
Analysis Batch: 307391

Client Sample ID: Outfall002_20230224_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND	BU	80.0	72.3	BU	ug/L		90	80 - 120
Copper	0.97	J,DX BU	80.0	70.8	BU	ug/L		87	80 - 120
Iron	8.0	J,DX BU	800	741	BU	ug/L		92	80 - 120
Lead	ND	BU	80.0	67.5	BU	ug/L		84	80 - 120
Selenium	ND	BU	80.0	76.6	BU	ug/L		96	80 - 120
Zinc	ND	BU	80.0	70.3	BU	ug/L		88	80 - 120

Lab Sample ID: 570-128840-3 MSD
Matrix: Water
Analysis Batch: 307391

Client Sample ID: Outfall002_20230224_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND	BU	80.0	71.8	BU	ug/L		90	80 - 120	1	20
Copper	0.97	J,DX BU	80.0	70.9	BU	ug/L		87	80 - 120	0	20
Iron	8.0	J,DX BU	800	732	BU	ug/L		91	80 - 120	1	20
Lead	ND	BU	80.0	66.5	BU	ug/L		83	80 - 120	1	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-128840-3 MSD
 Matrix: Water
 Analysis Batch: 307391

Client Sample ID: Outfall002_20230224_Comp_F
 Prep Type: Dissolved

Analyte	Sample		Spike Added	MSD		Unit	D	%Rec	%Rec		RPD
	Result	Qualifier		Result	Qualifier				Limits	RPD	
Selenium	ND	BU	80.0	76.8	BU	ug/L		96	80 - 120	0	20
Zinc	ND	BU	80.0	68.9	BU	ug/L		86	80 - 120	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-307835/1-A
 Matrix: Water
 Analysis Batch: 308178

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 307835

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.12	ug/L		02/28/23 18:31	03/01/23 18:25	1

Lab Sample ID: LCS 570-307835/2-A
 Matrix: Water
 Analysis Batch: 308178

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 307835

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
Mercury	8.00	8.46		ug/L		106	85 - 115	

Lab Sample ID: LCSD 570-307835/3-A
 Matrix: Water
 Analysis Batch: 308178

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 307835

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec		RPD
		Result	Qualifier				Limits	RPD	
Mercury	8.00	8.52		ug/L		107	85 - 115	1	10

Lab Sample ID: 570-128840-1 MS
 Matrix: Water
 Analysis Batch: 308178

Client Sample ID: Outfall002_20230224_Comp
 Prep Type: Total/NA
 Prep Batch: 307835

Analyte	Sample		Spike Added	MS		Unit	D	%Rec	%Rec	
	Result	Qualifier		Result	Qualifier				Limits	RPD
Mercury	ND		8.00	8.45		ug/L		106	85 - 115	

Lab Sample ID: 570-128840-1 MSD
 Matrix: Water
 Analysis Batch: 308178

Client Sample ID: Outfall002_20230224_Comp
 Prep Type: Total/NA
 Prep Batch: 307835

Analyte	Sample		Spike Added	MSD		Unit	D	%Rec	%Rec		RPD
	Result	Qualifier		Result	Qualifier				Limits	RPD	
Mercury	ND		8.00	8.53		ug/L		107	85 - 115	1	10

Lab Sample ID: MB 570-309367/1-B
 Matrix: Water
 Analysis Batch: 309665

Client Sample ID: Method Blank
 Prep Type: Dissolved
 Prep Batch: 309368

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.12	ug/L		03/06/23 18:07	03/07/23 13:11	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-309367/2-B
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 309368

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.47		ug/L		106	85 - 115

Lab Sample ID: LCSD 570-309367/3-B
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 309368

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.40		ug/L		105	85 - 115	1	10

Lab Sample ID: 570-128840-3 MS
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Outfall002_20230224_Comp_F
Prep Type: Dissolved
Prep Batch: 309368

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	BU	8.00	8.58		ug/L		107	85 - 115

Lab Sample ID: 570-128840-3 MSD
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Outfall002_20230224_Comp_F
Prep Type: Dissolved
Prep Batch: 309368

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND	BU	8.00	8.67		ug/L		108	85 - 115	1	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-309607/5-A
Matrix: Water
Analysis Batch: 309657

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 309607

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		03/07/23 11:01	03/07/23 12:40	1

Lab Sample ID: LCS 570-309607/6-A
Matrix: Water
Analysis Batch: 309657

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 309607

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.499		mg/L		100	90 - 110

Lab Sample ID: LCSD 570-309607/7-A
Matrix: Water
Analysis Batch: 309657

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 309607

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.497		mg/L		99	90 - 110	0	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-309199/12
Matrix: Water
Analysis Batch: 309199

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/03/23 20:26	1

Lab Sample ID: LCS 570-309199/13
Matrix: Water
Analysis Batch: 309199

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	229		ug/L		92	90 - 110

Lab Sample ID: LCSD 570-309199/15
Matrix: Water
Analysis Batch: 309199

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	231		ug/L		92	90 - 110	1	20

Lab Sample ID: MRL 570-309199/11
Matrix: Water
Analysis Batch: 309199

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	5.41		ug/L		108	50 - 150

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-307106/1
Matrix: Water
Analysis Batch: 307106

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		100.1	99.0 - 101.0

Lab Sample ID: LCSSRM 570-307106/2
Matrix: Water
Analysis Batch: 307106

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		101.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-307106/3
Matrix: Water
Analysis Batch: 307106

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: SM 2130B - Turbidity (Continued)

Lab Sample ID: 570-128840-1 DU
 Matrix: Water
 Analysis Batch: 307106

Client Sample ID: Outfall002_20230224_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	0.60		0.65		NTU		3	25

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-308507/1
 Matrix: Water
 Analysis Batch: 308507

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/02/23 16:18	1

Lab Sample ID: LCS 570-308507/2
 Matrix: Water
 Analysis Batch: 308507

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	944		mg/L		94	84 - 108

Lab Sample ID: LCSD 570-308507/3
 Matrix: Water
 Analysis Batch: 308507

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	992		mg/L		99	84 - 108	5	10

Lab Sample ID: 570-128840-1 DU
 Matrix: Water
 Analysis Batch: 308507

Client Sample ID: Outfall002_20230224_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	720		678		mg/L		5	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-308454/1
 Matrix: Water
 Analysis Batch: 308454

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/02/23 13:32	1

Lab Sample ID: LCS 570-308454/2
 Matrix: Water
 Analysis Batch: 308454

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.0		mg/L		95	77 - 116

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCSD 570-308454/3
 Matrix: Water
 Analysis Batch: 308454

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	98.0		mg/L		98	77 - 116	3	10

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-307100/5-A
 Matrix: Water
 Analysis Batch: 307099

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 307100

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.20	0.050	mg/L		02/25/23 09:30	02/25/23 11:07	1

Lab Sample ID: LCS 570-307100/6-A
 Matrix: Water
 Analysis Batch: 307099

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 307100

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	0.500	0.509		mg/L		102	85 - 111

Lab Sample ID: LCSD 570-307100/7-A
 Matrix: Water
 Analysis Batch: 307099

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 307100

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	0.500	0.497		mg/L		99	85 - 111	2	7

Lab Sample ID: 570-128840-1 MS
 Matrix: Water
 Analysis Batch: 307099

Client Sample ID: Outfall002_20230224_Comp
 Prep Type: Total/NA
 Prep Batch: 307100

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	ND		0.500	0.517		mg/L		103	75 - 125

Lab Sample ID: 570-128840-1 MSD
 Matrix: Water
 Analysis Batch: 307099

Client Sample ID: Outfall002_20230224_Comp
 Prep Type: Total/NA
 Prep Batch: 307100

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	ND		0.500	0.518		mg/L		104	75 - 125	0	12

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 570-308464/2
 Matrix: Water
 Analysis Batch: 308464

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L			02/25/23 09:57	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method: SM5210B - BOD, 5 Day (Continued)

Lab Sample ID: LCS 570-308464/4
Matrix: Water
Analysis Batch: 308464

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	209		mg/L		105	84.6 - 115.4

Lab Sample ID: 570-128840-1 DU
Matrix: Water
Analysis Batch: 308464

Client Sample ID: Outfall002_20230224_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	1.5	J,DX	1.26	J,DX	mg/L		14	25

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

GC/MS Semi VOA

Prep Batch: 307149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	625	
MB 570-307149/1-A	Method Blank	Total/NA	Water	625	
LCS 570-307149/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-307149/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 307279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	625.1 SIM	307149
MB 570-307149/1-A	Method Blank	Total/NA	Water	625.1 SIM	307149
LCS 570-307149/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	307149
LCSD 570-307149/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	307149

GC Semi VOA

Prep Batch: 308323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	608	

Analysis Batch: 310111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	608.3	308323

HPLC/IC

Analysis Batch: 307036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	300.0	
MB 570-307036/5	Method Blank	Total/NA	Water	300.0	
LCS 570-307036/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-307036/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 307037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	300.0	
570-128840-1 - DL	Outfall002_20230224_Comp	Total/NA	Water	300.0	
MB 570-307037/5	Method Blank	Total/NA	Water	300.0	
LCS 570-307037/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-307037/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 307808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	314.0	
MB 570-307808/7	Method Blank	Total/NA	Water	314.0	
LCS 570-307808/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-307808/9	Lab Control Sample Dup	Total/NA	Water	314.0	

Analysis Batch: 308398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	NO2NO3 Calc	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Metals

Filtration Batch: 307361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-3	Outfall002_20230224_Comp_F	Dissolved	Water	Filtration	
MB 570-307361/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-307361/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-307361/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-128840-3 MS	Outfall002_20230224_Comp_F	Dissolved	Water	Filtration	
570-128840-3 MSD	Outfall002_20230224_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 307391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-3	Outfall002_20230224_Comp_F	Dissolved	Water	200.8	307361
MB 570-307361/1-A	Method Blank	Dissolved	Water	200.8	307361
LCS 570-307361/2-A	Lab Control Sample	Dissolved	Water	200.8	307361
LCSD 570-307361/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	307361
570-128840-3 MS	Outfall002_20230224_Comp_F	Dissolved	Water	200.8	307361
570-128840-3 MSD	Outfall002_20230224_Comp_F	Dissolved	Water	200.8	307361

Prep Batch: 307835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	245.1	
MB 570-307835/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-307835/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-307835/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-128840-1 MS	Outfall002_20230224_Comp	Total/NA	Water	245.1	
570-128840-1 MSD	Outfall002_20230224_Comp	Total/NA	Water	245.1	

Prep Batch: 307908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total Recoverable	Water	200.8	
MB 570-307908/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-307908/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-307908/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-128840-1 MS	Outfall002_20230224_Comp	Total Recoverable	Water	200.8	
570-128840-1 MSD	Outfall002_20230224_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 308055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total Recoverable	Water	200.8	307908
MB 570-307908/1-A	Method Blank	Total Recoverable	Water	200.8	307908
LCS 570-307908/2-A	Lab Control Sample	Total Recoverable	Water	200.8	307908
LCSD 570-307908/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	307908
570-128840-1 MS	Outfall002_20230224_Comp	Total Recoverable	Water	200.8	307908
570-128840-1 MSD	Outfall002_20230224_Comp	Total Recoverable	Water	200.8	307908

Analysis Batch: 308178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	245.1	307835
MB 570-307835/1-A	Method Blank	Total/NA	Water	245.1	307835
LCS 570-307835/2-A	Lab Control Sample	Total/NA	Water	245.1	307835
LCSD 570-307835/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	307835
570-128840-1 MS	Outfall002_20230224_Comp	Total/NA	Water	245.1	307835

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Metals (Continued)

Analysis Batch: 308178 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1 MSD	Outfall002_20230224_Comp	Total/NA	Water	245.1	307835

Filtration Batch: 309367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-3	Outfall002_20230224_Comp_F	Dissolved	Water	Filtration	
MB 570-309367/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-309367/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-309367/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-128840-3 MS	Outfall002_20230224_Comp_F	Dissolved	Water	Filtration	
570-128840-3 MSD	Outfall002_20230224_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 309368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-3	Outfall002_20230224_Comp_F	Dissolved	Water	245.1	309367
MB 570-309367/1-B	Method Blank	Dissolved	Water	245.1	309367
LCS 570-309367/2-B	Lab Control Sample	Dissolved	Water	245.1	309367
LCSD 570-309367/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309367
570-128840-3 MS	Outfall002_20230224_Comp_F	Dissolved	Water	245.1	309367
570-128840-3 MSD	Outfall002_20230224_Comp_F	Dissolved	Water	245.1	309367

Analysis Batch: 309665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-3	Outfall002_20230224_Comp_F	Dissolved	Water	245.1	309368
MB 570-309367/1-B	Method Blank	Dissolved	Water	245.1	309368
LCS 570-309367/2-B	Lab Control Sample	Dissolved	Water	245.1	309368
LCSD 570-309367/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309368
570-128840-3 MS	Outfall002_20230224_Comp_F	Dissolved	Water	245.1	309368
570-128840-3 MSD	Outfall002_20230224_Comp_F	Dissolved	Water	245.1	309368

General Chemistry

Analysis Batch: 307099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	SM 5540C	307100
MB 570-307100/5-A	Method Blank	Total/NA	Water	SM 5540C	307100
LCS 570-307100/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	307100
LCSD 570-307100/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	307100
570-128840-1 MS	Outfall002_20230224_Comp	Total/NA	Water	SM 5540C	307100
570-128840-1 MSD	Outfall002_20230224_Comp	Total/NA	Water	SM 5540C	307100

Prep Batch: 307100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	SM 5540C	
MB 570-307100/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-307100/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-307100/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-128840-1 MS	Outfall002_20230224_Comp	Total/NA	Water	SM 5540C	
570-128840-1 MSD	Outfall002_20230224_Comp	Total/NA	Water	SM 5540C	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

General Chemistry

Analysis Batch: 307106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-307106/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-307106/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-307106/3	Lab Control Sample	Total/NA	Water	SM 2130B	
570-128840-1 DU	Outfall002_20230224_Comp	Total/NA	Water	SM 2130B	

Analysis Batch: 308454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	SM 2540D	
MB 570-308454/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-308454/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-308454/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 308464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	SM5210B	
USB 570-308464/2	Method Blank	Total/NA	Water	SM5210B	
LCS 570-308464/4	Lab Control Sample	Total/NA	Water	SM5210B	
570-128840-1 DU	Outfall002_20230224_Comp	Total/NA	Water	SM5210B	

Analysis Batch: 308507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	SM 2540C	
MB 570-308507/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-308507/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-308507/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-128840-1 DU	Outfall002_20230224_Comp	Total/NA	Water	SM 2540C	

Analysis Batch: 309199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	Kelada 01	
MB 570-309199/12	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-309199/13	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-309199/15	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-309199/11	Lab Control Sample	Total/NA	Water	Kelada 01	

Prep Batch: 309607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-309607/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-309607/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-309607/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 309657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	350.1	309607
MB 570-309607/5-A	Method Blank	Total/NA	Water	350.1	309607
LCS 570-309607/6-A	Lab Control Sample	Total/NA	Water	350.1	309607
LCSD 570-309607/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	309607

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1050.3 mL	2 mL	307149	02/27/23 05:32	H1SH	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	307279	02/27/23 21:19	ULLI	EET CAL 4
		Instrument ID: GCMSJJJ								
Total/NA	Prep	608			1500 mL	1 mL	308323	03/02/23 08:41	OAJ3	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	310111	03/09/23 16:22	N5Y3	EET CAL 4
		Instrument ID: GC52A								
Total/NA	Analysis	300.0		1	4 mL	4 mL	307036	02/25/23 07:55	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	300.0		1	4 mL	4 mL	307037	02/25/23 07:55	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	300.0	DL	10	4 mL	4 mL	307037	02/25/23 15:48	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	314.0		1	4 mL	4 mL	307808	02/28/23 21:32	PS	EET CAL 4
		Instrument ID: IC8								
Total/NA	Analysis	NO2NO3 Calc		1			308398	03/02/23 11:19	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total Recoverable	Prep	200.8			50 mL	50 mL	307908	03/01/23 06:30	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			308055	03/01/23 10:55	Y2WS	EET CAL 4
		Instrument ID: ICPMS09								
Total/NA	Prep	245.1			25 mL	50 mL	307835	02/28/23 18:31	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			308178	03/01/23 18:30	C0YH	EET CAL 4
		Instrument ID: HG8								
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	309607	03/07/23 11:01	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	309657	03/07/23 13:19	UXCH	EET CAL 4
		Instrument ID: ACA2								
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	309199	03/03/23 20:26	GG0B	EET CAL 4
		Instrument ID: LACHAT01								
Total/NA	Analysis	SM 2130B		1			307106	02/25/23 15:28	ZVB7	EET CAL 4
		Instrument ID: TUR4								
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	308507	03/02/23 16:19	UWCT	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540D		1	580 mL	1000 mL	308454	03/02/23 13:32	BDH9	EET CAL 4
		Instrument ID: BAL71								
Total/NA	Prep	SM 5540C			100 mL	100 mL	307100	02/25/23 09:30	ZVB7	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	307099	02/25/23 11:12	ZVB7	EET CAL 4
		Instrument ID: UV8								
Total/NA	Analysis	SM5210B		1			308464	02/25/23 10:22	U7UR	EET CAL 4
		Instrument ID: BOD3								

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Client Sample ID: Outfall002_20230224_Comp_F

Lab Sample ID: 570-128840-3

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	307361	02/27/23 13:39	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			307391	02/27/23 14:37	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Dissolved	Filtration	Filtration			25 mL	25 mL	309367	03/06/23 17:48	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	309368	03/06/23 18:07	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			309665	03/07/23 13:17	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	EPA	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
SM5210B	BOD, 5 Day	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET CAL 4
625	Liquid-Liquid Extraction	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-128840-1	Outfall002_20230224_Comp	Water	02/24/23 07:35	02/24/23 18:00
570-128840-3	Outfall002_20230224_Comp_F	Water	02/24/23 07:35	02/24/23 18:00

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CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address:		Project		ANALYSIS REQUIRED		Comments							
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92118 Eurofins Calscience: Irvine Contact: Christian Bondoc 17461 Deiran Ave Suite #100 Irvine CA 92614 Tel 949-260-3218 ECI 57013187		Boeing-SSFLNPDES Permit 2023 Routine Outfall [001 002, 011, 018] Outfall 002 Comp		Total Dissolved Metals (E200.8) Fe Total Dissolved Metals: Mercury (E245.1) CS-137 (E901.0 or E901.1) Radium 226 (E904.0), Uranium (E908.0), K-40 Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Gross Alpha (E900.0), Gross Beta (E900.0) Cyanide (SM4500-CN-E / E335.2)			Filter and preserve w/in 2hrs of receipt at lab. Outfall 002 analyze for Fe Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep. using clean procedures. Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.						
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	(E200.8) Zn (E200.8) Cu, Pb, Cd, Se	(E200.8) Fe	Total Dissolved Metals: Mercury (E245.1)	CS-137 (E901.0 or E901.1) Radium 226 (E904.0), Uranium (E908.0), K-40 Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Gross Alpha (E900.0), Gross Beta (E900.0) Cyanide (SM4500-CN-E / E335.2)	Comments
3	Outfall002_20230224_Comp_F	2/24/2023 10:35	WM	1L Poly	1	None	200	NO YES	X	X			
1	Outfall002_20230224_Comp	2/24/2023 10:35	WM	borosilicate vials	1	None	320	No		X			
			WM	500 mL Poly	1	NaOH	220	No	X				
			WM	2.5 Gal Cube	1	None	225	No					
			WM	1 L Glass Amber	1	None	230	No					
Legend A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRS=Quarterly Receiving Water, S=Semi-Annual Relinquished By: <i>M. Bondoc</i> Date/Time: 2/24/2023 17:05 Company: <i>CTIA</i> Relinquished By: <i>Sam EC</i> Date/Time: 2/24/23 18:00 Company: Relinquished By: <i>Sam EC</i> Date/Time: 2/24/23 18:00 Company:													



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM Patel Virendra	Carrier Tracking No(s): 570-208521 1
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@eurofins.com	Page Page 1 of 1
Company TestAmerica Laboratories Inc.		State of Origin California	Job #: 570-128840-3
Address: 13715 Rider Trail North		Preservation Codes M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
City: Earth City		Analysis Requested	
State, Zip: MO, 63045		A HCL B- NaOH C- Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		901_1_Cs/137_Geo_0_K-40 and Csium-137	
Email:		900_0/Evaporation Gross Alpha/Beta	
Project Name: Boeing NPDES SSFL - Routine Outfall 002 - Comp		903_0/Presep_21 Radium-226	
Site:		904_0/Presep_0 Radium-228	
Due Date Requested 3/30/2023		905_Sr90/Presep_7 Strontium-90	
TAT Requested (days)		906_0/LSC_Dist_Susp Tritium	
PO #:		Perform MS/MSD (Yes or No)	
WO #:		Field Filtered Sample (Yes or No)	
Project #: 57013187		907_1_Cs/137_Geo_0_K-40 and Csium-137	
SSOW#:		908_0/Presep_21 Radium-226	
Sample Date 2/24/23		909_0/Presep_21 Radium-226	
Sample Time 07 35 Pacific		910_0/Presep_21 Radium-226	
Sample Date		911_0/Presep_21 Radium-226	
Sample Time		912_0/Presep_21 Radium-226	
Sample Date		913_0/Presep_21 Radium-226	
Sample Time		914_0/Presep_21 Radium-226	
Sample Date		915_0/Presep_21 Radium-226	
Sample Time		916_0/Presep_21 Radium-226	
Sample Date		917_0/Presep_21 Radium-226	
Sample Time		918_0/Presep_21 Radium-226	
Sample Date		919_0/Presep_21 Radium-226	
Sample Time		920_0/Presep_21 Radium-226	
Sample Date		921_0/Presep_21 Radium-226	
Sample Time		922_0/Presep_21 Radium-226	
Sample Date		923_0/Presep_21 Radium-226	
Sample Time		924_0/Presep_21 Radium-226	
Sample Date		925_0/Presep_21 Radium-226	
Sample Time		926_0/Presep_21 Radium-226	
Sample Date		927_0/Presep_21 Radium-226	
Sample Time		928_0/Presep_21 Radium-226	
Sample Date		929_0/Presep_21 Radium-226	
Sample Time		930_0/Presep_21 Radium-226	
Sample Date		931_0/Presep_21 Radium-226	
Sample Time		932_0/Presep_21 Radium-226	
Sample Date		933_0/Presep_21 Radium-226	
Sample Time		934_0/Presep_21 Radium-226	
Sample Date		935_0/Presep_21 Radium-226	
Sample Time		936_0/Presep_21 Radium-226	
Sample Date		937_0/Presep_21 Radium-226	
Sample Time		938_0/Presep_21 Radium-226	
Sample Date		939_0/Presep_21 Radium-226	
Sample Time		940_0/Presep_21 Radium-226	
Sample Date		941_0/Presep_21 Radium-226	
Sample Time		942_0/Presep_21 Radium-226	
Sample Date		943_0/Presep_21 Radium-226	
Sample Time		944_0/Presep_21 Radium-226	
Sample Date		945_0/Presep_21 Radium-226	
Sample Time		946_0/Presep_21 Radium-226	
Sample Date		947_0/Presep_21 Radium-226	
Sample Time		948_0/Presep_21 Radium-226	
Sample Date		949_0/Presep_21 Radium-226	
Sample Time		950_0/Presep_21 Radium-226	
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Sample Date		959_0/Presep_21 Radium-226	
Sample Time		960_0/Presep_21 Radium-226	
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Sample Date		987_0/Presep_21 Radium-226	
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Sample Time		990_0/Presep_21 Radium-226	
Sample Date		991_0/Presep_21 Radium-226	
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Sample Date		1011_0/Presep_21 Radium-226	
Sample Time		1012_0/Presep_21 Radium-226	
Sample Date		1013_0/Presep_21 Radium-226	
Sample Time		1014_0/Presep_21 Radium-226	
Sample Date		1015_0/Presep_21 Radium-226	
Sample Time		1016_0/Presep_21 Radium-226	
Sample Date		1017_0/Presep_21 Radium-226	
Sample Time		1018_0/Presep_21 Radium-226	
Sample Date		1019_0/Presep_21 Radium-226	
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Sample Time		1024_0/Presep_21 Radium-226	
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Sample Time		1032_0/Presep_21 Radium-226	
Sample Date		1033_0/Presep_21 Radium-226	
Sample Time		1034_0/Presep_21 Radium-226	
Sample Date		1035_0/Presep_21 Radium-226	
Sample Time		1036_0/Presep_21 Radium-226	
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Sample Time		1038_0/Presep_21 Radium-226	
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Sample Time		1040_0/Presep_21 Radium-226	
Sample Date		1041_0/Presep_21 Radium-226	
Sample Time		1042_0/Presep_21 Radium-226	
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Sample Time		1044_0/Presep_21 Radium-226	
Sample Date		1045_0/Presep_21 Radium-226	
Sample Time		1046_0/Presep_21 Radium-226	
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Sample Date		1073_0/Presep_21 Radium-226	
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Sample Time		1080_0/Presep_21 Radium-226	
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Sample Time		1082_0/Presep_21 Radium-226	
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Sample Time		1084_0/Presep_21 Radium-226	
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Sample Time		1114_0/Presep_21 Radium-226	
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Sample Time		1116_0/Presep_21 Radium-226	
Sample Date		1117_0/Presep_21 Radium-226	
Sample Time		1118_0/Presep_21 Radium-226	
Sample Date		1119_0/Presep_21 Radium-226	
Sample Time		1120_0/Presep_21 Radium-226	
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Sample Time		1122_0/Presep_21 Radium-226	
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Sample Time		1126_0/Presep_21 Radium-226	
Sample Date		1127_0/Presep_21 Radium-226	
Sample Time		1128_0/Presep_21 Radium-226	
Sample Date		1129_0/Presep_21 Radium-226	
Sample Time		1130_0/Presep_21 Radium-226	
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Sample Time		1134_0/Presep_21 Radium-226	
Sample Date		1135_0/Presep_21 Radium-226	
Sample Time		1136_0/Presep_21 Radium-226	
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Sample Date		1153_0/Presep_21 Radium-226	
Sample Time		1154_0/Presep_21 Radium-226	
Sample Date		1155_0/Presep_21 Radium-226	
Sample Time		1156_0/Presep_21 Radium-226	
Sample Date		1157_0/Presep_21 Radium-226	
Sample Time			

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-128840-1

Login Number: 128840

List Number: 1

Creator: Patel, Jayesh

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 11:02:55 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 002 - Comp

JOB NUMBER

570-128840-2

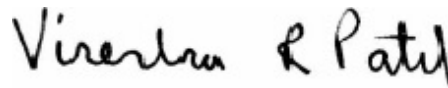
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-128840-2

Job ID: 570-128840-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-128840-2

Comments

No additional comments.

Receipt

The samples were received on 2/24/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.1° C, 1.6° C and 1.7° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall002_20230224_Comp (570-128840-1), (CCV 320-661962/17), (LCS 320-658956/2-A), (LCSD 320-658956/3-A) and (MB 320-658956/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-128840-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000017	J,DX q MB	0.000048	0.00000011	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDD	0.0000013	J,DX q MB	0.000048	0.00000011	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDD	0.0000017	J,DX MB	0.000048	0.00000000	ug/L	1		1613B	Total/NA
1,2,3,4,7,8-HxCDF	0.0000015	J,DX MB	0.000048	0.00000000	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDF	0.00000077	J,DX q MB	0.000048	0.00000000	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDF	0.0000013	J,DX q MB	0.000048	0.00000000	ug/L	1		1613B	Total/NA
2,3,4,6,7,8-HxCDF	0.0000016	J,DX MB	0.000048	0.00000000	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.0000030	J,DX q MB	0.000048	0.00000000	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.0000030	J,DX MB	0.000048	0.00000001	ug/L	1		1613B	Total/NA
1,2,3,4,7,8,9-HpCDF	0.0000017	J,DX MB	0.000048	0.00000001	ug/L	1		1613B	Total/NA
OCDD	0.000025	J,DX MB	0.000095	0.00000003	ug/L	1		1613B	Total/NA
OCDF	0.0000070	J,DX MB	0.000095	0.00000001	ug/L	1		1613B	Total/NA
Total HxCDD	0.0000057	J,DX q MB	0.000048	0.00000000	ug/L	1		1613B	Total/NA
Total HxCDF	0.0000054	J,DX q MB	0.000048	0.00000000	ug/L	1		1613B	Total/NA
Total HpCDD	0.0000055	J,DX q MB	0.000048	0.00000000	ug/L	1		1613B	Total/NA
Total HpCDF	0.0000047	J,DX MB	0.000048	0.00000001	ug/L	1		1613B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230224_Comp

Date Collected: 02/24/23 07:35

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				40					
2,3,7,8-TCDF	ND		0.0000095	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				10					
1,2,3,7,8-PeCDD	ND		0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				73					
1,2,3,7,8-PeCDF	ND		0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				44					
2,3,4,7,8-PeCDF	ND		0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				51					
1,2,3,4,7,8-HxCDD	0.0000017	J,DX q MB	0.000048	0.0000011	ug/L		03/08/23 04:28	03/20/23 06:46	1
1,2,3,6,7,8-HxCDD	0.0000013	J,DX q MB	0.000048	0.0000011	ug/L		03/08/23 04:28	03/20/23 06:46	1
1,2,3,7,8,9-HxCDD	0.0000017	J,DX MB	0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				97					
1,2,3,4,7,8-HxCDF	0.0000015	J,DX MB	0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				81					
1,2,3,6,7,8-HxCDF	0.00000077	J,DX q MB	0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				81					
1,2,3,7,8,9-HxCDF	0.0000013	J,DX q MB	0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				76					
2,3,4,6,7,8-HxCDF	0.0000016	J,DX MB	0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				72					
1,2,3,4,6,7,8-HpCDD	0.0000030	J,DX q MB	0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				40					
1,2,3,4,6,7,8-HpCDF	0.0000030	J,DX MB	0.000048	0.0000001	ug/L		03/08/23 04:28	03/20/23 06:46	1
				6					
1,2,3,4,7,8,9-HpCDF	0.0000017	J,DX MB	0.000048	0.0000001	ug/L		03/08/23 04:28	03/20/23 06:46	1
				7					
OCDD	0.000025	J,DX MB	0.000095	0.0000003	ug/L		03/08/23 04:28	03/20/23 06:46	1
				0					
OCDF	0.0000070	J,DX MB	0.000095	0.0000001	ug/L		03/08/23 04:28	03/20/23 06:46	1
				3					
Total TCDD	ND		0.0000095	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				40					
Total TCDF	ND		0.0000095	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				10					
Total PeCDD	ND		0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				73					
Total PeCDF	ND		0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				44					
Total HxCDD	0.0000057	J,DX q MB	0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				97					
Total HxCDF	0.0000054	J,DX q MB	0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				72					
Total HpCDD	0.0000055	J,DX q MB	0.000048	0.0000000	ug/L		03/08/23 04:28	03/20/23 06:46	1
				40					
Total HpCDF	0.0000047	J,DX MB	0.000048	0.0000001	ug/L		03/08/23 04:28	03/20/23 06:46	1
				6					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	61		25 - 164				03/08/23 04:28	03/20/23 06:46	1
13C-2,3,7,8-TCDF	51		24 - 169				03/08/23 04:28	03/20/23 06:46	1
13C-1,2,3,7,8-PeCDD	61		25 - 181				03/08/23 04:28	03/20/23 06:46	1
13C-1,2,3,7,8-PeCDF	54		24 - 185				03/08/23 04:28	03/20/23 06:46	1
13C-2,3,4,7,8-PeCDF	51		21 - 178				03/08/23 04:28	03/20/23 06:46	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-128840-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,4,7,8-HxCDD	58		32 - 141	03/08/23 04:28	03/20/23 06:46	1
13C-1,2,3,6,7,8-HxCDD	59		28 - 130	03/08/23 04:28	03/20/23 06:46	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152	03/08/23 04:28	03/20/23 06:46	1
13C-1,2,3,6,7,8-HxCDF	54		26 - 123	03/08/23 04:28	03/20/23 06:46	1
13C-1,2,3,7,8,9-HxCDF	55		29 - 147	03/08/23 04:28	03/20/23 06:46	1
13C-2,3,4,6,7,8-HxCDF	57		28 - 136	03/08/23 04:28	03/20/23 06:46	1
13C-1,2,3,4,6,7,8-HpCDD	58		23 - 140	03/08/23 04:28	03/20/23 06:46	1
13C-1,2,3,4,6,7,8-HpCDF	48		28 - 143	03/08/23 04:28	03/20/23 06:46	1
13C-1,2,3,4,7,8,9-HpCDF	52		26 - 138	03/08/23 04:28	03/20/23 06:46	1
13C-OCDD	42		17 - 157	03/08/23 04:28	03/20/23 06:46	1
13C-OCDF	41		17 - 157	03/08/23 04:28	03/20/23 06:46	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	91		35 - 197	03/08/23 04:28	03/20/23 06:46	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-128840-1	Outfall002_20230224_Comp	91
MB 320-658956/1-A	Method Blank	89

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-658956/2-A	Lab Control Sample	91
LCSD 320-658956/3-A	Lab Control Sample Dup	89

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-128840-1	Outfall002_20230224_Comp	61	51	61	54	51	58	59	53
MB 320-658956/1-A	Method Blank	77	68	83	73	72	79	77	71

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-128840-1	Outfall002_20230224_Comp	54	55	57	58	48	52	42	41
MB 320-658956/1-A	Method Blank	72	71	71	80	64	73	66	62

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-658956/2-A	Lab Control Sample	72	64	78	72	69	71	73	66
LCSD 320-658956/3-A	Lab Control Sample Dup	75	67	83	75	70	72	74	68

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-658956/2-A	Lab Control Sample	66	67	70	75	61	65	59	56
LCSD 320-658956/3-A	Lab Control Sample Dup	68	70	71	82	64	71	67	63

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-128840-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-658956/1-A
Matrix: Water
Analysis Batch: 661962

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 658956

Analyte	MB	MB	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,3,7,8-TCDD	ND		0.000010	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				56					
2,3,7,8-TCDF	ND		0.000010	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				090					
1,2,3,7,8-PeCDD	ND		0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				49					
1,2,3,7,8-PeCDF	0.00000130	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				46					
2,3,4,7,8-PeCDF	0.000000770	J,DX q	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				51					
1,2,3,4,7,8-HxCDD	0.00000272	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				70					
1,2,3,6,7,8-HxCDD	0.00000198	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				74					
1,2,3,7,8,9-HxCDD	0.00000135	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				66					
1,2,3,4,7,8-HxCDF	0.00000152	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				69					
1,2,3,6,7,8-HxCDF	0.00000167	J,DX q	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				70					
1,2,3,7,8,9-HxCDF	0.00000177	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				70					
2,3,4,6,7,8-HxCDF	0.00000150	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				67					
1,2,3,4,6,7,8-HpCDD	0.00000348	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				34					
1,2,3,4,6,7,8-HpCDF	0.00000267	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				86					
1,2,3,4,7,8,9-HpCDF	0.00000210	J,DX q	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				86					
OCDD	0.0000205	J,DX q	0.00010	0.0000001	ug/L		03/08/23 04:28	03/20/23 04:21	1
				9					
OCDF	0.00000622	J,DX	0.00010	0.0000001	ug/L		03/08/23 04:28	03/20/23 04:21	1
				6					
Total TCDD	ND		0.000010	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				56					
Total TCDF	ND		0.000010	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				090					
Total PeCDD	ND		0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				49					
Total PeCDF	0.00000207	J,DX q	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				46					
Total HxCDD	0.00000604	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				66					
Total HxCDF	0.00000647	J,DX q	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				67					
Total HpCDD	0.00000561	J,DX	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				34					
Total HpCDF	0.00000477	J,DX q	0.000050	0.0000000	ug/L		03/08/23 04:28	03/20/23 04:21	1
				86					
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	77		25 - 164				03/08/23 04:28	03/20/23 04:21	1
13C-2,3,7,8-TCDF	68		24 - 169				03/08/23 04:28	03/20/23 04:21	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-658956/1-A
Matrix: Water
Analysis Batch: 661962

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 658956

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	83		25 - 181	03/08/23 04:28	03/20/23 04:21	1
13C-1,2,3,7,8-PeCDF	73		24 - 185	03/08/23 04:28	03/20/23 04:21	1
13C-2,3,4,7,8-PeCDF	72		21 - 178	03/08/23 04:28	03/20/23 04:21	1
13C-1,2,3,4,7,8-HxCDD	79		32 - 141	03/08/23 04:28	03/20/23 04:21	1
13C-1,2,3,6,7,8-HxCDD	77		28 - 130	03/08/23 04:28	03/20/23 04:21	1
13C-1,2,3,4,7,8-HxCDF	71		26 - 152	03/08/23 04:28	03/20/23 04:21	1
13C-1,2,3,6,7,8-HxCDF	72		26 - 123	03/08/23 04:28	03/20/23 04:21	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147	03/08/23 04:28	03/20/23 04:21	1
13C-2,3,4,6,7,8-HxCDF	71		28 - 136	03/08/23 04:28	03/20/23 04:21	1
13C-1,2,3,4,6,7,8-HpCDD	80		23 - 140	03/08/23 04:28	03/20/23 04:21	1
13C-1,2,3,4,6,7,8-HpCDF	64		28 - 143	03/08/23 04:28	03/20/23 04:21	1
13C-1,2,3,4,7,8,9-HpCDF	73		26 - 138	03/08/23 04:28	03/20/23 04:21	1
13C-OCDD	66		17 - 157	03/08/23 04:28	03/20/23 04:21	1
13C-OCDF	62		17 - 157	03/08/23 04:28	03/20/23 04:21	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	89		35 - 197	03/08/23 04:28	03/20/23 04:21	1

Lab Sample ID: LCS 320-658956/2-A
Matrix: Water
Analysis Batch: 661962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 658956

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000191		ug/L		95	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000844		ug/L		84	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000820		ug/L		82	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000825		ug/L		83	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000833		ug/L		83	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000848		ug/L		85	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000848		ug/L		85	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000868		ug/L		87	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000863		ug/L		86	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000860		ug/L		86	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000852		ug/L		85	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000769		ug/L		77	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000848		ug/L		85	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000842		ug/L		84	78 - 138
OCDD	0.00200	0.00170		ug/L		85	78 - 144
OCDF	0.00200	0.00178		ug/L		89	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	72		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	78		21 - 227
13C-1,2,3,7,8-PeCDF	72		21 - 192
13C-2,3,4,7,8-PeCDF	69		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-658956/2-A
Matrix: Water
Analysis Batch: 661962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 658956

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-1,2,3,4,7,8-HxCDD	71		21 - 193
13C-1,2,3,6,7,8-HxCDD	73		25 - 163
13C-1,2,3,4,7,8-HxCDF	66		19 - 202
13C-1,2,3,6,7,8-HxCDF	66		21 - 159
13C-1,2,3,7,8,9-HxCDF	67		17 - 205
13C-2,3,4,6,7,8-HxCDF	70		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	75		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	61		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	65		20 - 186
13C-OCDD	59		13 - 199
13C-OCDF	56		13 - 199

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
37Cl4-2,3,7,8-TCDD	91		31 - 191

Lab Sample ID: LCSD 320-658956/3-A
Matrix: Water
Analysis Batch: 661962

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 658956

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
2,3,7,8-TCDD	0.000200	0.000182		ug/L		91	67 - 158	2	50
2,3,7,8-TCDF	0.000200	0.000200		ug/L		100	75 - 158	5	50
1,2,3,7,8-PeCDD	0.00100	0.000881		ug/L		88	70 - 142	4	50
1,2,3,7,8-PeCDF	0.00100	0.000850		ug/L		85	80 - 134	4	50
2,3,4,7,8-PeCDF	0.00100	0.000871		ug/L		87	68 - 160	5	50
1,2,3,4,7,8-HxCDD	0.00100	0.000851		ug/L		85	70 - 164	2	50
1,2,3,6,7,8-HxCDD	0.00100	0.000876		ug/L		88	76 - 134	3	50
1,2,3,7,8,9-HxCDD	0.00100	0.000906		ug/L		91	64 - 162	7	50
1,2,3,4,7,8-HxCDF	0.00100	0.000884		ug/L		88	72 - 134	2	50
1,2,3,6,7,8-HxCDF	0.00100	0.000904		ug/L		90	84 - 130	5	50
1,2,3,7,8,9-HxCDF	0.00100	0.000897		ug/L		90	78 - 130	4	50
2,3,4,6,7,8-HxCDF	0.00100	0.000906		ug/L		91	70 - 156	6	50
1,2,3,4,6,7,8-HpCDD	0.00100	0.000814		ug/L		81	70 - 140	6	50
1,2,3,4,6,7,8-HpCDF	0.00100	0.000910		ug/L		91	82 - 122	7	50
1,2,3,4,7,8,9-HpCDF	0.00100	0.000876		ug/L		88	78 - 138	4	50
OCDD	0.00200	0.00178		ug/L		89	78 - 144	4	50
OCDF	0.00200	0.00187		ug/L		94	63 - 170	5	50

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-2,3,7,8-TCDD	75		20 - 175
13C-2,3,7,8-TCDF	67		22 - 152
13C-1,2,3,7,8-PeCDD	83		21 - 227
13C-1,2,3,7,8-PeCDF	75		21 - 192
13C-2,3,4,7,8-PeCDF	70		13 - 328
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	74		25 - 163
13C-1,2,3,4,7,8-HxCDF	68		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-658956/3-A

Matrix: Water

Analysis Batch: 661962

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 658956

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,6,7,8-HxCDF	68		21 - 159
13C-1,2,3,7,8,9-HxCDF	70		17 - 205
13C-2,3,4,6,7,8-HxCDF	71		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	82		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	64		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	71		20 - 186
13C-OCDD	67		13 - 199
13C-OCDF	63		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	89		31 - 191

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-2

Specialty Organics

Prep Batch: 658956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	1613B	
MB 320-658956/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-658956/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-658956/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 661962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	1613B	658956
MB 320-658956/1-A	Method Blank	Total/NA	Water	1613B	658956
LCS 320-658956/2-A	Lab Control Sample	Total/NA	Water	1613B	658956
LCSD 320-658956/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	658956

Lab Chronicle

Client: Haley & Aldrich, Inc.

Job ID: 570-128840-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1050.3 mL	20.0 uL	658956	03/08/23 04:28	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	661962	03/20/23 06:46	GRB	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-23 *
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-128840-1	Outfall002_20230224_Comp	Water	02/24/23 07:35	02/24/23 18:00

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570-128840 Chain of Custody

CHAIN OF CUSTODY FORM

Eurofins Calsciencia Irvine

Sample Description	Sample I.D.	Sampling Date/Tm	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED										Comments
									(E200) Zn	(E200) Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E403, (SM210B, BODCAL))	Surfactants (MBAS) (SM5540C/E425-1)	Cl- SO4 Nitrate-N Nitrite-N NO3+NO2-N Perchlorate (E300)	Turbidity TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E609)	
<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p> <p>Eurofins Calsciencia Irvine Contact: Christian Bondoc Irvine CA 92614 Tel 949-260-3218</p> <p>Project Boeing-SSFL NPDES Permit 2023 Routine Outfall (001, 302, 011, 018) Outfall 002 Comp</p>				<p>Project Manager: Katherine Miller 520.289.8606, 520.304.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>				<p>Total Recoverable Metals (E200) Zn X</p> <p>TCDD (and all congeners) (E1613B) X</p> <p>BOD5 (20 degrees C) (E403, (SM210B, BODCAL))</p> <p>Surfactants (MBAS) (SM5540C/E425-1) X</p> <p>Cl- SO4 Nitrate-N Nitrite-N NO3+NO2-N Perchlorate (E300) X</p> <p>Turbidity TDS (SM2540C/E180.1) X</p> <p>TSS (160.2 (SM2540D)) X</p> <p>Ammonia-N (350.2) X</p> <p>alpha-BHC (E609) X</p> <p>2,4,6-TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (E245.1) X</p> <p>Total Recoverable Metals (E200.8) Fe X</p>										<p>Outfall 002 analyze for Fe.</p>	
1	Outfall002_20230224_Comp	2/24/2023 1073	WM	500 mL Poly	1	HNC3	90	MS/MSD Yes											
			WM	1 L Glass AmI-er	2	Non3	110	No											
			WM	1L Poly	1	Non3	115	No											
			WM	500 mL Poly	2	Non3	120	No											
			WM	500 mL Poly	2	Non3	130	No											
			WM	500 mL Poly	1	Non3	150	No											
			WM	500 mL Poly	1	H2SC4	160	No											48 hours holding time for turbidity
			WM	1 L Glass AmI-er	2	Non3	170	No											48 hour holding time for turbidity
			WM	1 L Glass AmI-er	2	Non3	180	No											
			WM	1L Poly	1	Non3	185	No											
			WM	1 L Glass AmI-er	2	Non3	110	No											Hold
			WM	500 mL Poly	2	Non3	120	No											Hold
			WM	500 mL Poly	2	Non3	130	No											Hold
			WM	1 L Glass AmI-er	2	Non3	170	No											Hold
			WM	1 L Glass AmI-er	2	Non3	180	No											Hold
2	Outfall002_20230224_Comp_Extra	2/24/2023 1073	WM	1 L Glass AmI-er	2	Non3	110	No											Hold

Relinquished By: *Mark Dominick* Date/Time: 2-24-2023 12:05
 Relinquished By: *Sammy EC* Date/Time: 2/24/23 12:05
 Relinquished By: *Sammy EC* Date/Time: 2/24/23 18:00

Legend: C=Conditional, R=Routine
 Received By: *Sammy EC* Date/Time: 2/24/23 12:05
 Received By: *Sammy EC* Date/Time: 2-24-23 18:00

Relinquished By: *Mark Dominick* Date/Time: 2-24-23 12:05
 Relinquished By: *Sammy EC* Date/Time: 2-24-23 18:00

44473 2/24/23
 ACC 2-24-23
 1.7/1.6
 1.8/1.7
 1.2/1.1
 SC02



128840

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92118 Eurofins Calsciencie Irvine Contact: Christian Bondoc 17461 Deiran Ave Suite #100 Irvine CA 92614 Tel 949-260-3218 ECI 57013187		Project Boeing-SSFLNPDDES Permit 2023 Routine Outfall [001 002, 011, 018] Outfall 002 Comp		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)								
Sample Description 3 Outfall 002	Sample I.D. Outfall002_20230224_Comp_F	Sampling Date/Time 2/24/2023 10:35	Sample Matrix WM	Container Type 1L Poly	# of Cont. 1	Preservative None	Bottle # 200	MS MSD No Yes	Total Dissolved Metals: (E200.8) Zn (E200.8) Cu, Pb, Cd, Se	Total Dissolved Metals: Mercury (E245.1)	Total Dissolved Metals: Fe (E200.8)	Comments
1 Outfall 002	Outfall002_20230224_Comp	2/24/2023 10:35	WM	borosilicate vials	1	None	320	No	X	X	X	Filter and preserve w/in 2hrs of receipt at lab. Outfall 002 analyze for Fe
			WM	500 mL Poly	1	NaOH	220	No	X	X	X	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep. using clean procedures.
			WM	2.5 Gal Cube	1	None	225	No	X	X	X	Unfiltered and unpreserved analysis. Separate RAD onto another workorder Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No				

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: *Mark Dominick* Date/Time: 2/24/2023 17:05 Company: *CTIA*

Relinquished By: *Mark EC* Date/Time: 2/24/23 18:00 Company:

Relinquished By: *Mark EC* Date/Time: 2/24/23 18:00 Company:

Received By: *Mark EC* Date/Time: 2/24/23 12:05

Received By: *Mark EC* Date/Time: 2-24-23 18:00

Turn-around time (Check): 24 Hour 72 Hour 10 Day X
 48 Hour 5 Day Normal

Sample Integrity (Check): Intact On Ice

Data Requirements: (Check) Store samples for 6 months. No Level IV All Level IV X



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-128840-2

Login Number: 128840

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Jayesh

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-128840-2

Login Number: 128840

List Number: 2

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 02/28/23 01:03 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/4/2023 10:32:19 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 002 - Comp

JOB NUMBER

570-128840-3

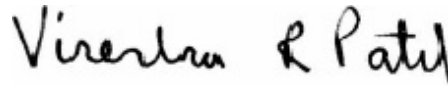
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-3

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-128840-3

Job ID: 570-128840-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-128840-3

Receipt

The samples were received on 2/24/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.1°C, 1.6°C and 1.7°C

Alpha Spectroscopy

Method A01R_U: Isotopic Uranium batch 604368 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230224_Comp (570-128840-1), (LCS 160-604368/2-A), (MB 160-604368/1-A), (570-129285-J-1-D) and (570-129285-J-1-E DU)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Gamma Spectroscopy

Method 901.1_Cs: Gamma Prep Batch 160-604032 Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge.

The following assumptions were made for this report: Inferred from Reported to Analyte

U-238Pb-210	Po-210Pb-210	Bi-210Cs-137	Ba-137mPb-212	Pa-234Th-234	Th-234
Te-125mAg-108m	Ag-108Rh-106	Ru-106Pb-212	Th-228Pb-212	Po-216Xe-131m	Xe-131Sb-12
Th-231Ac-228	Th-232Ac-228	Ra-228Th-227	Ra-223Th-227	Ra-224U-235	Ac-227Th-227
Pb-211Bi-214	Ra-226	Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. **The method blank (MB) Z-score is within limits and is located in the level IV raw data. Outfall002_20230224_Comp (570-128840-1) and (570-128840-R-1-E DU)			

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Gas Flow Proportional Counter

Method 900.0: Gross Alpha and Gross Beta batch 604346 The LCS recovered at (128%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (72-149%) per method requirements. The LCS passes, no further action is required (LCS 160-604346/2-A)

Method 900.0: Gross Alpha and Gross Beta batch 604346 The detection goal was not met for the following sample due to a reduction of the sample size attributed to high residual mass: Outfall002_20230224_Comp (570-128840-1). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha and Gross Beta batch 604346 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230224_Comp (570-128840-1), (LCS 160-604346/2-A), (LCSB 160-604346/3-A), (MB 160-604346/1-A), (670-16310-C-2-A), (670-16310-C-2-D DU), (670-16310-C-2-B MS) and (670-16310-C-2-C MSBT)

Method 903.0: Radium-226 Prep Batch 160-602356 The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230224_Comp (570-128840-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 903.0: Radium-226 batch 602356 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230224_Comp (570-128840-1), (LCS

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-128840-3

Job ID: 570-128840-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

160-602356/2-A), (LCSD 160-602356/3-A) and (MB 160-602356/1-A)

Method 904.0: Radium-228 Prep Batch 160-602360The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230224_Comp (570-128840-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 904.0: Radium-228 batch 602360Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.Outfall002_20230224_Comp (570-128840-1), (LCS 160-602360/2-A), (LCSD 160-602360/3-A) and (MB 160-602360/1-A)

Method 905_Sr90: Strontium 90 Prep Batch 160-603033The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230224_Comp (570-128840-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 905_Sr90: Strontium-90 prep batch 160-603495:Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.Outfall002_20230224_Comp (570-128840-1), (LCS 160-603033/2-A), (LCSD 160-603033/3-A) and (MB 160-603033/1-A)

Method 905_Sr90: Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Liquid Scintillation Counter

Method 906.0: Tritium 605070Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230224_Comp (570-128840-1), (LCS 160-605070/2-A), (MB 160-605070/1-A), (160-49329-A-1-A), (160-49329-A-1-B DU), (160-49329-A-2-A) and (160-49329-A-2-B MS)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-128840-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230224_Comp

Date Collected: 02/24/23 07:35

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	3.78	U G	3.08	3.11	3.00	4.55	pCi/L	03/20/23 10:44	03/28/23 08:18	1
Gross Beta	4.77		1.51	1.58	4.00	1.91	pCi/L	03/20/23 10:44	03/28/23 08:18	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-128840-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-9.43	U	16.4	16.4	20.0	18.1	pCi/L	03/17/23 14:08	03/22/23 20:54	1
Potassium-40	12.5	U	78.9	78.9		135	pCi/L	03/17/23 14:08	03/22/23 20:54	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230224_Comp
Date Collected: 02/24/23 07:35
Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0984	U	0.0961	0.0965	1.00	0.150	pCi/L	03/06/23 09:11	03/29/23 21:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.2		30 - 110					03/06/23 09:11	03/29/23 21:58	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230224_Comp
Date Collected: 02/24/23 07:35
Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0130	U	0.458	0.458	1.00	0.849	pCi/L	03/06/23 09:48	03/16/23 12:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.2		30 - 110					03/06/23 09:48	03/16/23 12:13	1
Y Carrier	87.9		30 - 110					03/06/23 09:48	03/16/23 12:13	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230224_Comp
 Date Collected: 02/24/23 07:35
 Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.104	U	0.402	0.402	3.00	0.709	pCi/L	03/09/23 13:03	03/17/23 18:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	74.9		30 - 110					03/09/23 13:03	03/17/23 18:33	1
Y Carrier	82.2		30 - 110					03/09/23 13:03	03/17/23 18:33	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230224_Comp
Date Collected: 02/24/23 07:35
Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	9.46	U	170	170	500	307	pCi/L	03/27/23 11:11	03/27/23 22:09	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230224_Comp
Date Collected: 02/24/23 07:35
Date Received: 02/24/23 18:00

Lab Sample ID: 570-128840-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	3.22		0.550	0.582	1.00	0.162	pCi/L	03/20/23 12:19	03/27/23 14:38	1
Tracer	%Yield	Qualifier	Limits			Prepared	Analyzed	Dil Fac		
Uranium-232	83.9		30 - 110			03/20/23 12:19	03/27/23 14:38	1		

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)		
570-128840-1	Outfall002_20230224_Comp	78.2		
LCS 160-602356/2-A	Lab Control Sample	87.6		
LCSD 160-602356/3-A	Lab Control Sample Dup	83.3		
MB 160-602356/1-A	Method Blank	87.6		

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)		
570-128840-1	Outfall002_20230224_Comp	78.2	87.9		
LCS 160-602360/2-A	Lab Control Sample	87.6	87.1		
LCSD 160-602360/3-A	Lab Control Sample Dup	83.3	87.1		
MB 160-602360/1-A	Method Blank	87.6	87.9		

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)		
570-128840-1	Outfall002_20230224_Comp	74.9	82.2		
LCS 160-603033/2-A	Lab Control Sample	79.1	82.2		
LCSD 160-603033/3-A	Lab Control Sample Dup	80.1	82.2		
MB 160-603033/1-A	Method Blank	87.1	81.1		

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)		
570-128840-1	Outfall002_20230224_Comp	83.9		
LCS 160-604368/2-A	Lab Control Sample	93.0		
MB 160-604368/1-A	Method Blank	90.9		

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-604346/1-A
Matrix: Water
Analysis Batch: 604975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604346

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.1540	U	0.611	0.611	3.00	1.12	pCi/L	03/20/23 10:44	03/24/23 07:23	1
Gross Beta	0.1337	U	0.489	0.489	4.00	0.852	pCi/L	03/20/23 10:44	03/24/23 07:23	1

Lab Sample ID: LCS 160-604346/2-A
Matrix: Water
Analysis Batch: 604975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604346

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	64.53		9.27	3.00	2.86	pCi/L	128	75 - 125

Lab Sample ID: LCSB 160-604346/3-A
Matrix: Water
Analysis Batch: 604974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604346

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.5	70.28		7.55	4.00	0.889	pCi/L	96	75 - 125

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-604032/1-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604032

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	-0.4655	U	10.3	10.3	20.0	12.1	pCi/L	03/17/23 14:08	03/22/23 19:49	1
Potassium-40	12.53	U	78.9	78.9		135	pCi/L	03/17/23 14:08	03/22/23 19:49	1

Lab Sample ID: LCS 160-604032/2-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604032

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Americium-241	135000	143200		17000		415	pCi/L	106	75 - 125
Cesium-137	40900	41780		4980	20.0	92.9	pCi/L	102	75 - 125
Cobalt-60	17800	18360		2190		50.3	pCi/L	103	75 - 125

Lab Sample ID: 570-128840-1 DU
Matrix: Water
Analysis Batch: 604759

Client Sample ID: Outfall002_20230224_Comp
Prep Type: Total/NA
Prep Batch: 604032

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER Limit
					Uncert. (2σ+/-)					
Cesium-137	-9.43	U	-0.6217	U	9.23	20.0	12.1	pCi/L	0.34	1
Potassium-40	12.5	U	-122.3	U	113		245	pCi/L	0.70	1

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-602356/1-A
Matrix: Water
Analysis Batch: 605412

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602356

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.03827	U	0.0641	0.0642	1.00	0.111	pCi/L	03/06/23 09:11	03/29/23 20:10	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	87.6		30 - 110			03/06/23 09:11	03/29/23 20:10	1		

Lab Sample ID: LCS 160-602356/2-A
Matrix: Water
Analysis Batch: 605412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602356

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.79		1.20	1.00	0.118	pCi/L	104	75 - 125
Carrier	LCS LCS		Limits			Prepared	Analyzed	Dil Fac	
	%Yield	Qualifier							
Ba Carrier	87.6		30 - 110						

Lab Sample ID: LCSD 160-602356/3-A
Matrix: Water
Analysis Batch: 605412

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602356

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	11.01		1.14	1.00	0.107	pCi/L	97	75 - 125	0.33	1
Carrier	LCSD LCSD		Limits			Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier									
Ba Carrier	83.3		30 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-602360/1-A
Matrix: Water
Analysis Batch: 603871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602360

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.2985	U	0.293	0.294	1.00	0.468	pCi/L	03/06/23 09:48	03/16/23 12:10	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	87.6		30 - 110			03/06/23 09:48	03/16/23 12:10	1		
Y Carrier	87.9		30 - 110			03/06/23 09:48	03/16/23 12:10	1		

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-602360/2-A
Matrix: Water
Analysis Batch: 603871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits												
Radium-228	8.11	8.303		1.17	1.00	0.455	pCi/L	102	75 - 125												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Carrier</th> <th>LCS %Yield</th> <th>LCS Qualifier</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td>Ba Carrier</td> <td>87.6</td> <td></td> <td>30 - 110</td> </tr> <tr> <td>Y Carrier</td> <td>87.1</td> <td></td> <td>30 - 110</td> </tr> </tbody> </table>										Carrier	LCS %Yield	LCS Qualifier	Limits	Ba Carrier	87.6		30 - 110	Y Carrier	87.1		30 - 110
Carrier	LCS %Yield	LCS Qualifier	Limits																		
Ba Carrier	87.6		30 - 110																		
Y Carrier	87.1		30 - 110																		

Lab Sample ID: LCSD 160-602360/3-A
Matrix: Water
Analysis Batch: 603871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit												
Radium-228	8.11	9.182		1.28	1.00	0.521	pCi/L	113	75 - 125	0.36	1												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Carrier</th> <th>LCSD %Yield</th> <th>LCSD Qualifier</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td>Ba Carrier</td> <td>83.3</td> <td></td> <td>30 - 110</td> </tr> <tr> <td>Y Carrier</td> <td>87.1</td> <td></td> <td>30 - 110</td> </tr> </tbody> </table>												Carrier	LCSD %Yield	LCSD Qualifier	Limits	Ba Carrier	83.3		30 - 110	Y Carrier	87.1		30 - 110
Carrier	LCSD %Yield	LCSD Qualifier	Limits																				
Ba Carrier	83.3		30 - 110																				
Y Carrier	87.1		30 - 110																				

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-603033/1-A
Matrix: Water
Analysis Batch: 604031

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603033

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac																					
Strontium-90	-0.1395	U	0.149	0.149	3.00	0.303	pCi/L	03/09/23 13:03	03/17/23 18:29	1																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Carrier</th> <th>MB %Yield</th> <th>MB Qualifier</th> <th>Limits</th> <th>Prepared</th> <th>Analyzed</th> <th>Dil Fac</th> </tr> </thead> <tbody> <tr> <td>Sr Carrier</td> <td>87.1</td> <td></td> <td>30 - 110</td> <td>03/09/23 13:03</td> <td>03/17/23 18:29</td> <td>1</td> </tr> <tr> <td>Y Carrier</td> <td>81.1</td> <td></td> <td>30 - 110</td> <td>03/09/23 13:03</td> <td>03/17/23 18:29</td> <td>1</td> </tr> </tbody> </table>											Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac	Sr Carrier	87.1		30 - 110	03/09/23 13:03	03/17/23 18:29	1	Y Carrier	81.1		30 - 110	03/09/23 13:03	03/17/23 18:29	1
Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac																									
Sr Carrier	87.1		30 - 110	03/09/23 13:03	03/17/23 18:29	1																									
Y Carrier	81.1		30 - 110	03/09/23 13:03	03/17/23 18:29	1																									

Lab Sample ID: LCS 160-603033/2-A
Matrix: Water
Analysis Batch: 604031

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603033

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits												
Strontium-90	7.35	6.881		0.800	3.00	0.299	pCi/L	94	75 - 125												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Carrier</th> <th>LCS %Yield</th> <th>LCS Qualifier</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td>Sr Carrier</td> <td>79.1</td> <td></td> <td>30 - 110</td> </tr> <tr> <td>Y Carrier</td> <td>82.2</td> <td></td> <td>30 - 110</td> </tr> </tbody> </table>										Carrier	LCS %Yield	LCS Qualifier	Limits	Sr Carrier	79.1		30 - 110	Y Carrier	82.2		30 - 110
Carrier	LCS %Yield	LCS Qualifier	Limits																		
Sr Carrier	79.1		30 - 110																		
Y Carrier	82.2		30 - 110																		

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: LCSD 160-603033/3-A
 Matrix: Water
 Analysis Batch: 604031

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 603033

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
									Limits	RER		
Strontium-90	7.35	7.495		0.858	3.00	0.360	pCi/L	102	75 - 125	0.37		1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Sr Carrier	80.1		30 - 110									
Y Carrier	82.2		30 - 110									

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-605070/1-A
 Matrix: Water
 Analysis Batch: 605427

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605070

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac

Lab Sample ID: LCS 160-605070/2-A
 Matrix: Water
 Analysis Batch: 605427

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605070

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
									Limits	RER
Tritium	2100	1848		360	500	314	pCi/L	88	75 - 125	

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-604368/1-A
 Matrix: Water
 Analysis Batch: 605170

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 604368

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tracer	MB %Yield	MB Qualifier	Limits							
Uranium-232	90.9		30 - 110							

Lab Sample ID: LCS 160-604368/2-A
 Matrix: Water
 Analysis Batch: 605172

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 604368

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
									Limits	RER
Uranium-234	12.7	11.77		1.40	1.00	0.159	pCi/L	92	75 - 125	
Uranium-238	13.0	13.98		1.59	1.00	0.126	pCi/L	107	75 - 125	

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-604368/2-A
Matrix: Water
Analysis Batch: 605172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604368

<i>Tracer</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	93.0		30 - 110

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Rad

Prep Batch: 602356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	PrecSep-21	
MB 160-602356/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-602356/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-602356/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 602360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	PrecSep_0	
MB 160-602360/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-602360/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-602360/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 603033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	PrecSep-7	
MB 160-603033/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-603033/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-603033/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 604032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-604032/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-604032/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-128840-1 DU	Outfall002_20230224_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 604346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	Evaporation	
MB 160-604346/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-604346/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-604346/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Prep Batch: 604368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	ExtChrom	
MB 160-604368/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-604368/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 605070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128840-1	Outfall002_20230224_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-605070/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-605070/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Client Sample ID: Outfall002_20230224_Comp

Lab Sample ID: 570-128840-1

Date Collected: 02/24/23 07:35

Matrix: Water

Date Received: 02/24/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			95.55 mL	1.0 g	604346	03/20/23 10:44	MST	EET SL
Total/NA	Analysis	900.0		1			605256	03/28/23 08:18	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	604032	03/17/23 14:08	SEH	EET SL
Total/NA	Analysis	901.1		1			604760	03/22/23 20:54	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			748.27 mL	1.0 g	602356	03/06/23 09:11	DJP	EET SL
Total/NA	Analysis	903.0		1			605412	03/29/23 21:58	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			748.27 mL	1.0 g	602360	03/06/23 09:48	DJP	EET SL
Total/NA	Analysis	904.0		1			603870	03/16/23 12:13	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			502.26 mL	1.0 g	603033	03/09/23 13:03	DJP	EET SL
Total/NA	Analysis	905		1			604030	03/17/23 18:33	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			103.15 mL	1.0 g	605070	03/27/23 11:11	SEH	EET SL
Total/NA	Analysis	906.0		1			605427	03/27/23 22:09	REV	EET SL
Instrument ID: LSC3180										
Total/NA	Prep	ExtChrom			492.61 mL	1.0 mL	604368	03/20/23 12:19	MAL	EET SL
Total/NA	Analysis	A-01-R		1			605174	03/27/23 14:38	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-128840-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-29-23
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Calscience

Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-128840-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-128840-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-128840-1	Outfall002_20230224_Comp	Water	02/24/23 07:35	02/24/23 18:00

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570-128840 Chain of Custody

CHAIN OF CUSTODY FORM

Eurofins Calsciencia Irvine

Sample Description	Sample I.D.	Sampling Date/Tm	Sample Matrix	Container Type			MS/MSD	ANALYSIS REQUIRED													Comments
				# of Cont.	Preservative	Bottle #		Total Recoverable Metals (E200) Zn	TCDD (and all congeners) (E163B)	BOD5 (20 degrees C) (E103, 1(SM2), BODCalc)	Surfactants (MBAs) (SM5540C/E425 1)	Cl- SO ₄ Nitrate-N Nitrite-N NO ₃ +NO ₂ -N Perchlorate (E300)	Turbidity TDS (SM2540C/E180, 1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6-TCP 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (E245, 1)	Total Recoverable Metals (E200, B) Fe			
																			1	HNC ₃	
			WM	500 mL Poly	1	HNC ₃	90	X	X	X	X	X	X	X	X	X	X		Outfall 002 analyze for Fe.		
			WM	1 L Glass AmI-er	2	Non ₃	110														
			WM	1L Poly	1	Non ₃	115														
			WM	500 mL Poly	2	Non ₃	120														
		2/24/2023	WM	500 mL Poly	2	Non ₃	130														
		1073	WM	500 mL Poly	1	Non ₃	150														
			WM	500 mL Poly	1	H ₂ SC ₄	160												48 hours holding time for turbidity		
			WM	1 L Glass AmI-er	2	Non ₃	170												48 hour holding time for turbidity		
			WM	1 L Glass AmI-er	2	Non ₃	180														
			WM	1L Poly	1	Non ₃	185														
			WM	1 L Glass AmI-er	2	Non ₃	110														
			WM	500 mL Poly	2	Non ₃	120														
			WM	500 mL Poly	2	Non ₃	130														
			WM	1 L Glass AmI-er	2	Non ₃	170														
			WM	1 L Glass AmI-er	2	Non ₃	180														

Client Name/Address: **Haley & Aldrich**
 5333 Mission Center Rd Suite 300
 San Diego, CA 92108

Eurofins Calsciencia Irvine Contact: **Christian Bondoc**
 17461 Dorian Ave Suite #100
 Irvine CA 92614
 Tel 949-260-3218

Project: **Boeing-SSFL NPDES Permit 2023**
 Routine Outfall 001, 302, 011, 018
 Outfall 002 Comp

Project Manager: **Katherine Miller**
 520.289.8606, 520.304.6944 (cell)
 Field Manager: **Mark Dominick**
 978.234.5033, 818.599.0702 (cell)

Sampler: **Adrian Mobeka**

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22, TestAmerica by or between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Relinquished By: **W. Dominick** Date/Time: **2-24-2023 12:05** Company: **H&A**
 Relinquished By: **W. EC** Date/Time: **2/24/23 18:00** Company: **1800**
 Relinquished By: **W. EC** Date/Time: **2-24-23 18:00** Company: **1800**

Legend: C=Conditional, R=Routine
 Received By: **W. EC** Date/Time: **2/24/23 12:05**
 Received By: **W. EC** Date/Time: **2-24-23 18:00**
 Relinquished By: **W. EC** Date/Time: **2-24-23 18:00**

Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X
 48 Hour ___ 5 Day ___ Normal ___
 Sample Integrity (Check) Intact: ___ On loc: ___
 Store samples for 6 months: ___
 Data Requirements: (Check) No Level IV: ___ All Level IV: ___ X

4/4/2020 19:20 Rainy Season
 Version 4



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM Patel Virendra	Carrier Tracking No(s): 570-208521 1
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	Page Page 1 of 1
Company TestAmerica Laboratories Inc.		State of Origin California	Job #: 570-128840-3
Address: 13715 Rider Trail North		Preservation Codes M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
City: Earth City		Analysis Requested	
State, Zip: MO, 63045		A HCL B- NaOH C- Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Total Number of containers 2	
Email:		Special Instructions/Note: Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Project Name: Boeing NPDES SSFL - Routine Outfall 002 - Comp		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Site: Outfall2_20230224_Comp (570-128840-1)			
Due Date Requested 3/30/2023			
TAT Requested (days)			
PO #:			
WO #:			
Project #: 57013187			
SSOW#:			
Sample Date 2/24/23			
Sample Time 07 35 Pacific			
Sample Date			
Sample Time			
Sample Type (C=Comp, G=grab)			
Matrix (W=water, S=solid, O=wastewater, BT=Tissue, A=Air)			
Preservation Code: Water			
Field Filtered Sample (Yes or No)			
Perform MS/MSD (Yes or No)			
901_Ga/III_Geo_0 K-40 and Csium-137		X	
A019_U/EXChrom_A01n Total Uranium		X	
900_0/Evaporation Gross Alpha/Beta		X	
903_0/Presep_21 Radium-226		X	
904_0/Presep_0 Radium-228		X	
905_Sr90/Presep_7 Strontium-90		X	
906_0/LSC_Dist_Susp Tritium		X	
Sample Identification - Client ID (Lab ID)			
Outfall2_20230224_Comp (570-128840-1)			
Note: Since laboratory accreditations are subject to change Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.			
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Unconfirmed		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Deliverable Requested I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:	
Primary Deliverable Rank: 2		Method of Shipment:	
Empty Kit Relinquished by:		Received by:	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	
Custody Seal No			



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-128840-3

Login Number: 128840

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Jayesh

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-128840-3

Login Number: 128840

List Number: 3

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/01/23 07:41 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	Preserved upon arrival
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/12/2023 10:13:53 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 002 - Grab

JOB NUMBER

570-128844-1

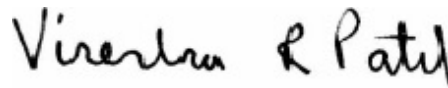
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-128844-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grab

Job ID: 570-128844-1

Job ID: 570-128844-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-128844-1**

Comments

No additional comments.

Receipt

The samples were received on 2/24/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.3° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-307104. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-307306. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

Client Sample ID: Outfall002_20230223_Grab

Lab Sample ID: 570-128844-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	1100		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: TB-20230223

Lab Sample ID: 570-128844-3

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230223_Grab

Date Collected: 02/23/23 09:00

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128844-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			02/25/23 17:50	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			02/25/23 17:50	1
Trichloroethene	ND		0.50	0.17	ug/L			02/25/23 17:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		60 - 140					02/25/23 17:50	1
Toluene-d8 (Surr)	99		60 - 140					02/25/23 17:50	1

Client Sample ID: TB-20230223

Date Collected: 02/23/23 09:00

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128844-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			02/25/23 17:28	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			02/25/23 17:28	1
Trichloroethene	ND		0.50	0.17	ug/L			02/25/23 17:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		60 - 140					02/25/23 17:28	1
Toluene-d8 (Surr)	95		60 - 140					02/25/23 17:28	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

General Chemistry

Client Sample ID: Outfall002_20230223_Grab

Date Collected: 02/23/23 09:00

Date Received: 02/24/23 18:00

Lab Sample ID: 570-128844-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.97	0.50	mg/L		02/27/23 11:58	02/28/23 20:21	1
Specific Conductance (SM 2510B)	1100		1.0	1.0	umhos/cm			03/08/23 17:33	1
Settleable Solids (SM 2540F)	ND		0.10	0.10	mL/L			02/24/23 22:34	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL
		(60-140)	(60-140)
570-128844-1	Outfall002_20230223_Grab	93	99
570-128844-3	TB-20230223	94	95
LCS 570-307104/1003	Lab Control Sample	99	101
LCSD 570-307104/4	Lab Control Sample Dup	98	99
MB 570-307104/6	Method Blank	96	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-307104/6
Matrix: Water
Analysis Batch: 307104

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.50	0.33	ug/L			02/25/23 16:43	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			02/25/23 16:43	1
Trichloroethene	ND		0.50	0.17	ug/L			02/25/23 16:43	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	96		60 - 140				02/25/23 16:43	1	
Toluene-d8 (Surr)	99		60 - 140				02/25/23 16:43	1	

Lab Sample ID: LCS 570-307104/1003
Matrix: Water
Analysis Batch: 307104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
								1,1-Dichloroethene
1,2-Dichloroethane	10.0	9.61		ug/L		96	70 - 130	
Trichloroethene	10.0	10.9		ug/L		109	65 - 135	
Surrogate	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
4-Bromofluorobenzene (Surr)	99		60 - 140					
Toluene-d8 (Surr)	101		60 - 140					

Lab Sample ID: LCSD 570-307104/4
Matrix: Water
Analysis Batch: 307104

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane	10.0	9.78		ug/L		98	70 - 130	2	49
Trichloroethene	10.0	11.1		ug/L		111	65 - 135	1	48
Surrogate	LCSD	LCSD	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	98		60 - 140						
Toluene-d8 (Surr)	99		60 - 140						

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-307306/1-A
Matrix: Water
Analysis Batch: 307850

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307306

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		02/27/23 11:56	02/28/23 20:21	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 570-307306/2-A
Matrix: Water
Analysis Batch: 307850

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	38.5		mg/L		96	78 - 114

Lab Sample ID: LCSD 570-307306/3-A
Matrix: Water
Analysis Batch: 307850

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307306

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	37.6		mg/L		94	78 - 114	2	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-310116/10
Matrix: Water
Analysis Batch: 310116

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/08/23 15:46	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

GC/MS VOA

Analysis Batch: 307104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128844-1	Outfall002_20230223_Grab	Total/NA	Water	624.1	
570-128844-3	TB-20230223	Total/NA	Water	624.1	
MB 570-307104/6	Method Blank	Total/NA	Water	624.1	
LCS 570-307104/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-307104/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 306809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128844-1	Outfall002_20230223_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 307306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128844-1	Outfall002_20230223_Grab	Total/NA	Water	1664A	
MB 570-307306/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-307306/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-307306/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 307850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128844-1	Outfall002_20230223_Grab	Total/NA	Water	1664A	307306
MB 570-307306/1-A	Method Blank	Total/NA	Water	1664A	307306
LCS 570-307306/2-A	Lab Control Sample	Total/NA	Water	1664A	307306
LCSD 570-307306/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	307306

Analysis Batch: 310116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128844-1	Outfall002_20230223_Grab	Total/NA	Water	SM 2510B	
MB 570-310116/10	Method Blank	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

Client Sample ID: Outfall002_20230223_Grab

Lab Sample ID: 570-128844-1

Date Collected: 02/23/23 09:00

Matrix: Water

Date Received: 02/24/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	307104	02/25/23 17:50	N1A	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			1027 mL	1000 mL	307306	02/27/23 11:58	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			307850	02/28/23 20:21	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			310116	03/08/23 17:33	BDH9	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	306809	02/24/23 22:34	GG0B	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230223

Lab Sample ID: 570-128844-3

Date Collected: 02/23/23 09:00

Matrix: Water

Date Received: 02/24/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	307104	02/25/23 17:28	N1A	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-128844-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

- 1664A = EPA-821-98-002
- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



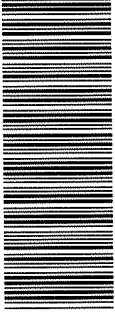
Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Grab

Job ID: 570-128844-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-128844-1	Outfall002_20230223_Grab	Water	02/23/23 09:00	02/24/23 18:00
570-128844-3	TB-20230223	Water	02/23/23 09:00	02/24/23 18:00

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570-128844 Chain of Custody

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

EP8PJOJX

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011 018] Outfall 002 Grab		Field Readings (Include units) Time of Readings: 0855 DO 19.95 mg/L pH 6.66 pH unit Temp 13.3 °C 43.3		Meter serial #	
Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218 ECI 57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC		Checked by: <i>[Signature]</i> Date/Time: 2-23-2023/0855	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22; TestAmerica by end between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Comments			

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSM/SD	Oil & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Settleable Solids (E160.5 (SM2540F))	Conductivity (SM2510B / E120.1)
1	Outfall002_20230223_Grab	2/23/2023	WM	1 L Glass Amber	2	HCl	15	No	X			
			WM	40 mL VOA	3	HCl	30	No		X		
			WM	1L Poly	1	None	70	No		X		
			WM	500 mL Poly	1	None	75	No		X		
			WM	1 L Glass Amber	2	HCl	15	No	H			
			WM	40 mL VOA	3	HCl	30	No		H		
			WM	500 mL Poly	1	None	75	No				
			WQ	40 mL VOA	3	HCl	30	No	X			
Trip Blanks	TB-20230223	2/23/2023										

Relinquished By: <i>[Signature]</i>	Date/Time: 2/24/23	Company: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Date/Time: 2/24/23 12:05	Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X 48 Hour ___ 5 Day ___ Normal: ___
Relinquished By: <i>[Signature]</i>	Date/Time: 2/24/23	Company: 1800	Received By: <i>[Signature]</i>	Date/Time: 2-24-23 18:00	Sample Integrity: (Check) Intact: ___ On Ice: ___ Store samples for 6 months. Data Requirements: (Check) No Level IV: ___ All Level IV: ___ X
<p>Legend: R=Routine</p> <p>3/12/2019-2020 Rainy Season Revision 4</p> <p>5C12 1.4/1.3 1.5/1.2 1.6/1.1 1.7/1.2</p>					

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-128844-1

Login Number: 128844

List Number: 1

Creator: Patel, Jayesh

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 12:52:00 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 002 - Grab

JOB NUMBER

570-129813-1

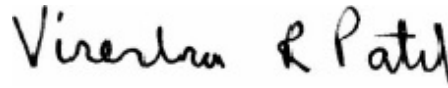
Job Notes

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Authorization



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Authorized for release by
Virendra Patel, Project Manager I
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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-129813-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grab

Job ID: 570-129813-1

Job ID: 570-129813-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129813-1

Comments

No additional comments.

Receipt

The samples were received on 3/3/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.5° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-308823. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 570-309000.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-309259.
Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

Client Sample ID: Outfall002_20230303_Grab

Lab Sample ID: 570-129813-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	1.2		0.50	0.17	ug/L	1		624.1	Total/NA
Specific Conductance	500		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: TB-20230303

Lab Sample ID: 570-129813-3

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230303_Grab

Date Collected: 03/03/23 07:20

Date Received: 03/03/23 18:00

Lab Sample ID: 570-129813-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/03/23 20:40	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/03/23 20:40	1
Trichloroethene	1.2		0.50	0.17	ug/L			03/03/23 20:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		60 - 140					03/03/23 20:40	1
Toluene-d8 (Surr)	96		60 - 140					03/03/23 20:40	1
Dibromofluoromethane (Surr)	91		60 - 140					03/03/23 20:40	1
1,2-Dichloroethane-d4 (Surr)	88		60 - 140					03/03/23 20:40	1

Client Sample ID: TB-20230303

Date Collected: 03/03/23 07:20

Date Received: 03/03/23 18:00

Lab Sample ID: 570-129813-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/03/23 20:18	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/03/23 20:18	1
Trichloroethene	ND		0.50	0.17	ug/L			03/03/23 20:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		60 - 140					03/03/23 20:18	1
Toluene-d8 (Surr)	98		60 - 140					03/03/23 20:18	1
Dibromofluoromethane (Surr)	91		60 - 140					03/03/23 20:18	1
1,2-Dichloroethane-d4 (Surr)	81		60 - 140					03/03/23 20:18	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

General Chemistry

Client Sample ID: Outfall002_20230303_Grab

Date Collected: 03/03/23 07:20

Date Received: 03/03/23 18:00

Lab Sample ID: 570-129813-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.99	0.51	mg/L		03/06/23 13:35	03/07/23 10:44	1
Specific Conductance (SM 2510B)	500		1.0	1.0	umhos/cm			03/10/23 20:20	1
Settleable Solids (SM 2540F)	ND		0.10	0.10	mL/L			03/04/23 09:43	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL	DBFM	DCA
		(60-140)	(60-140)	(60-140)	(60-140)
570-129813-1	Outfall002_20230303_Grab	92	96	91	88
570-129813-3	TB-20230303	95	98	91	81
LCS 570-308823/1003	Lab Control Sample	95	100	91	88
LCSD 570-308823/4	Lab Control Sample Dup	100	99	95	87
MB 570-308823/6	Method Blank	97	99	91	93

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-308823/6
Matrix: Water
Analysis Batch: 308823

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/03/23 15:27	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/03/23 15:27	1
Trichloroethene	ND		0.50	0.17	ug/L			03/03/23 15:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		60 - 140		03/03/23 15:27	1
Toluene-d8 (Surr)	99		60 - 140		03/03/23 15:27	1
Dibromofluoromethane (Surr)	91		60 - 140		03/03/23 15:27	1
1,2-Dichloroethane-d4 (Surr)	93		60 - 140		03/03/23 15:27	1

Lab Sample ID: LCS 570-308823/1003
Matrix: Water
Analysis Batch: 308823

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	10.0	9.45		ug/L		95	50 - 150
1,2-Dichloroethane	10.0	9.23		ug/L		92	70 - 130
Trichloroethene	10.0	9.92		ug/L		99	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		60 - 140
Toluene-d8 (Surr)	100		60 - 140
Dibromofluoromethane (Surr)	91		60 - 140
1,2-Dichloroethane-d4 (Surr)	88		60 - 140

Lab Sample ID: LCSD 570-308823/4
Matrix: Water
Analysis Batch: 308823

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	10.0	9.62		ug/L		96	50 - 150	2	32
1,2-Dichloroethane	10.0	9.31		ug/L		93	70 - 130	1	49
Trichloroethene	10.0	10.3		ug/L		103	65 - 135	4	48

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		60 - 140
Toluene-d8 (Surr)	99		60 - 140
Dibromofluoromethane (Surr)	95		60 - 140
1,2-Dichloroethane-d4 (Surr)	87		60 - 140

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-309259/1-A
Matrix: Water
Analysis Batch: 309549

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 309259

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		03/06/23 13:35	03/07/23 10:44	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: LCS 570-309259/2-A
Matrix: Water
Analysis Batch: 309549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 309259

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	38.2		mg/L		95	78 - 114

Lab Sample ID: LCSD 570-309259/3-A
Matrix: Water
Analysis Batch: 309549

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 309259

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.6		mg/L		96	78 - 114	1	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-310790/38
Matrix: Water
Analysis Batch: 310790

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/10/23 19:04	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

GC/MS VOA

Analysis Batch: 308823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129813-1	Outfall002_20230303_Grab	Total/NA	Water	624.1	
570-129813-3	TB-20230303	Total/NA	Water	624.1	
MB 570-308823/6	Method Blank	Total/NA	Water	624.1	
LCS 570-308823/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-308823/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 309000

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129813-1	Outfall002_20230303_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 309259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129813-1	Outfall002_20230303_Grab	Total/NA	Water	1664A	
MB 570-309259/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-309259/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-309259/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 309549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129813-1	Outfall002_20230303_Grab	Total/NA	Water	1664A	309259
MB 570-309259/1-A	Method Blank	Total/NA	Water	1664A	309259
LCS 570-309259/2-A	Lab Control Sample	Total/NA	Water	1664A	309259
LCSD 570-309259/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	309259

Analysis Batch: 310790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129813-1	Outfall002_20230303_Grab	Total/NA	Water	SM 2510B	
MB 570-310790/38	Method Blank	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

Client Sample ID: Outfall002_20230303_Grab

Lab Sample ID: 570-129813-1

Date Collected: 03/03/23 07:20

Matrix: Water

Date Received: 03/03/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	308823	03/03/23 20:40	A1W	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			1006 mL	1000 mL	309259	03/06/23 13:35	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			309549	03/07/23 10:44	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			310790	03/10/23 20:20	BDH9	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	309000	03/04/23 09:43	ZVB7	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230303

Lab Sample ID: 570-129813-3

Date Collected: 03/03/23 07:20

Matrix: Water

Date Received: 03/03/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	308823	03/03/23 20:18	A1W	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129813-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

- 1664A = EPA-821-98-002
- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Grab

Job ID: 570-129813-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129813-1	Outfall002_20230303_Grab	Water	03/03/23 07:20	03/03/23 18:00
570-129813-3	TB-20230303	Water	03/03/23 07:20	03/03/23 18:00

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CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

570-129813 Chain of Custody

403PJ666X
Meter serial #

Client Name/Address:		Project:		Field Readings									
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Grab		Time of Readings: 0720									
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel. 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606 520.904.6944 (cell)		DO 487.1 mg/L pH 7.06 pH unit Temp 50.6 °C/F									
*TestAmerica's services under this CoC shall be performed in accordance with the TACs within Blanket Service Agreements 2015-22, TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Field readings QC Checked by: <i>Mark Dominick</i> Date/Time: 3-3 2023/0720									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Oil & Grease (E1664A-HEM)	VOCs - only 1,1-DCE, 1,2-DCA, TCE (E624)	Settleable Solids (E10.5 (SM2540F))	Conductivity (SM2510B / E120.1)	Comments
1	Outfall002_20230303_Grab	3/3/2023 10720	WM	1 L Glass Amber	2	HCl	15	No	X	X			
2	Outfall002_20230303_Grab_Extra	3/3/2023 10720	WM	40 mL VOA	9	HCl	30	Yes					
Trip Blanks	TB-20230303	3/3/2023 10720	WQ	1L Poly	1	None	70	No		X			
				500 mL Poly	1	None	75	No					
				1 L Glass Amber	2	HCl	15	No	H				Hold
				40 mL VOA	3	HCl	30	No	H				Hold
				500 mL Poly	1	None	75	No		H			Hold
				40 mL VOA	3	HCl	30	No	X				

Legend: R=Routine

Relinquished By	Date/Time	Company	Received By	Date/Time	Company
<i>Mark Dominick</i>	3-3-2023/1025	H.A	<i>Mark</i>	3/3/23/1025	EC
Relinquished By	Date/Time	Company	Received By	Date/Time	Company
<i>Mark</i>	3/3/23	EC	<i>Mark</i>	3-3-23 1800	EC
Relinquished By	Date/Time	Company	Received By	Date/Time	Company
				1.5/1.5	SC11

Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X
48 Hour ___ 5 Day ___ Normal ___

Sample Integrity (Check) Intact: ___ On loc: ___
Store samples for 6 months. Data Requirements: (Check) No Level IV: ___ All Level IV: ___ X



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129813-1

Login Number: 129813

List Number: 1

Creator: Cortez Diaz, Antonio

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 4:45:08 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 002 - Comp

JOB NUMBER

570-129852-1

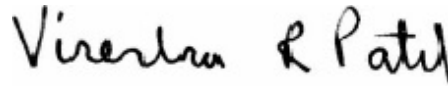
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
LQ	LCS/LCSD recovery above method control limits
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BU	Sample was prepped beyond the specified holding time
BV	Sample received after holding time expired
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-129852-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Glossary (Continued)

Abbreviation **These commonly used abbreviations may or may not be present in this report.**

TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-129852-1

Job ID: 570-129852-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-129852-1**

Comments

No additional comments.

Receipt

The samples were received on 3/6/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.9° C, 2.0° C, 2.1° C and 2.3° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

Method 300.0: The following sample was received outside of holding time: Outfall002_20230304_Comp (570-129852-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 200.8: The method blank for preparation batch 570-309505 and analytical batch 570-309648 contained Iron above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-309505 and analytical batch 570-309648 were outside control limits for Selenium and Zinc. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 200.8: The method blank for preparation batch 570-309651 and analytical batch 570-309903 contained Iron above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 245.1: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-309760 and analytical batch 570-310041 recovered outside control limits for Mercury . These analytes were biased high in the LCS/LCSD and were not detected in the associated samples; therefore, the data have been reported.

Method 245.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-309760 and analytical batch 570-310041 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 245.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-309760 and analytical batch 570-310041 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 245.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-309721 and 570-309782 and analytical batch 570-310041 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-129852-1

Job ID: 570-129852-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230304_Comp_F (570-129852-3). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method SM 5540C: The following samples were received outside of holding time: Outfall002_20230304_Comp (570-129852-1), Outfall002_20230304_Comp (570-129852-1[MS]) and Outfall002_20230304_Comp (570-129852-1[MSD]).

Method Kelada 01: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 570-312131 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method SM 5210B: The following sample was received outside of holding time: Outfall002_20230304_Comp (570-129852-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.37	BU BV	0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate - DL	120		5.0	1.2	mg/L	5		300.0	Total/NA
Nitrate Nitrite as N	0.37		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	1.7	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Iron	24	MB	20	3.7	ug/L	1		200.8	Total Recoverable
Zinc	3.3	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Turbidity	0.35	BU BV	0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	330		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall002_20230304_Comp_F

Lab Sample ID: 570-129852-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.28	J,DX BU	1.0	0.13	ug/L	1		200.8	Dissolved
Copper	1.6	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Iron	15	J,DX BU MB	20	3.7	ug/L	1		200.8	Dissolved
Lead	0.34	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Selenium	0.57	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Zinc	3.0	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.95	0.13	ug/L		03/10/23 06:36	03/13/23 21:10	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		03/10/23 06:36	03/13/23 21:10	1
Bis(2-ethylhexyl) phthalate	ND		4.7	3.4	ug/L		03/10/23 06:36	03/13/23 21:10	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		03/10/23 06:36	03/13/23 21:10	1
Pentachlorophenol	ND		0.95	0.80	ug/L		03/10/23 06:36	03/13/23 21:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	66		31 - 120	03/10/23 06:36	03/13/23 21:10	1
Phenol-d6 (Surr)	25		10 - 120	03/10/23 06:36	03/13/23 21:10	1
p-Terphenyl-d14 (Surr)	80		45 - 120	03/10/23 06:36	03/13/23 21:10	1
2,4,6-Tribromophenol	76		28 - 127	03/10/23 06:36	03/13/23 21:10	1
2-Fluorophenol	40		17 - 120	03/10/23 06:36	03/13/23 21:10	1
Nitrobenzene-d5	74		27 - 120	03/10/23 06:36	03/13/23 21:10	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: EPA 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230304_Comp

Date Collected: 03/04/23 07:40

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		03/08/23 08:21	03/10/23 15:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	31		20 - 139				03/08/23 08:21	03/10/23 15:42	1
DCB Decachlorobiphenyl (Surr)	26		20 - 154				03/08/23 08:21	03/10/23 15:42	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230304_Comp

Date Collected: 03/04/23 07:40

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		1.0	0.36	mg/L			03/07/23 09:11	1
Nitrite as N	ND	BU BV	0.10	0.043	mg/L			03/07/23 09:11	1
Nitrate as N	0.37	BU BV	0.10	0.020	mg/L			03/07/23 09:11	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Method: EPA 300.0 - Anions, Ion Chromatography - DL

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	120		5.0	1.2	mg/L			03/07/23 10:11	5

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230304_Comp

Date Collected: 03/04/23 07:40

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/10/23 00:43	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.37		0.10	0.020	mg/L			03/10/23 16:06	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-129852-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/07/23 09:05	03/07/23 13:45	1
Copper	1.7	J,DX	2.0	0.32	ug/L		03/07/23 09:05	03/07/23 13:45	1
Iron	24	MB	20	3.7	ug/L		03/07/23 09:05	03/07/23 13:45	1
Lead	ND		1.0	0.12	ug/L		03/07/23 09:05	03/07/23 13:45	1
Selenium	ND		2.0	0.52	ug/L		03/07/23 09:05	03/07/23 13:45	1
Zinc	3.3	J,DX	20	2.8	ug/L		03/07/23 09:05	03/07/23 13:45	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230304_Comp_F

Date Collected: 03/04/23 07:40

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.28	J,DX BU	1.0	0.13	ug/L			03/08/23 09:53	1
Copper	1.6	J,DX BU	2.0	0.32	ug/L			03/08/23 09:53	1
Iron	15	J,DX BU MB	20	3.7	ug/L			03/08/23 09:53	1
Lead	0.34	J,DX BU	1.0	0.12	ug/L			03/08/23 09:53	1
Selenium	0.57	J,DX BU	2.0	0.52	ug/L			03/08/23 09:53	1
Zinc	3.0	J,DX BU	20	2.8	ug/L			03/08/23 09:53	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230304_Comp

Date Collected: 03/04/23 07:40

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	LQ	0.20	0.12	ug/L		03/07/23 21:21	03/08/23 17:43	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230304_Comp_F

Date Collected: 03/04/23 07:40

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		03/07/23 19:00	03/08/23 17:54	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

General Chemistry

Client Sample ID: Outfall002_20230304_Comp

Date Collected: 03/04/23 07:40

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		03/13/23 13:40	03/13/23 15:25	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/14/23 19:36	1
Turbidity (SM 2130B)	0.35	BU BV	0.05	0.05	NTU			03/06/23 22:12	1
Total Dissolved Solids (SM 2540C)	330		10	8.7	mg/L			03/09/23 18:06	1
Total Suspended Solids (SM 2540D)	ND		1.3	1.0	mg/L			03/09/23 11:52	1
Biochemical Oxygen Demand (SM 5210B)	ND	BU BV	2.0	1.0	mg/L		03/08/23 10:18	03/08/23 10:51	1
MBAS (SM 5540C)	ND	BU BV	0.20	0.050	mg/L		03/07/23 20:00	03/07/23 21:21	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-129852-1	Outfall002_20230304_Comp	66	25	80	76	40	74
570-129852-1 MS	Outfall002_20230304_Comp	64	25	73	76	37	60
570-129852-1 MSD	Outfall002_20230304_Comp	64	24	70	78	34	55
LCS 570-310496/2-A	Lab Control Sample	80	34	92	90	51	73
LCSD 570-310496/3-A	Lab Control Sample Dup	73	33	86	87	47	68
MB 570-310496/1-A	Method Blank	64	27	82	63	41	68

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 TBP = 2,4,6-Tribromophenol
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (20-139)	DCB1 (20-154)
570-129852-1	Outfall002_20230304_Comp	31	26
570-129852-1 MS	Outfall002_20230304_Comp	43	37
570-129852-1 MSD	Outfall002_20230304_Comp	37	37
LCS 570-309827/2-A	Lab Control Sample	67	90
LCSD 570-309827/3-A	Lab Control Sample Dup	63	87
MB 570-309827/1-A	Method Blank	43	67

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-310496/1-A
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310496

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		03/10/23 06:36	03/13/23 19:26	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		03/10/23 06:36	03/13/23 19:26	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		03/10/23 06:36	03/13/23 19:26	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		03/10/23 06:36	03/13/23 19:26	1
Pentachlorophenol	ND		1.0	0.84	ug/L		03/10/23 06:36	03/13/23 19:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	64		31 - 120	03/10/23 06:36	03/13/23 19:26	1
Phenol-d6 (Surr)	27		10 - 120	03/10/23 06:36	03/13/23 19:26	1
p-Terphenyl-d14 (Surr)	82		45 - 120	03/10/23 06:36	03/13/23 19:26	1
2,4,6-Tribromophenol	63		28 - 127	03/10/23 06:36	03/13/23 19:26	1
2-Fluorophenol	41		17 - 120	03/10/23 06:36	03/13/23 19:26	1
Nitrobenzene-d5	68		27 - 120	03/10/23 06:36	03/13/23 19:26	1

Lab Sample ID: LCS 570-310496/2-A
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310496

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	18.4		ug/L		92	52 - 129
2,4-Dinitrotoluene	20.0	21.4		ug/L		107	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	20.6		ug/L		103	29 - 137
N-Nitrosodimethylamine	20.0	11.2		ug/L		56	20 - 120
Pentachlorophenol	20.0	10.5		ug/L		53	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	80		31 - 120
Phenol-d6 (Surr)	34		10 - 120
p-Terphenyl-d14 (Surr)	92		45 - 120
2,4,6-Tribromophenol	90		28 - 127
2-Fluorophenol	51		17 - 120
Nitrobenzene-d5	73		27 - 120

Lab Sample ID: LCSD 570-310496/3-A
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310496

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	17.0		ug/L		85	52 - 129	8	35
2,4-Dinitrotoluene	20.0	20.3		ug/L		102	48 - 127	5	25
Bis(2-ethylhexyl) phthalate	20.0	19.3		ug/L		97	29 - 137	6	50
N-Nitrosodimethylamine	20.0	10.5		ug/L		52	20 - 120	7	21
Pentachlorophenol	20.0	10.2		ug/L		51	38 - 152	3	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	73		31 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-310496/3-A
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310496

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Phenol-d6 (Surr)	33		10 - 120
p-Terphenyl-d14 (Surr)	86		45 - 120
2,4,6-Tribromophenol	87		28 - 127
2-Fluorophenol	47		17 - 120
Nitrobenzene-d5	68		27 - 120

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 310496

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
2,4,6-Trichlorophenol	ND		19.1	15.0		ug/L		78		37 - 144
2,4-Dinitrotoluene	ND		19.1	17.3		ug/L		91		39 - 139
Bis(2-ethylhexyl) phthalate	ND		19.1	16.2		ug/L		85		8 - 158
N-Nitrosodimethylamine	ND		19.1	8.35		ug/L		44		16 - 78
Pentachlorophenol	ND		19.1	10.2		ug/L		54		14 - 176

Surrogate	MS		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	64		31 - 120
Phenol-d6 (Surr)	25		10 - 120
p-Terphenyl-d14 (Surr)	73		45 - 120
2,4,6-Tribromophenol	76		28 - 127
2-Fluorophenol	37		17 - 120
Nitrobenzene-d5	60		27 - 120

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 310496

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
2,4,6-Trichlorophenol	ND		19.0	15.2		ug/L		80		37 - 144	2	58
2,4-Dinitrotoluene	ND		19.0	17.4		ug/L		92		39 - 139	1	42
Bis(2-ethylhexyl) phthalate	ND		19.0	16.8		ug/L		88		8 - 158	4	82
N-Nitrosodimethylamine	ND		19.0	7.36		ug/L		39		16 - 78	13	30
Pentachlorophenol	ND		19.0	10.4		ug/L		55		14 - 176	1	86

Surrogate	MSD		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	64		31 - 120
Phenol-d6 (Surr)	24		10 - 120
p-Terphenyl-d14 (Surr)	70		45 - 120
2,4,6-Tribromophenol	78		28 - 127
2-Fluorophenol	34		17 - 120
Nitrobenzene-d5	55		27 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-309827/1-A

Matrix: Water

Analysis Batch: 310461

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 309827

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		03/08/23 08:21	03/10/23 15:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	43		20 - 139	03/08/23 08:21	03/10/23 15:28	1
DCB Decachlorobiphenyl (Surr)	67		20 - 154	03/08/23 08:21	03/10/23 15:28	1

Lab Sample ID: LCS 570-309827/2-A

Matrix: Water

Analysis Batch: 311052

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 309827

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0242		ug/L		72	37 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	67		20 - 139
DCB Decachlorobiphenyl (Surr)	90		20 - 154

Lab Sample ID: LCSD 570-309827/3-A

Matrix: Water

Analysis Batch: 311052

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 309827

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	0.0333	0.0242		ug/L		73	37 - 140	0	36

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	63		20 - 139
DCB Decachlorobiphenyl (Surr)	87		20 - 154

Lab Sample ID: 570-129852-1 MS

Matrix: Water

Analysis Batch: 310461

Client Sample ID: Outfall002_20230304_Comp

Prep Type: Total/NA

Prep Batch: 309827

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	ND		0.0333	0.0184		ug/L		55	37 - 140

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene	43		20 - 139
DCB Decachlorobiphenyl (Surr)	37		20 - 154

Lab Sample ID: 570-129852-1 MSD

Matrix: Water

Analysis Batch: 310461

Client Sample ID: Outfall002_20230304_Comp

Prep Type: Total/NA

Prep Batch: 309827

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	ND		0.0333	0.0136		ug/L		41	37 - 140	30	36

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: 570-129852-1 MSD
 Matrix: Water
 Analysis Batch: 310461

Client Sample ID: Outfall002_20230304_Comp
 Prep Type: Total/NA
 Prep Batch: 309827

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	37		20 - 139
DCB Decachlorobiphenyl (Surr)	37		20 - 154

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-309420/5
 Matrix: Water
 Analysis Batch: 309420

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/07/23 03:09	1
Sulfate	ND		1.0	0.24	mg/L			03/07/23 03:09	1

Lab Sample ID: LCS 570-309420/6
 Matrix: Water
 Analysis Batch: 309420

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.3		mg/L		97	90 - 110
Sulfate	50.0	49.1		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-309420/7
 Matrix: Water
 Analysis Batch: 309420

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	48.3		mg/L		97	90 - 110	0	15
Sulfate	50.0	49.1		mg/L		98	90 - 110	0	15

Lab Sample ID: 570-129852-1 MS
 Matrix: Water
 Analysis Batch: 309420

Client Sample ID: Outfall002_20230304_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10		50.0	62.0		mg/L		103	80 - 120

Lab Sample ID: 570-129852-1 MSD
 Matrix: Water
 Analysis Batch: 309420

Client Sample ID: Outfall002_20230304_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	10		50.0	62.0		mg/L		103	80 - 120	0	20

Lab Sample ID: MB 570-309421/5
 Matrix: Water
 Analysis Batch: 309421

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			03/07/23 03:09	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 570-309421/5
Matrix: Water
Analysis Batch: 309421

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.10	0.020	mg/L			03/07/23 03:09	1

Lab Sample ID: LCS 570-309421/6
Matrix: Water
Analysis Batch: 309421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.50		mg/L		100	90 - 110
Nitrate as N	5.00	4.91		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-309421/7
Matrix: Water
Analysis Batch: 309421

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.51		mg/L		100	90 - 110	0	15
Nitrate as N	5.00	4.92		mg/L		98	90 - 110	0	15

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 309421

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	ND	BU BV	2.50	2.71	BU BV	mg/L		108	80 - 120
Nitrate as N	0.37	BU BV	5.00	5.51	BU BV	mg/L		103	80 - 120

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 309421

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	ND	BU BV	2.50	2.72	BU BV	mg/L		109	80 - 120	0	20
Nitrate as N	0.37	BU BV	5.00	5.50	BU BV	mg/L		103	80 - 120	0	20

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 309420

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate - DL	120		50.0	168		mg/L		94	80 - 120

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 309420

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate - DL	120		50.0	168		mg/L		95	80 - 120	0	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-310299/7
Matrix: Water
Analysis Batch: 310299

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/09/23 14:52	1

Lab Sample ID: LCS 570-310299/8
Matrix: Water
Analysis Batch: 310299

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	25.3		ug/L		101	85 - 115

Lab Sample ID: LCSD 570-310299/9
Matrix: Water
Analysis Batch: 310299

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	25.1		ug/L		100	85 - 115	1	15

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 310299

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	ND		50.0	50.7		ug/L		101	80 - 120

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 310299

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	ND		50.0	52.2		ug/L		104	80 - 120	3	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-309505/1-A
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/07/23 09:05	03/07/23 12:49	1
Copper	ND		2.0	0.32	ug/L		03/07/23 09:05	03/07/23 12:49	1
Iron	4.27	J,DX	20	3.7	ug/L		03/07/23 09:05	03/07/23 12:49	1
Lead	ND		1.0	0.12	ug/L		03/07/23 09:05	03/07/23 12:49	1
Selenium	ND		2.0	0.52	ug/L		03/07/23 09:05	03/07/23 12:49	1
Zinc	ND		20	2.8	ug/L		03/07/23 09:05	03/07/23 12:49	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-309505/2-A
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	80.2		ug/L		100	85 - 115
Copper	80.0	82.3		ug/L		103	85 - 115
Iron	800	809		ug/L		101	85 - 115
Lead	80.0	80.4		ug/L		100	85 - 115
Selenium	80.0	72.1		ug/L		90	85 - 115
Zinc	80.0	75.7		ug/L		95	85 - 115

Lab Sample ID: LCSD 570-309505/3-A
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	78.9		ug/L		99	85 - 115	2	20
Copper	80.0	80.7		ug/L		101	85 - 115	2	20
Iron	800	785		ug/L		98	85 - 115	3	20
Lead	80.0	78.9		ug/L		99	85 - 115	2	20
Selenium	80.0	71.1		ug/L		89	85 - 115	1	20
Zinc	80.0	74.5		ug/L		93	85 - 115	2	20

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	72.0		ug/L		90	80 - 120
Copper	1.7	J,DX	80.0	74.2		ug/L		91	80 - 120
Iron	24	MB	800	752		ug/L		91	80 - 120
Lead	ND		80.0	70.6		ug/L		88	80 - 120
Selenium	ND		80.0	69.1		ug/L		86	80 - 120
Zinc	3.3	J,DX	80.0	71.1		ug/L		85	80 - 120

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	66.4		ug/L		83	80 - 120	8	20
Copper	1.7	J,DX	80.0	69.7		ug/L		85	80 - 120	6	20
Iron	24	MB	800	704		ug/L		85	80 - 120	7	20
Lead	ND		80.0	67.1		ug/L		84	80 - 120	5	20
Selenium	ND		80.0	62.3	LN	ug/L		78	80 - 120	10	20
Zinc	3.3	J,DX	80.0	65.3	LN	ug/L		78	80 - 120	8	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-309651/1-A
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			03/08/23 09:45	1
Copper	ND		2.0	0.32	ug/L			03/08/23 09:45	1
Iron	8.73	J,DX	20	3.7	ug/L			03/08/23 09:45	1
Lead	ND		1.0	0.12	ug/L			03/08/23 09:45	1
Selenium	ND		2.0	0.52	ug/L			03/08/23 09:45	1
Zinc	ND		20	2.8	ug/L			03/08/23 09:45	1

Lab Sample ID: LCS 570-309651/2-A
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	80.5		ug/L		101	85 - 115
Copper	80.0	78.8		ug/L		98	85 - 115
Iron	800	807		ug/L		101	85 - 115
Lead	80.0	79.5		ug/L		99	85 - 115
Selenium	80.0	81.4		ug/L		102	85 - 115
Zinc	80.0	78.2		ug/L		98	85 - 115

Lab Sample ID: LCSD 570-309651/3-A
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	79.9		ug/L		100	85 - 115	1	20
Copper	80.0	79.7		ug/L		100	85 - 115	1	20
Iron	800	821		ug/L		103	85 - 115	2	20
Lead	80.0	79.7		ug/L		100	85 - 115	0	20
Selenium	80.0	82.5		ug/L		103	85 - 115	1	20
Zinc	80.0	78.9		ug/L		99	85 - 115	1	20

Lab Sample ID: 570-129852-3 MS
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Outfall002_20230304_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.28	J,DX BU	80.0	73.7	BU	ug/L		92	80 - 120
Copper	1.6	J,DX BU	80.0	74.0	BU	ug/L		91	80 - 120
Iron	15	J,DX BU	800	777	BU	ug/L		95	80 - 120
Lead	0.34	J,DX BU	80.0	71.6	BU	ug/L		89	80 - 120
Selenium	0.57	J,DX BU	80.0	77.8	BU	ug/L		96	80 - 120
Zinc	3.0	J,DX BU	80.0	72.3	BU	ug/L		87	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-129852-3 MSD
 Matrix: Water
 Analysis Batch: 309903

Client Sample ID: Outfall002_20230304_Comp_F
 Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Cadmium	0.28	J,DX BU	80.0	74.6	BU	ug/L		93	80 - 120	1	20
Copper	1.6	J,DX BU	80.0	75.1	BU	ug/L		92	80 - 120	1	20
Iron	15	J,DX BU	800	773	BU	ug/L		95	80 - 120	1	20
Lead	0.34	J,DX BU	80.0	73.5	BU	ug/L		91	80 - 120	3	20
Selenium	0.57	J,DX BU	80.0	79.4	BU	ug/L		99	80 - 120	2	20
Zinc	3.0	J,DX BU	80.0	74.4	BU	ug/L		89	80 - 120	3	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-309760/1-A
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 309760

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.12	ug/L		03/07/23 21:21	03/08/23 17:06	1

Lab Sample ID: LCS 570-309760/2-A
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 309760

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Mercury	8.00	9.39	LQ	ug/L		117	85 - 115

Lab Sample ID: LCSD 570-309760/3-A
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 309760

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
		Result	Qualifier				Limits		
Mercury	8.00	9.54	LQ	ug/L		119	85 - 115	2	10

Lab Sample ID: 570-129852-1 MS
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Outfall002_20230304_Comp
 Prep Type: Total/NA
 Prep Batch: 309760

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier		Result	Qualifier				Limits
Mercury	ND	LQ	8.00	9.54	LM	ug/L		119	85 - 115

Lab Sample ID: 570-129852-1 MSD
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Outfall002_20230304_Comp
 Prep Type: Total/NA
 Prep Batch: 309760

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Mercury	ND	LQ	8.00	9.80	LM	ug/L		123	85 - 115	3	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: MB 570-309721/1-B
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Method Blank
 Prep Type: Dissolved
 Prep Batch: 309782

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/07/23 19:00	03/08/23 17:49	1

Lab Sample ID: LCS 570-309721/2-B
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Lab Control Sample
 Prep Type: Dissolved
 Prep Batch: 309782

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.44		ug/L		105	85 - 115

Lab Sample ID: LCSD 570-309721/3-B
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Lab Control Sample Dup
 Prep Type: Dissolved
 Prep Batch: 309782

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.43		ug/L		105	85 - 115	0	10

Lab Sample ID: 570-129852-3 MS
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Outfall002_20230304_Comp_F
 Prep Type: Dissolved
 Prep Batch: 309782

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	BU	8.00	9.44	BU LM	ug/L		118	85 - 115

Lab Sample ID: 570-129852-3 MSD
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Outfall002_20230304_Comp_F
 Prep Type: Dissolved
 Prep Batch: 309782

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND	BU	8.00	9.63	BU LM	ug/L		120	85 - 115	0	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-311129/5-A
 Matrix: Water
 Analysis Batch: 311145

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 311129

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		03/13/23 13:40	03/13/23 15:19	1

Lab Sample ID: LCS 570-311129/6-A
 Matrix: Water
 Analysis Batch: 311145

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 311129

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.518		mg/L		104	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCSD 570-311129/7-A
Matrix: Water
Analysis Batch: 311145

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311129

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.498		mg/L		100	90 - 110	4	20

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 311145

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 311129

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	ND		0.500	0.518		mg/L		104	90 - 110

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 311145

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 311129

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	ND		0.500	0.511		mg/L		102	90 - 110	1	25

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-312131/14
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/14/23 19:36	1

Lab Sample ID: LCS 570-312131/16
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	252		ug/L		101	90 - 110

Lab Sample ID: LCSD 570-312131/17
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	266		ug/L		107	90 - 110	5	20

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	ND		250	150	LN	ug/L		60	70 - 130

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: 570-129852-1 MSD
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Outfall002_20230304_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	ND		250	174		ug/L		70	70 - 130	15	30

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-309398/1
 Matrix: Water
 Analysis Batch: 309398

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		100.7	99.0 - 101.0

Lab Sample ID: LCSSRM 570-309398/2
 Matrix: Water
 Analysis Batch: 309398

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		101.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-309398/3
 Matrix: Water
 Analysis Batch: 309398

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-310437/1
 Matrix: Water
 Analysis Batch: 310437

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/09/23 18:06	1

Lab Sample ID: LCS 570-310437/2
 Matrix: Water
 Analysis Batch: 310437

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	952		mg/L		95	84 - 108

Lab Sample ID: LCSD 570-310437/3
 Matrix: Water
 Analysis Batch: 310437

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	982		mg/L		98	84 - 108	3	10

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-310278/1
 Matrix: Water
 Analysis Batch: 310278

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/09/23 11:52	1

Lab Sample ID: LCS 570-310278/2
 Matrix: Water
 Analysis Batch: 310278

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	97.0		mg/L		97	77 - 116

Lab Sample ID: LCSD 570-310278/3
 Matrix: Water
 Analysis Batch: 310278

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	96.0		mg/L		96	77 - 116	1	10

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: LCS 570-309842/2-A
 Matrix: Water
 Analysis Batch: 311089

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 309842

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	198		mg/L		100	84.6 - 115.4

Lab Sample ID: SCB 570-311089/3
 Matrix: Water
 Analysis Batch: 311089

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	SCB Result	SCB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		0.0000020	0.0000010	mg/L			03/08/23 09:18	1

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-310123/5-A
 Matrix: Water
 Analysis Batch: 309768

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 310123

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.20	0.050	mg/L		03/07/23 20:00	03/07/23 21:08	1

Lab Sample ID: LCS 570-310123/6-A
 Matrix: Water
 Analysis Batch: 309768

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 310123

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	0.500	0.457		mg/L		91	83 - 122

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: LCSD 570-310123/7-A
Matrix: Water
Analysis Batch: 309768

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310123

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
MBAS	0.500	0.454		mg/L		91	83 - 122	1	10	

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 309768

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 310123

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
MBAS	ND	BU BV	0.500	0.435	BU BV	mg/L		87	64 - 141			

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 309768

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 310123

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
MBAS	ND	BU BV	0.500	0.426	BU BV	mg/L		85	64 - 141	2	10	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

GC/MS Semi VOA

Prep Batch: 310496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	625	
MB 570-310496/1-A	Method Blank	Total/NA	Water	625	
LCS 570-310496/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-310496/3-A	Lab Control Sample Dup	Total/NA	Water	625	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	625	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	625	

Analysis Batch: 311097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	625.1 SIM	310496
MB 570-310496/1-A	Method Blank	Total/NA	Water	625.1 SIM	310496
LCS 570-310496/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	310496
LCSD 570-310496/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	310496
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	625.1 SIM	310496
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	625.1 SIM	310496

GC Semi VOA

Prep Batch: 309827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	608	
MB 570-309827/1-A	Method Blank	Total/NA	Water	608	
LCS 570-309827/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-309827/3-A	Lab Control Sample Dup	Total/NA	Water	608	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	608	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	608	

Analysis Batch: 310461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	608.3	309827
MB 570-309827/1-A	Method Blank	Total/NA	Water	608.3	309827
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	608.3	309827
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	608.3	309827

Analysis Batch: 311052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-309827/2-A	Lab Control Sample	Total/NA	Water	608.3	309827
LCSD 570-309827/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	309827

HPLC/IC

Analysis Batch: 309420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	300.0	
570-129852-1 - DL	Outfall002_20230304_Comp	Total/NA	Water	300.0	
MB 570-309420/5	Method Blank	Total/NA	Water	300.0	
LCS 570-309420/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309420/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	300.0	
570-129852-1 MS - DL	Outfall002_20230304_Comp	Total/NA	Water	300.0	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	300.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

HPLC/IC (Continued)

Analysis Batch: 309420 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1 MSD - DL	Outfall002_20230304_Comp	Total/NA	Water	300.0	

Analysis Batch: 309421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	300.0	
MB 570-309421/5	Method Blank	Total/NA	Water	300.0	
LCS 570-309421/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309421/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	300.0	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	300.0	

Analysis Batch: 310299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	314.0	
MB 570-310299/7	Method Blank	Total/NA	Water	314.0	
LCS 570-310299/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-310299/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	314.0	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	314.0	

Analysis Batch: 310704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Prep Batch: 309505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total Recoverable	Water	200.8	
MB 570-309505/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-309505/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-309505/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-129852-1 MS	Outfall002_20230304_Comp	Total Recoverable	Water	200.8	
570-129852-1 MSD	Outfall002_20230304_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 309648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total Recoverable	Water	200.8	309505
MB 570-309505/1-A	Method Blank	Total Recoverable	Water	200.8	309505
LCS 570-309505/2-A	Lab Control Sample	Total Recoverable	Water	200.8	309505
LCSD 570-309505/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	309505
570-129852-1 MS	Outfall002_20230304_Comp	Total Recoverable	Water	200.8	309505
570-129852-1 MSD	Outfall002_20230304_Comp	Total Recoverable	Water	200.8	309505

Filtration Batch: 309651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-3	Outfall002_20230304_Comp_F	Dissolved	Water	Filtration	
MB 570-309651/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-309651/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-309651/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Metals (Continued)

Filtration Batch: 309651 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-3 MS	Outfall002_20230304_Comp_F	Dissolved	Water	Filtration	
570-129852-3 MSD	Outfall002_20230304_Comp_F	Dissolved	Water	Filtration	

Filtration Batch: 309721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-3	Outfall002_20230304_Comp_F	Dissolved	Water	Filtration	
MB 570-309721/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-309721/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-309721/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-129852-3 MS	Outfall002_20230304_Comp_F	Dissolved	Water	Filtration	
570-129852-3 MSD	Outfall002_20230304_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 309760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	245.1	
MB 570-309760/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-309760/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-309760/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	245.1	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	245.1	

Prep Batch: 309782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-3	Outfall002_20230304_Comp_F	Dissolved	Water	245.1	309721
MB 570-309721/1-B	Method Blank	Dissolved	Water	245.1	309721
LCS 570-309721/2-B	Lab Control Sample	Dissolved	Water	245.1	309721
LCSD 570-309721/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309721
570-129852-3 MS	Outfall002_20230304_Comp_F	Dissolved	Water	245.1	309721
570-129852-3 MSD	Outfall002_20230304_Comp_F	Dissolved	Water	245.1	309721

Analysis Batch: 309903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-3	Outfall002_20230304_Comp_F	Dissolved	Water	200.8	309651
MB 570-309651/1-A	Method Blank	Dissolved	Water	200.8	309651
LCS 570-309651/2-A	Lab Control Sample	Dissolved	Water	200.8	309651
LCSD 570-309651/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	309651
570-129852-3 MS	Outfall002_20230304_Comp_F	Dissolved	Water	200.8	309651
570-129852-3 MSD	Outfall002_20230304_Comp_F	Dissolved	Water	200.8	309651

Analysis Batch: 310041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	245.1	309760
570-129852-3	Outfall002_20230304_Comp_F	Dissolved	Water	245.1	309782
MB 570-309721/1-B	Method Blank	Dissolved	Water	245.1	309782
MB 570-309760/1-A	Method Blank	Total/NA	Water	245.1	309760
LCS 570-309721/2-B	Lab Control Sample	Dissolved	Water	245.1	309782
LCS 570-309760/2-A	Lab Control Sample	Total/NA	Water	245.1	309760
LCSD 570-309721/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309782
LCSD 570-309760/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	309760
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	245.1	309760

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Metals (Continued)

Analysis Batch: 310041 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	245.1	309760
570-129852-3 MS	Outfall002_20230304_Comp_F	Dissolved	Water	245.1	309782
570-129852-3 MSD	Outfall002_20230304_Comp_F	Dissolved	Water	245.1	309782

General Chemistry

Analysis Batch: 309398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-309398/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-309398/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-309398/3	Lab Control Sample	Total/NA	Water	SM 2130B	

Analysis Batch: 309768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	SM 5540C	310123
MB 570-310123/5-A	Method Blank	Total/NA	Water	SM 5540C	310123
LCS 570-310123/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	310123
LCSD 570-310123/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	310123
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	SM 5540C	310123
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	SM 5540C	310123

Prep Batch: 309842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	BOD Prep	
LCS 570-309842/2-A	Lab Control Sample	Total/NA	Water	BOD Prep	

Prep Batch: 310123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	SM 5540C	
MB 570-310123/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-310123/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-310123/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	SM 5540C	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 310278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	SM 2540D	
MB 570-310278/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-310278/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-310278/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 310437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	SM 2540C	
MB 570-310437/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-310437/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-310437/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

General Chemistry

Analysis Batch: 311089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	SM 5210B	309842
SCB 570-311089/3	Method Blank	Total/NA	Water	SM 5210B	
LCS 570-309842/2-A	Lab Control Sample	Total/NA	Water	SM 5210B	309842

Prep Batch: 311129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-311129/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-311129/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-311129/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	Distill/Ammonia	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 311145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	350.1	311129
MB 570-311129/5-A	Method Blank	Total/NA	Water	350.1	311129
LCS 570-311129/6-A	Lab Control Sample	Total/NA	Water	350.1	311129
LCSD 570-311129/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	311129
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	350.1	311129
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	350.1	311129

Analysis Batch: 312131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	Kelada 01	
MB 570-312131/14	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-312131/16	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-312131/17	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	Kelada 01	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	Kelada 01	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-1

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1055 mL	2 mL	310496	03/10/23 06:36	H1SH	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	311097	03/13/23 21:10	ULLI	EET CAL 4
		Instrument ID: GCMSJJJ								
Total/NA	Prep	608			1500 mL	1 mL	309827	03/08/23 08:21	OAJ3	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	310461	03/10/23 15:42	N5Y3	EET CAL 4
		Instrument ID: GC52A								
Total/NA	Analysis	300.0		1	4 mL	4 mL	309420	03/07/23 09:11	PS	EET CAL 4
		Instrument ID: IC7								
Total/NA	Analysis	300.0		1	4 mL	4 mL	309421	03/07/23 09:11	PS	EET CAL 4
		Instrument ID: IC7								
Total/NA	Analysis	300.0	DL	5	4 mL	4 mL	309420	03/07/23 10:11	PS	EET CAL 4
		Instrument ID: IC7								
Total/NA	Analysis	314.0		1	4 mL	4 mL	310299	03/10/23 00:43	PS	EET CAL 4
		Instrument ID: IC8								
Total/NA	Analysis	NO2NO3 Calc		1			310704	03/10/23 16:06	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total Recoverable	Prep	200.8			50 mL	50 mL	309505	03/07/23 09:05	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			309648	03/07/23 13:45	Y2WS	EET CAL 4
		Instrument ID: ICPMS10								
Total/NA	Prep	245.1			25 mL	50 mL	309760	03/07/23 21:21	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			310041	03/08/23 17:43	C0YH	EET CAL 4
		Instrument ID: HG8								
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	311129	03/13/23 13:40	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	311145	03/13/23 15:25	UXCH	EET CAL 4
		Instrument ID: ACA2								
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	312131	03/14/23 19:36	GG0B	EET CAL 4
		Instrument ID: LACHAT01								
Total/NA	Analysis	SM 2130B		1			309398	03/06/23 22:12	TXA8	EET CAL 4
		Instrument ID: TUR4								
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	310437	03/09/23 18:06	ZL7L	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540D		1	800 mL	1000 mL	310278	03/09/23 11:52	WVA4	EET CAL 4
		Instrument ID: BAL71								
Total/NA	Prep	BOD Prep					309842	03/08/23 10:18	U7UR	EET CAL 4
Total/NA	Analysis	SM 5210B		1	300 mL	300 mL	311089	03/08/23 10:51	TN8Z	EET CAL 4
		Instrument ID: BOD3								
Total/NA	Prep	SM 5540C			100 mL	100 mL	310123	03/07/23 20:00	TXA8	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	309768	03/07/23 21:21	TXA8	EET CAL 4
		Instrument ID: UV8								

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Client Sample ID: Outfall002_20230304_Comp_F

Lab Sample ID: 570-129852-3

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	309651	03/07/23 14:28	ECX6	EET CAL 4
Dissolved	Analysis	200.8		1			309903	03/08/23 09:53	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Dissolved	Filtration	Filtration			25 mL	25 mL	309721	03/07/23 17:52	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	309782	03/07/23 19:00	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			310041	03/08/23 17:54	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129852-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	EPA	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5210B	BOD, 5-Day	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET CAL 4
625	Liquid-Liquid Extraction	EPA	EET CAL 4
BOD Prep	Preparation, BOD	SM	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129852-1	Outfall002_20230304_Comp	Water	03/04/23 07:40	03/06/23 17:00
570-129852-3	Outfall002_20230304_Comp_F	Water	03/04/23 07:40	03/06/23 17:00

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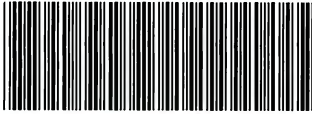
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CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp		ANALYSIS REQUIRED												
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Total Recoverable Metals: (E200.6); Zn (E200.6); Cu, Pb, Cd, Se	TCCD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM5210B_BODCalc)	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E60B)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs EB25)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.8); Fe	Comments
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)														
Sampler: Adrian Mobeka																

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.6); Zn (E200.6); Cu, Pb, Cd, Se	TCCD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM5210B_BODCalc)	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E60B)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs EB25)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.8); Fe	Comments					
Outfall 002	Outfall002_20230304_Comp	3/4/2023 6:40	WM	500 mL Poly	1	HNO3	90	Yes	X											X	X	Outfall 002 analyze for Fe.				
			WM	1 L Glass Amber	2	None	110	No			X															
			WM	1L Poly	1	None	115	No				X														
			WM	500 mL Poly	6	None	120	Yes					X													
			WM	500 mL Poly	6	None	130	Yes						X											48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None	150	No							X										48 hour holding time for turbidity	
			WM	500 mL Poly	3	H2SO4	160	Yes										X								
			WM	1 L Glass Amber	6	None	170	Yes												X						
			WM	1 L Glass Amber	6	None	180	Yes													X					
			WM	1L Poly	1	None	185	No									X									
Outfall 002	Outfall002_20230304_Comp_Extra	3/4/2023 6:40	WM	1 L Glass Amber	2	None	110	No			H												Hold			
			WM	500 mL Poly	2	None	120	No					H											Hold		
			WM	500 mL Poly	2	None	130	No						H										Hold		
			WM	1 L Glass Amber	2	None	170	No											H					Hold		
			WM	1 L Glass Amber	2	None	180	No												H				Hold		

Legend: C=Conditional, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-6-2023/1355 Company: H:A	Received By: <i>[Signature]</i> Date/Time: 3/6/23 1355 EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/6/23 1700 EC	Received By: <i>[Signature]</i> Date/Time: 3/6/23 1700	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

2.1/2.1, 1.9/1.9, 2.0/2.0, 2.3/2.3 SC11

Chain of Custody Record



Environmental Testing



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-209419.1											
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1											
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program California		Job #: 570-129852-3											
Address: 13715 Rider Trail North,		Due Date Requested: 4/6/2023	Preservation Codes: A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other												
City: Earth City		TAT Requested (days):	Analysis Requested												
State, Zip: MO, 63045		PO #:	M Hexane N None O AsNaO2 P Na2O4S Q Na2SO3 R Na2SSO3 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 Y Trizma Z other (Specify)												
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:	Total Number of Containers												
Email:		Project #: 57013187	Boeing SSFL DO NOT FILTER; use prep date from preservation												
Site: Boeing NPDES SSFL Routine Outfall 002 Comp		SOW#:	Special Instructions/Note:												
Sample Identification	Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, BT=Tissue, AA=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.EVaporation Gross Alpha/Beta	906.0/SC, Dil. Susp Tritium	905.Sr90/Presep. 7 Strontium-90	903.0/Presep. 21 Radium-226	904.0/Presep. 0 Radium-228	A01R_UExChrom_Actin Total Uranium	901.Ca/Fill_Geo. 0 K-40 and Cesium-137
Outfall002_20230304_Comp (570-129852-1)		3/4/23	07:40 Pacific	Water			X	X	X	X	X	X	X	X	X

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I II III IV Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *[Signature]* Date: 03/07/23 10:30 Company: *[Signature]*
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No Cooler Temperature(s) °C and Other Remarks:



ICOC No*
570-209419

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Amber Glass 1 liter - unpreserved	None
1	Plastic 2.5 Gallon	None



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-209419.1											
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1											
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program California	Job #: 570-129852-1												
Address: 13715 Rider Trail North, Earth City, MO, 63045		Due Date Requested: 3/16/2023	Preservation Codes:												
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		TAT Requested (days):	A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other												
Project Name: Boeing NPDES SSFL Routine Outfall 002 Comp		PO #:	M Hexane N None O AsNaO2 P Na2OAS Q Na2SO3 R Na2S2O3 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 X Trizma Y Trizma Z other (specify)												
Site: BOEING NPDES SSFL Routine Outfall 002 Comp		WO #:	Total Number of Containers												
Project #: 57013187		SSOW#:	Special Instructions/Note:												
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Sealed, On-site/Off-site)	Field Filled Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC Dist. Susp Tritium	905.0/PreSep. 7 Strontium-90	903.0/PreSep. 21 Radium-226	904.0/PreSep. 0 Radium-228	A01R_U/ExChrom_Actin Total Uranium	901.1.Ca/Fill_Geo. 0 K-40 and Cesium-137	Boeing SSFL, DO NOT FILTER; use prep date from preservation
Outfall002_20230304_Comp (570-129852-1MS)	3/4/23	07:40 Pacific	MS	Water	Water	X	X	X	X	X	X	X	X	X	2
Outfall002_20230304_Comp (570-129852-1MSD)	3/4/23	07:40 Pacific	MSD	Water	Water	X	X	X	X	X	X	X	X	X	2

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: [Signature] Date: 03/07/23 10:30
 Relinquished by: [Signature] Date/Time: [Signature] Company
 Relinquished by: [Signature] Date/Time: [Signature] Company
 Relinquished by: [Signature] Date/Time: [Signature] Company
 Custody Seals Intact: Custody Seal No. Δ Yes Δ No
 Cooler Temperature(s) °C and Other Remarks:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:



ICOC No:
570-209419

Containers

<u>Count</u>	<u>Container Type</u>
2	Amber Glass 1 liter - unpreserved
2	Plastic 2.5 Gallon

<u>Preservative</u>
None
None



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129852-1

Login Number: 129852

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 002 - Comp

JOB NUMBER

570-129852-2

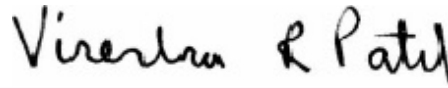
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-129852-2

Job ID: 570-129852-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129852-2

Comments

No additional comments.

Receipt

The samples were received on 3/6/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.9° C, 2.0° C, 2.1° C and 2.3° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 12D5 exceeded this criteria: Outfall002_20230304_Comp (570-129852-1), (CCV 320-662732/2), (LCS 320-661244/2-A), (LCSD 320-661244/3-A) and (MB 320-661244/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129852-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000022	J,DX MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDD	0.0000075	J,DX q MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDD	0.0000077	J,DX q MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
1,2,3,4,7,8-HxCDF	0.0000079	J,DX	0.000048	0.0000003	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDF	0.0000057	J,DX q	0.000048	0.0000003	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDF	0.0000056	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
2,3,4,6,7,8-HxCDF	0.0000043	J,DX q	0.000048	0.0000002	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.0000040	J,DX q MB	0.000048	0.0000005	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.0000022	J,DX q MB	0.000048	0.0000005	ug/L	1		1613B	Total/NA
OCDD	0.000019	J,DX MB	0.000096	0.0000005	ug/L	1		1613B	Total/NA
OCDF	0.0000061	J,DX MB	0.000096	0.0000005	ug/L	1		1613B	Total/NA
Total TCDD	0.0000034	J,DX q MB	0.0000096	0.0000011	ug/L	1		1613B	Total/NA
Total HxCDD	0.0000037	J,DX q MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
Total HxCDF	0.0000024	J,DX q MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
Total HpCDD	0.0000070	J,DX q MB	0.000048	0.0000005	ug/L	1		1613B	Total/NA
Total HpCDF	0.0000031	J,DX q MB	0.000048	0.0000005	ug/L	1		1613B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230304_Comp

Date Collected: 03/04/23 07:40

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000096	0.0000011	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
2,3,7,8-TCDF	ND		0.0000096	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,7,8-PeCDF	ND		0.000048	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,4,7,8-HxCDD	0.0000022	J,DX MB	0.000048	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,6,7,8-HxCDD	0.0000075	J,DX q MB	0.000048	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,7,8,9-HxCDD	0.0000077	J,DX q MB	0.000048	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,4,7,8-HxCDF	0.0000079	J,DX	0.000048	0.0000003	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,6,7,8-HxCDF	0.0000057	J,DX q	0.000048	0.0000003	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,7,8,9-HxCDF	0.0000056	J,DX MB	0.000048	0.0000003	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
2,3,4,6,7,8-HxCDF	0.0000043	J,DX q	0.000048	0.0000002	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,4,6,7,8-HpCDD	0.0000040	J,DX q MB	0.000048	0.0000005	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,4,6,7,8-HpCDF	0.0000022	J,DX q MB	0.000048	0.0000005	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000005	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
OCDD	0.000019	J,DX MB	0.000096	0.0000005	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
OCDF	0.0000061	J,DX MB	0.000096	0.0000005	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
Total TCDD	0.0000034	J,DX q MB	0.0000096	0.0000011	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
Total TCDF	ND		0.0000096	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
Total PeCDD	ND		0.000048	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
Total PeCDF	ND		0.000048	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
Total HxCDD	0.0000037	J,DX q MB	0.000048	0.0000004	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
Total HxCDF	0.0000024	J,DX q MB	0.000048	0.0000002	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
Total HpCDD	0.0000070	J,DX q MB	0.000048	0.0000005	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
Total HpCDF	0.0000031	J,DX q MB	0.000048	0.0000005	ug/L	-	03/16/23 07:03	03/23/23 01:56	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	60		25 - 164				03/16/23 07:03	03/23/23 01:56	1
13C-2,3,7,8-TCDF	62		24 - 169				03/16/23 07:03	03/23/23 01:56	1
13C-1,2,3,7,8-PeCDD	62		25 - 181				03/16/23 07:03	03/23/23 01:56	1
13C-1,2,3,7,8-PeCDF	65		24 - 185				03/16/23 07:03	03/23/23 01:56	1
13C-2,3,4,7,8-PeCDF	62		21 - 178				03/16/23 07:03	03/23/23 01:56	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-129852-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,4,7,8-HxCDD	55		32 - 141	03/16/23 07:03	03/23/23 01:56	1
13C-1,2,3,6,7,8-HxCDD	59		28 - 130	03/16/23 07:03	03/23/23 01:56	1
13C-1,2,3,4,7,8-HxCDF	51		26 - 152	03/16/23 07:03	03/23/23 01:56	1
13C-1,2,3,6,7,8-HxCDF	60		26 - 123	03/16/23 07:03	03/23/23 01:56	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147	03/16/23 07:03	03/23/23 01:56	1
13C-2,3,4,6,7,8-HxCDF	69		28 - 136	03/16/23 07:03	03/23/23 01:56	1
13C-1,2,3,4,6,7,8-HpCDD	64		23 - 140	03/16/23 07:03	03/23/23 01:56	1
13C-1,2,3,4,6,7,8-HpCDF	55		28 - 143	03/16/23 07:03	03/23/23 01:56	1
13C-1,2,3,4,7,8,9-HpCDF	69		26 - 138	03/16/23 07:03	03/23/23 01:56	1
13C-OCDD	76		17 - 157	03/16/23 07:03	03/23/23 01:56	1
13C-OCDF	78		17 - 157	03/16/23 07:03	03/23/23 01:56	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	80		35 - 197	03/16/23 07:03	03/23/23 01:56	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-129852-1	Outfall002_20230304_Comp	80
MB 320-661244/1-A	Method Blank	85

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-661244/2-A	Lab Control Sample	87
LCSD 320-661244/3-A	Lab Control Sample Dup	82

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-129852-1	Outfall002_20230304_Comp	60	62	62	65	62	55	59	51
MB 320-661244/1-A	Method Blank	70	73	72	76	73	66	69	61

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-129852-1	Outfall002_20230304_Comp	60	71	69	64	55	69	76	78
MB 320-661244/1-A	Method Blank	73	83	81	67	62	72	82	85

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCF = 13C-2,3,4,7,8-PeCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 OCDD = 13C-OCDD
 OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-661244/2-A	Lab Control Sample	71	72	68	73	70	65	69	65
LCSD 320-661244/3-A	Lab Control Sample Dup	70	73	71	75	71	61	69	60

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-661244/2-A	Lab Control Sample	72	83	78	69	63	75	82	84
LCSD 320-661244/3-A	Lab Control Sample Dup	70	81	79	71	62	76	85	88

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCF = 13C-2,3,4,7,8-PeCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129852-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

- 1
- 2
- 3
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- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-661244/1-A
Matrix: Water
Analysis Batch: 662732

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 661244

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	72		25 - 181	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,7,8-PeCDF	76		24 - 185	03/16/23 07:03	03/22/23 23:34	1
13C-2,3,4,7,8-PeCDF	73		21 - 178	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,7,8-HxCDD	66		32 - 141	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,6,7,8-HxCDD	69		28 - 130	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,7,8-HxCDF	61		26 - 152	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,6,7,8-HxCDF	73		26 - 123	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,7,8,9-HxCDF	83		29 - 147	03/16/23 07:03	03/22/23 23:34	1
13C-2,3,4,6,7,8-HxCDF	81		28 - 136	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,6,7,8-HpCDD	67		23 - 140	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,6,7,8-HpCDF	62		28 - 143	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,7,8,9-HpCDF	72		26 - 138	03/16/23 07:03	03/22/23 23:34	1
13C-OCDD	82		17 - 157	03/16/23 07:03	03/22/23 23:34	1
13C-OCDF	85		17 - 157	03/16/23 07:03	03/22/23 23:34	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	85		35 - 197	03/16/23 07:03	03/22/23 23:34	1

Lab Sample ID: LCS 320-661244/2-A
Matrix: Water
Analysis Batch: 662732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 661244

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000214		ug/L		107	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000953		ug/L		95	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000964		ug/L		96	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000969		ug/L		97	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000918		ug/L		92	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000980		ug/L		98	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00101		ug/L		101	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000941		ug/L		94	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000963		ug/L		96	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000940		ug/L		94	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000945		ug/L		95	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000963		ug/L		96	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00100		ug/L		100	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000960		ug/L		96	78 - 138
OCDD	0.00200	0.00199		ug/L		99	78 - 144
OCDF	0.00200	0.00200		ug/L		100	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	71		20 - 175
13C-2,3,7,8-TCDF	72		22 - 152
13C-1,2,3,7,8-PeCDD	68		21 - 227
13C-1,2,3,7,8-PeCDF	73		21 - 192
13C-2,3,4,7,8-PeCDF	70		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-661244/2-A
Matrix: Water
Analysis Batch: 662732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 661244

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-1,2,3,4,7,8-HxCDD	65		21 - 193
13C-1,2,3,6,7,8-HxCDD	69		25 - 163
13C-1,2,3,4,7,8-HxCDF	65		19 - 202
13C-1,2,3,6,7,8-HxCDF	72		21 - 159
13C-1,2,3,7,8,9-HxCDF	83		17 - 205
13C-2,3,4,6,7,8-HxCDF	78		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	69		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	63		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	75		20 - 186
13C-OCDD	82		13 - 199
13C-OCDF	84		13 - 199

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
37Cl4-2,3,7,8-TCDD	87		31 - 191

Lab Sample ID: LCSD 320-661244/3-A
Matrix: Water
Analysis Batch: 662732

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 661244

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
2,3,7,8-TCDD	0.000200	0.000196		ug/L		98	67 - 158	2	50
2,3,7,8-TCDF	0.000200	0.000212		ug/L		106	75 - 158	1	50
1,2,3,7,8-PeCDD	0.00100	0.000938		ug/L		94	70 - 142	2	50
1,2,3,7,8-PeCDF	0.00100	0.000953		ug/L		95	80 - 134	1	50
2,3,4,7,8-PeCDF	0.00100	0.000974		ug/L		97	68 - 160	0	50
1,2,3,4,7,8-HxCDD	0.00100	0.000929		ug/L		93	70 - 164	1	50
1,2,3,6,7,8-HxCDD	0.00100	0.000948		ug/L		95	76 - 134	3	50
1,2,3,7,8,9-HxCDD	0.00100	0.00105		ug/L		105	64 - 162	3	50
1,2,3,4,7,8-HxCDF	0.00100	0.000939		ug/L		94	72 - 134	0	50
1,2,3,6,7,8-HxCDF	0.00100	0.000954		ug/L		95	84 - 130	1	50
1,2,3,7,8,9-HxCDF	0.00100	0.000936		ug/L		94	78 - 130	0	50
2,3,4,6,7,8-HxCDF	0.00100	0.000947		ug/L		95	70 - 156	0	50
1,2,3,4,6,7,8-HpCDD	0.00100	0.000939		ug/L		94	70 - 140	3	50
1,2,3,4,6,7,8-HpCDF	0.00100	0.000996		ug/L		100	82 - 122	1	50
1,2,3,4,7,8,9-HpCDF	0.00100	0.000940		ug/L		94	78 - 138	2	50
OCDD	0.00200	0.00191		ug/L		95	78 - 144	4	50
OCDF	0.00200	0.00193		ug/L		96	63 - 170	4	50

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-2,3,7,8-TCDD	70		20 - 175
13C-2,3,7,8-TCDF	73		22 - 152
13C-1,2,3,7,8-PeCDD	71		21 - 227
13C-1,2,3,7,8-PeCDF	75		21 - 192
13C-2,3,4,7,8-PeCDF	71		13 - 328
13C-1,2,3,4,7,8-HxCDD	61		21 - 193
13C-1,2,3,6,7,8-HxCDD	69		25 - 163
13C-1,2,3,4,7,8-HxCDF	60		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-661244/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 662732

Prep Batch: 661244

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,6,7,8-HxCDF	70		21 - 159
13C-1,2,3,7,8,9-HxCDF	81		17 - 205
13C-2,3,4,6,7,8-HxCDF	79		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	71		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	62		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	76		20 - 186
13C-OCDD	85		13 - 199
13C-OCDF	88		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	82		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-2

Specialty Organics

Prep Batch: 661244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	1613B	
MB 320-661244/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-661244/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-661244/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 662732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	1613B	661244
MB 320-661244/1-A	Method Blank	Total/NA	Water	1613B	661244
LCS 320-661244/2-A	Lab Control Sample	Total/NA	Water	1613B	661244
LCSD 320-661244/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	661244

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-2

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1044.1 mL	20.0 uL	661244	03/16/23 07:03	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	662732	03/23/23 01:56	DB	EET SAC

Instrument ID: 12D5

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	03-29-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129852-1	Outfall002_20230304_Comp	Water	03/04/23 07:40	03/06/23 17:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Chain of Custody Record



Environmental Testing



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-209419.1												
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1												
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program California	Job #:	570-129852-3												
Address: 13715 Rider Trail North,		Due Date Requested: 4/6/2023	Preservation Codes: A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other													
City: Earth City		TAT Requested (days):	Analysis Requested													
State, Zip: MO, 63045		PO #:	M Hexane N None O AsNaO2 P Na2O4S Q Na2SO3 R Na2SSO3 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 Y Trizma Z other (Specify)													
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:	Total Number of Containers													
Email:		Project #: 57013187	Boeing SSFL DO NOT FILTER; use prep date from preservation													
Site: Boeing NPDES SSFL Routine Outfall 002 Comp		SOW#:	Special Instructions/Note:													
Sample Identification	Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, BT=Tissue, AA=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.EVaporation Gross Alpha/Beta	906.0/SC, Dil. Susp Tritium	905.Sr90/Presep. 7 Strontium-90	903.0/Presep. 21 Radium-226	904.0/Presep. 0 Radium-228	A01R_UExChrom_Actin Total Uranium	901.Ca/Fill_Geo. 0 K-40 and Cesium-137	
Outfall002_20230304_Comp (570-129852-1)		3/4/23	07:40 Pacific	Water			X	X	X	X	X	X	X	X	X	2

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I II III IV Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *[Signature]* Date/Time: 03/07/23 10:30 Company: *[Signature]*
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No



ICOC No*
570-209419

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Amber Glass 1 liter - unpreserved	None
1	Plastic 2.5 Gallon	None



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-209419.1									
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1									
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program California		Job #: 570-129852-1									
Address: 13715 Rider Trail North, Earth City, MO, 63045		Analysis Requested											
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Preservation Codes: M Hexane, N None, O AsNaO2, P Na2OAS, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, X Trizma, Y other (specify)											
Project Name: Boeing NPDES SSFL Routine Outfall 002 Comp		Total Number of Containers											
Site:		Special Instructions/Note:											
Sample ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Swab, On-surface, etc.)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC Dist. Susp Tritium	905.0/PreSep. 21 Radium-226	904.0/PreSep. 0 Radium-228	A01R_U/ExChrom_Actin Total Uranium	901.1.Ca/Fill_Geo. 0 K-40 and Cesium-137	Boeing SSFL, DO NOT FILTER; use prep date from preservation
Outfall002_20230304_Comp (570-129852-1MS)	3/4/23	07:40 Pacific	MS	Water	X	X	X	X	X	X	X	X	Boeing SSFL, DO NOT FILTER; use prep date from preservation
Outfall002_20230304_Comp (570-129852-1MSD)	3/4/23	07:40 Pacific	MSD	Water	X	X	X	X	X	X	X	X	Boeing SSFL, DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: [Signature] Date: 03/07/23 10:30
 Relinquished by: [Signature] Date/Time: [Signature] Company
 Relinquished by: [Signature] Date/Time: [Signature] Company
 Relinquished by: [Signature] Date/Time: [Signature] Company
 Custody Seals Intact: Yes No
 Custody Seal No. _____ Cooler Temperature(s) °C and Other Remarks: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements: _____
 Method of Shipment: _____
 Received by: _____ Date/Time: _____ Company
 Received by: _____ Date/Time: _____ Company
 Received by: _____ Date/Time: _____ Company



ICOC No:
570-209419

Containers

<u>Count</u>	<u>Container Type</u>
2	Amber Glass 1 liter - unpreserved
2	Plastic 2.5 Gallon

<u>Preservative</u>
None
None



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129852-2

Login Number: 129852

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Virendra

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129852-2

Login Number: 129852

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/08/23 04:58 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1517114
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129852-2

Login Number: 129852

List Number: 4

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/09/23 05:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/12/2023 7:05:39 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 002 - Comp

JOB NUMBER

570-129852-3

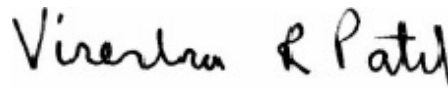
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-3

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
F1	MS and/or MSD recovery exceeds control limits.
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-129852-3

Job ID: 570-129852-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129852-3

Comments

No additional comments.

Receipt

The samples were received on 3/6/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.9° C, 2.0° C, 2.1° C and 2.3° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

RAD

Method 900.0: Gross Alpha Beta prep batch 160-606236:

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-606326 and analytical batch 160-606671 were outside control limits for one or more analytes. In addition RER/RPD was also outside of control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 900.0: Gross Alpha Beta prep batch 160-606326:

The detection goal was not met for the following sample(s). The samples and batch QC were prepped at full volume. Matrix interferences are suspected because the method blank achieved the detection goal demonstrating acceptable sample preparation and instrument performance. Outfall002_20230304_Comp (570-129852-1)

Method 900.0: Gross Alpha Beta prep batch 160-606326:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230304_Comp (570-129852-1), Outfall002_20230304_Comp (570-129852-1[MS]), Outfall002_20230304_Comp (570-129852-1[MSD]), (LCS 160-606326/2-A), (LCSB 160-606326/3-A), (MB 160-606326/1-A), (570-129852-R-1-L MSBT) and (570-129852-R-1-M MSBTD)

Method 901.1: Gamma Prep Batch 160-604032

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-129852-3

Job ID: 570-129852-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

**The method blank (MB) Z-score is within limits and is located in the level IV raw data.

Outfall002_20230304_Comp (570-129852-1), (570-128840-R-1-D) and (570-128840-R-1-E DU)

Methods 903.0, 9315: Radium-226 batch 603854

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Methods 904.0, 9320: Radium-228 batch 603857

The LCS recovered at (128%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required

(LCSD 160-603857/25-A)

Methods 904.0, 9320: Radium-228 batch 603857

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230304_Comp (570-129852-1), Outfall002_20230304_Comp (570-129852-1[MS]), Outfall002_20230304_Comp (570-129852-1[MSD]), (LCS 160-603857/2-A), (LCSD 160-603857/25-A) and (MB 160-603857/1-A)

Method 905: Strontium-90 batch 604379

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230304_Comp (570-129852-1), Outfall002_20230304_Comp (570-129852-1[MS]), Outfall002_20230304_Comp (570-129852-1[MSD]), (LCS 160-604379/2-A) and (MB 160-604379/1-A)

Method 906.0: Tritium 605397

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230304_Comp (570-129852-1), Outfall002_20230304_Comp (570-129852-1[MS]), Outfall002_20230304_Comp (570-129852-1[MSD]), (LCS 160-605397/2-A) and (MB 160-605397/1-A)

Method 906.0: The matrix spike duplicate (MSD) recovery was inadvertently not spiked. However the matrix spike (MS) was within range and all other QC was within limits. Per client, the data will be reported with this narrative. Outfall002_20230304_Comp (570-129852-1), Outfall002_20230304_Comp (570-129852-1[MS]) and Outfall002_20230304_Comp (570-129852-1[MSD])

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Comp

Job ID: 570-129852-3

Job ID: 570-129852-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method A-01-R: Isotopic Uranium Batch 605724

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230304_Comp (570-129852-1), Outfall002_20230304_Comp (570-129852-1[MS]), Outfall002_20230304_Comp (570-129852-1[MSD]), (LCS 160-605724/2-A) and (MB 160-605724/1-A)

Method ExtChrom: Uranium Prep Batch 160-605724:

The following samples were prepared at a reduced aliquot due to sediment and discoloration: Outfall002_20230304_Comp (570-129852-1), Outfall002_20230304_Comp (570-129852-1[MS]) and Outfall002_20230304_Comp (570-129852-1[MSD]).

Method PrecSep_0:

Method PrecSep-21:

Method PrecSep-7:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129852-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.29	U F G	2.06	2.07	3.00	3.52	pCi/L	04/06/23 10:28	04/10/23 20:48	1
Gross Beta	2.30		0.726	0.762	4.00	0.913	pCi/L	04/06/23 10:28	04/10/23 20:48	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230304_Comp
 Date Collected: 03/04/23 07:40
 Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-2.89	U	11.1	11.1	20.0	13.2	pCi/L	03/17/23 14:08	03/29/23 08:20	1
Potassium-40	11.4	U	87.0	87.0		98.4	pCi/L	03/17/23 14:08	03/29/23 08:20	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230304_Comp
Date Collected: 03/04/23 07:40
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.133	U	0.115	0.115	1.00	0.174	pCi/L	03/16/23 07:58	04/07/23 10:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					03/16/23 07:58	04/07/23 10:45	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230304_Comp
Date Collected: 03/04/23 07:40
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.348	U	0.387	0.388	1.00	0.630	pCi/L	03/16/23 09:45	03/30/23 12:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					03/16/23 09:45	03/30/23 12:06	1
Y Carrier	83.4		30 - 110					03/16/23 09:45	03/30/23 12:06	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230304_Comp
Date Collected: 03/04/23 07:40
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.124	U	0.438	0.439	3.00	0.805	pCi/L	03/20/23 13:22	03/29/23 16:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	84.2		30 - 110					03/20/23 13:22	03/29/23 16:04	1
Y Carrier	73.3		30 - 110					03/20/23 13:22	03/29/23 16:04	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230304_Comp
 Date Collected: 03/04/23 07:40
 Date Received: 03/06/23 17:00

Lab Sample ID: 570-129852-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-11.7	UF	137	137	500	257	pCi/L	03/29/23 11:02	04/04/23 18:43	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	1.13		0.404	0.409	1.00	0.178	pCi/L	03/30/23 15:31	04/04/23 20:40	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	103		30 - 110					03/30/23 15:31	04/04/23 20:40	1

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
570-129852-1	Outfall002_20230304_Comp	86.6	
570-129852-1 MS	Outfall002_20230304_Comp	90.5	
570-129852-1 MSD	Outfall002_20230304_Comp	90.5	
LCS 160-603854/2-A	Lab Control Sample	94.8	
LCS D 160-603854/25-A	Lab Control Sample Dup	89.2	
MB 160-603854/1-A	Method Blank	91.5	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
570-129852-1	Outfall002_20230304_Comp	86.6	83.4
570-129852-1 MS	Outfall002_20230304_Comp	90.5	85.6
570-129852-1 MSD	Outfall002_20230304_Comp	90.5	83.7
LCS 160-603857/2-A	Lab Control Sample	94.8	81.5
LCS D 160-603857/25-A	Lab Control Sample Dup	89.2	87.5
MB 160-603857/1-A	Method Blank	91.5	83.7
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)
570-129852-1	Outfall002_20230304_Comp	84.2	73.3
570-129852-1 MS	Outfall002_20230304_Comp	76.6	79.6
570-129852-1 MSD	Outfall002_20230304_Comp	80.3	67.7
LCS 160-604379/2-A	Lab Control Sample	85.6	76.6
MB 160-604379/1-A	Method Blank	79.3	70.3
Tracer/Carrier Legend			
Sr = Sr Carrier			
Y = Y Carrier			

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
570-129852-1	Outfall002_20230304_Comp	103	
570-129852-1 MS	Outfall002_20230304_Comp	53.1	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129852-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)
570-129852-1 MSD	Outfall002_20230304_Comp	84.8
LCS 160-605724/2-A	Lab Control Sample	92.1
MB 160-605724/1-A	Method Blank	92.8

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-606326/1-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606326

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.4133	U	0.657	0.658	3.00	1.12	pCi/L	04/06/23 10:28	04/10/23 20:47	1
Gross Beta	0.02677	U	0.496	0.496	4.00	0.874	pCi/L	04/06/23 10:28	04/10/23 20:47	1

Lab Sample ID: LCS 160-606326/2-A
Matrix: Water
Analysis Batch: 606895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	51.96		7.62	3.00	2.05	pCi/L	103	75 - 125

Lab Sample ID: LCSB 160-606326/3-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.4	74.51		7.98	4.00	0.927	pCi/L	102	75 - 125

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Sample		Spike Added	MS		Total	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual	Uncert. (2σ+/-)					
Gross Alpha	1.29	U F G	50.5	16.17	F1	3.89	3.00	2.96	pCi/L	29	60 - 140

Lab Sample ID: 570-129852-1 MSBT
Matrix: Water
Analysis Batch: 606668

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Sample		Spike Added	MSBT		Total	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual	Uncert. (2σ+/-)					
Gross Beta	2.30		73.4	75.73		8.12	4.00	0.941	pCi/L	100	60 - 140

Lab Sample ID: 570-129852-1 MSBTD
Matrix: Water
Analysis Batch: 606668

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Sample		Spike Added	MSBTD		Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
	Result	Qual		Result	Qual	Uncert. (2σ+/-)							
Gross Beta	2.30		73.4	64.31		6.96	4.00	0.772	pCi/L	84	60 - 140	0.76	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 570-129852-1 MSD
 Matrix: Water
 Analysis Batch: 606671

Client Sample ID: Outfall002_20230304_Comp
 Prep Type: Total/NA
 Prep Batch: 606326

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Gross Alpha	1.29	U F G	50.5	27.04	F1 F	5.33	3.00	3.37	pCi/L	51	60 - 140	1.18	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-604032/1-A
 Matrix: Water
 Analysis Batch: 604760

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 604032

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-0.4655	U	10.3	10.3	20.0	12.1	pCi/L	03/17/23 14:08	03/22/23 19:49	1
Potassium-40	12.53	U	78.9	78.9		135	pCi/L	03/17/23 14:08	03/22/23 19:49	1

Lab Sample ID: LCS 160-604032/2-A
 Matrix: Water
 Analysis Batch: 604760

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 604032

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Americium-241	135000	143200		17000		415	pCi/L	106	75 - 125
Cesium-137	40900	41780		4980	20.0	92.9	pCi/L	102	75 - 125
Cobalt-60	17800	18360		2190		50.3	pCi/L	103	75 - 125

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-603854/1-A
 Matrix: Water
 Analysis Batch: 606563

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 603854

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.006854	U	0.0481	0.0481	1.00	0.106	pCi/L	03/16/23 07:58	04/07/23 10:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		30 - 110					03/16/23 07:58	04/07/23 10:41	1

Lab Sample ID: LCS 160-603854/2-A
 Matrix: Water
 Analysis Batch: 606563

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 603854

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	11.41		1.18	1.00	0.0785	pCi/L	101	75 - 125
Carrier	%Yield	Qualifier	Limits						
Ba Carrier	94.8		30 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-603854/25-A
Matrix: Water
Analysis Batch: 606587

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 603854

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
									Limits	RER		
Radium-226	11.3	10.67		1.13	1.00	0.155	pCi/L	94	75 - 125	0.32		1
Carrier	%Yield	LCSD Qualifier	Limits									
Ba Carrier	89.2		30 - 110									

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 606587

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 603854

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
											Limits	RER		
Radium-226	0.133	U	15.1	15.23		1.59	1.00	0.175	pCi/L	100	60 - 140			
Carrier	%Yield	MS Qualifier	Limits											
Ba Carrier	90.5		30 - 110											

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 606587

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 603854

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
											Limits	RER		
Radium-226	0.133	U	15.1	15.29		1.59	1.00	0.136	pCi/L	101	60 - 140	0.02		1
Carrier	%Yield	MSD Qualifier	Limits											
Ba Carrier	90.5		30 - 110											

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-603857/1-A
Matrix: Water
Analysis Batch: 605623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603857

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
											Radium-228
Carrier	%Yield	MB Qualifier	Limits			Prepared	Analyzed				
Ba Carrier	91.5		30 - 110			03/16/23 09:45	03/30/23 12:11				
Y Carrier	83.7		30 - 110			03/16/23 09:45	03/30/23 12:11				

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-603857/2-A
Matrix: Water
Analysis Batch: 605623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603857

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Radium-228	8.08	9.981		1.32	1.00	0.466	pCi/L	124	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	94.8		30 - 110							
Y Carrier	81.5		30 - 110							

Lab Sample ID: LCSD 160-603857/25-A
Matrix: Water
Analysis Batch: 605624

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 603857

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	Limit
									75	125	0.13	1
Radium-228	8.08	10.32		1.36	1.00	0.479	pCi/L	128	75 - 125	0.13	1	
LCSD LCSD												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	89.2		30 - 110									
Y Carrier	87.5		30 - 110									

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 605623

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 603857

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
											60	140
Radium-228	0.348	U	10.8	12.82		1.72	1.00	0.662	pCi/L	116	60 - 140	
MS MS												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	90.5		30 - 110									
Y Carrier	85.6		30 - 110									

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 605623

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 603857

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	Limit
											60	140	0.18	1
Radium-228	0.348	U	10.7	12.20		1.67	1.00	0.626	pCi/L	110	60 - 140	0.18	1	
MSD MSD														
Carrier	%Yield	Qualifier	Limits											
Ba Carrier	90.5		30 - 110											
Y Carrier	83.7		30 - 110											

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-604379/1-A
Matrix: Water
Analysis Batch: 605413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604379

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	-0.1030	U	0.268	0.268	3.00	0.492	pCi/L	03/20/23 13:22	03/29/23 15:59	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Sr Carrier	79.3		30 - 110		03/20/23 13:22	03/29/23 15:59	1			
Y Carrier	70.3		30 - 110		03/20/23 13:22	03/29/23 15:59	1			

Lab Sample ID: LCS 160-604379/2-A
Matrix: Water
Analysis Batch: 605413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604379

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Strontium-90	7.35	7.405		0.842	3.00	0.323	pCi/L	101	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Sr Carrier	85.6		30 - 110						
Y Carrier	76.6		30 - 110						

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 605412

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 604379

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual	Added	Result	Qual	Uncert. (2σ+/-)					
Strontium-90	-0.124	U	14.4	12.78		1.54	3.00	0.719	pCi/L	89	60 - 140
Carrier	MS %Yield	MS Qualifier	Limits								
Sr Carrier	76.6		30 - 110								
Y Carrier	79.6		30 - 110								

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 605412

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 604379

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
	Result	Qual	Added	Result	Qual	Uncert. (2σ+/-)							
Strontium-90	-0.124	U	15.0	13.59		1.70	3.00	0.878	pCi/L	91	60 - 140	0.25	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Sr Carrier	80.3		30 - 110										
Y Carrier	67.7		30 - 110										

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-605397/1-A
 Matrix: Water
 Analysis Batch: 606179

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605397

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	81.53	U	151	151	500	263	pCi/L	03/29/23 11:02	04/04/23 16:05	1

Lab Sample ID: LCS 160-605397/2-A
 Matrix: Water
 Analysis Batch: 606179

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605397

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Tritium	2090	1744		317	500	251	pCi/L	83	75 - 125

Lab Sample ID: 570-129852-1 MS
 Matrix: Water
 Analysis Batch: 606179

Client Sample ID: Outfall002_20230304_Comp
 Prep Type: Total/NA
 Prep Batch: 605397

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Tritium	-11.7	U F	2080	1748		322	500	261	pCi/L	84	60 - 140

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-605724/1-A
 Matrix: Water
 Analysis Batch: 606117

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605724

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.03149	U	0.08996	0.09003	1.00	0.148	pCi/L	03/30/23 15:31	04/04/23 20:40	1
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	92.8		30 - 110					03/30/23 15:31	04/04/23 20:40	1

Lab Sample ID: LCS 160-605724/2-A
 Matrix: Water
 Analysis Batch: 606357

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605724

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Uranium-234	12.7	13.25		1.55	1.00	0.113	pCi/L	104	75 - 125
Uranium-238	13.0	13.61		1.58	1.00	0.123	pCi/L	105	75 - 125
Tracer	LCS %Yield	LCS Qualifier	Limits						
Uranium-232	92.1		30 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: 570-129852-1 MS
Matrix: Water
Analysis Batch: 606106

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 605724

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual						
Uranium-234	0.639		21.1	22.70		3.14	1.00	0.416	pCi/L	105	60 - 140
Uranium-238	0.364		21.5	22.18		3.09	1.00	0.415	pCi/L	101	60 - 140
MS MS											
Tracer	%Yield	Qualifier	Limits								
Uranium-232	53.1		30 - 110								

Lab Sample ID: 570-129852-1 MSD
Matrix: Water
Analysis Batch: 606108

Client Sample ID: Outfall002_20230304_Comp
Prep Type: Total/NA
Prep Batch: 605724

Analyte	Sample	Sample	Spike Added	MSD	MSD	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
	Result	Qual		Result	Qual								
Uranium-234	0.639		21.1	22.32		2.60	1.00	0.166	pCi/L	103	60 - 140	0.07	1
Uranium-238	0.364		21.5	24.30		2.78	1.00	0.207	pCi/L	111	60 - 140	0.36	1
MSD MSD													
Tracer	%Yield	Qualifier	Limits										
Uranium-232	84.8		30 - 110										

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Rad

Prep Batch: 603854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	PrecSep-21	
MB 160-603854/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-603854/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-603854/25-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	PrecSep-21	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	PrecSep-21	

Prep Batch: 603857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	PrecSep_0	
MB 160-603857/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-603857/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-603857/25-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	PrecSep_0	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	PrecSep_0	

Prep Batch: 604032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-604032/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-604032/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 604379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	PrecSep-7	
MB 160-604379/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-604379/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	PrecSep-7	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	PrecSep-7	

Prep Batch: 605397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-605397/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-605397/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 605724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	ExtChrom	
MB 160-605724/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-605724/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	ExtChrom	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	ExtChrom	

Prep Batch: 606326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129852-1	Outfall002_20230304_Comp	Total/NA	Water	Evaporation	
MB 160-606326/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-606326/2-A	Lab Control Sample	Total/NA	Water	Evaporation	

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QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129852-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Rad (Continued)

Prep Batch: 606326 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSB 160-606326/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-129852-1 MS	Outfall002_20230304_Comp	Total/NA	Water	Evaporation	
570-129852-1 MSBT	Outfall002_20230304_Comp	Total/NA	Water	Evaporation	
570-129852-1 MSBTD	Outfall002_20230304_Comp	Total/NA	Water	Evaporation	
570-129852-1 MSD	Outfall002_20230304_Comp	Total/NA	Water	Evaporation	

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Client Sample ID: Outfall002_20230304_Comp

Lab Sample ID: 570-129852-1

Date Collected: 03/04/23 07:40

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			199.97 mL	1.0 g	606326	04/06/23 10:28	MST	EET SL
Total/NA	Analysis	900.0		1			606671	04/10/23 20:48	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	604032	03/17/23 14:08	SEH	EET SL
Total/NA	Analysis	901.1		1			605372	03/29/23 08:20	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			756.78 mL	1.0 g	603854	03/16/23 07:58	DJP	EET SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	606587	04/07/23 10:45	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			756.78 mL	1.0 g	603857	03/16/23 09:45	DJP	EET SL
Total/NA	Analysis	904.0		1			605623	03/30/23 12:06	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep-7			507.77 mL	1.0 g	604379	03/20/23 13:22	DJP	EET SL
Total/NA	Analysis	905		1			605412	03/29/23 16:04	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	LSC_Dist_Susp			102.15 mL	1.0 g	605397	03/29/23 11:02	SEH	EET SL
Total/NA	Analysis	906.0		1			606179	04/04/23 18:43	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			300.4 mL	1.0 mL	605724	03/30/23 15:31	CMM	EET SL
Total/NA	Analysis	A-01-R		1			606105	04/04/23 20:40	EJS	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
 Comp

Job ID: 570-129852-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Comp

Job ID: 570-129852-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129852-1	Outfall002_20230304_Comp	Water	03/04/23 07:40	03/06/23 17:00

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Chain of Custody Record



Environmental Testing



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s):		COC No: 570-209419.1
Client Contact: Shipping/Receiving		Phone: Virendra.Patel@eurofins.com	State of Origin: California		Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program California		Job #: 570-129852-3	
Address: 13715 Rider Trail North,		Due Date Requested: 4/6/2023	Analysis Requested		
City: Earth City		TAT Requested (days):	901_Ca/Fill_Geo_0-K40 and Cesium-137		
State, Zip: MO, 63045		PO #:	A01R_UExChrom_Actin Total Uranium		
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:	904.0/PreSep_0 Radium-228		
Email:		Project #: 57013187	903.0/PreSep_21 Radium-226		
Project Name: Boeing NPDES SSFL Routine Outfall 002 Comp		SOW#:	905_Sr90/PreSep_7 Strontium-90		
Site: Outfall002_20230304_Comp (570-129852-1)		Sample Date	Sample Time	Sample Type (C-Comp, G-grab)	Matrix (Water, Solid, On-site, etc.)
Sample Identification Client ID (Lab ID)		3/4/23	07:40 Pacific		Water
Special Instructions/Note:		Boeing SSFL DO NOT FILTER; use prep date from preservation			
Total Number of Containers		2			
Preservation Codes:		A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other			
M Hexane N None O AsNaO2 P Na2O4S Q Na2SO3 R Na2SSO3 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 Y Trizma Z other (Specify)					

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I II III IV Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *[Signature]* Date/Time: 03/07/23 10:30 Company: *[Signature]*
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No
 Cooler Temperature(s) °C and Other Remarks:



ICOC No*
570-209419

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Amber Glass 1 liter - unpreserved	None
1	Plastic 2.5 Gallon	None



ICOC No:
570-209419

Containers

<u>Count</u>	<u>Container Type</u>
2	Amber Glass 1 liter - unpreserved
2	Plastic 2.5 Gallon

<u>Preservative</u>
None
None



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM Patel, Virendra	Carrier Tracking No(s) 570-209419.1	
Client Contact Shipping/Receiving		E-Mail Virendra.Patel@eurofins.com	Page Page 1 of 1	
Company TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		
Address 13715 Rider Trail North, City Earth City State, Zip MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Job # 570-129852-3		
Project Name Boeing NPDES SSFL - Routine Outfall 002 - Comp Site:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)		
Due Date Requested: 4/6/2023 TAT Requested (days):		Analysis Requested		
PO #	WO #	Project # 57013187 SSOW#	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)
Sample Date 3/4/23	Sample Time 07:40 Pacific	Sample Type (C=Comp, G=grab) BT=Trisub, A=Air	Matrix (W=Water, S=solid, O=Organic)	Preservation Code: Water
Sample Identification - Client ID (Lab ID)		Total Number of Containers		
Outfall002_20230304_Comp (570-129852-1)		2		
Boeing SSFL: DO NOT FILTER; use prep date from preservation		Special Instructions/Note:		
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience</p>				
Possible Hazard Identification				
<input type="checkbox"/> Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months				
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2				
Empty Kit Relinquished by:				
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:
<i>[Signature]</i>	03/07/23 10:30	<i>[Signature]</i>	MAR 08 2023 10:30	Company
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:
		<i>[Signature]</i>		Company
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:
		<i>[Signature]</i>		Company
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:		



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PIM:	Carrier Tracking No(s):	COC No:																																	
Shipping/Receiving		Phone:	Patel, Virendra	State of Origin:	570-209419.1																																	
Company: TestAmerica Laboratories, Inc.		E-Mail:	Virendra.Patel@eurofins.com	Page:	Page 1 of 1																																	
Address: 13715 Rider Trail North, Earth City, MO, 63045		Accreditations Required (See note): State Program - California		Job #:	570-129852-1																																	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:	Due Date Requested:	Analysis Requested																																			
Email:	WC #:	TAT Requested (days):	<table border="1"> <thead> <tr> <th>Analysis Requested</th> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>900.0/Evaporation Gross Alpha/Beta</th> <th>906.0/LSC_Dist.Susp Tritium</th> <th>905.5/Sp90/PrecSep_7 Strontium-90</th> <th>903.0/PrecSep_21 Radium-226</th> <th>904.0/PrecSep_0 Radium-228</th> <th>A01R_UR/EXchrom_Actin Total Uranium</th> <th>901.1_Ca/Fill_Geo_0 K-40 and Cesium-137</th> <th>Total Number of Containers</th> </tr> </thead> <tbody> <tr> <td>Outfall002_20230304_Comp (570-129852-1MS)</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>2</td> </tr> <tr> <td>Outfall002_20230304_Comp (570-129852-1MSD)</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>2</td> </tr> </tbody> </table>			Analysis Requested	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist.Susp Tritium	905.5/Sp90/PrecSep_7 Strontium-90	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	A01R_UR/EXchrom_Actin Total Uranium	901.1_Ca/Fill_Geo_0 K-40 and Cesium-137	Total Number of Containers	Outfall002_20230304_Comp (570-129852-1MS)	X	X	X	X	X	X	X	X	X	2	Outfall002_20230304_Comp (570-129852-1MSD)	X	X	X	X	X	X	X	X	X	2
Analysis Requested	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist.Susp Tritium	905.5/Sp90/PrecSep_7 Strontium-90	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	A01R_UR/EXchrom_Actin Total Uranium	901.1_Ca/Fill_Geo_0 K-40 and Cesium-137	Total Number of Containers																												
Outfall002_20230304_Comp (570-129852-1MS)	X	X	X	X	X	X	X	X	X	2																												
Outfall002_20230304_Comp (570-129852-1MSD)	X	X	X	X	X	X	X	X	X	2																												
Project Name: Boeing NPDES SSFL - Routine Outfall 002 - Comp	Project #:	Sample Date:	Sample Time:	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=Organic, BT=Tissue, A=Air)	Preservation Code:	Special Instructions/Note:																															
Site:	57013187	3/4/23	07:40 Pacific	MS	Water		Boeing SSFL; DO NOT FILTER; use prep date from preservation																															
	SSOW#:	3/4/23	07:40 Pacific	MSD	Water		Boeing SSFL; DO NOT FILTER; use prep date from preservation																															

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/lests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Special Instructions/QC Requirements:
 Return To Client Disposal By Lab Archive For _____ Months

Empty Kit Relinquished by: _____ Date: _____ Method of Shipment:
 Relinquished by: _____ Date/Time: 03/07/23 10:30 Company: Capcity
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Received by: _____ Date/Time: _____ Company: _____
 Received by: *Sana Weddington* Date/Time: MAR 08 2023 10:30 Company: CAPSIL
 Received by: _____ Date/Time: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks: _____
 Custody Seal No: _____
 Custody Seals Intact: Yes No

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129852-3

Login Number: 129852

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Virendra

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129852-3

Login Number: 129852

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/08/23 01:51 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 6:47:27 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 002 - Grab

JOB NUMBER

570-129988-1

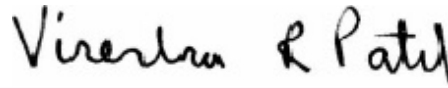
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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3/22/2023 6:47:27 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-129988-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grab

Job ID: 570-129988-1

Job ID: 570-129988-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-129988-1

Comments

No additional comments.

Receipt

The samples were received on 3/6/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.8° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-309627. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-310236.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129988-1

Client Sample ID: Outfall002_20230306_Grab

Lab Sample ID: 570-129988-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	1.1		0.50	0.17	ug/L	1		624.1	Total/NA
Specific Conductance	590		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: TB-20230306

Lab Sample ID: 570-129988-3

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129988-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230306_Grab

Date Collected: 03/06/23 08:05

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129988-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/07/23 18:08	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/07/23 18:08	1
Trichloroethene	1.1		0.50	0.17	ug/L			03/07/23 18:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		60 - 140					03/07/23 18:08	1
Toluene-d8 (Surr)	98		60 - 140					03/07/23 18:08	1

Client Sample ID: TB-20230306

Date Collected: 03/06/23 08:05

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129988-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/07/23 16:39	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/07/23 16:39	1
Trichloroethene	ND		0.50	0.17	ug/L			03/07/23 16:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		60 - 140					03/07/23 16:39	1
Toluene-d8 (Surr)	96		60 - 140					03/07/23 16:39	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129988-1

General Chemistry

Client Sample ID: Outfall002_20230306_Grab

Date Collected: 03/06/23 08:05

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129988-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		1.1	0.54	mg/L		03/09/23 10:10	03/10/23 07:51	1
Specific Conductance (SM 2510B)	590		1.0	1.0	umhos/cm			03/17/23 16:49	1
Settleable Solids (SM 2540F)	ND		0.10	0.10	mL/L			03/07/23 13:34	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129988-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL
		(60-140)	(60-140)
570-129988-1	Outfall002_20230306_Grab	91	98
570-129988-3	TB-20230306	99	96
LCS 570-309627/1003	Lab Control Sample	99	98
LCSD 570-309627/4	Lab Control Sample Dup	97	99
MB 570-309627/6	Method Blank	95	98

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129988-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-309627/6
Matrix: Water
Analysis Batch: 309627

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/07/23 15:33	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/07/23 15:33	1
Trichloroethene	ND		0.50	0.17	ug/L			03/07/23 15:33	1
Surrogate	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	95		60 - 140					03/07/23 15:33	1
Toluene-d8 (Surr)	98		60 - 140					03/07/23 15:33	1

Lab Sample ID: LCS 570-309627/1003
Matrix: Water
Analysis Batch: 309627

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits	
		Result	Qualifier					
1,1-Dichloroethene	10.0	10.1		ug/L		101	50 - 150	
1,2-Dichloroethane	10.0	9.51		ug/L		95	70 - 130	
Trichloroethene	10.0	10.1		ug/L		101	65 - 135	
Surrogate	LCS	LCS	Limits			D	%Rec	Limits
	%Recovery	Qualifier						
4-Bromofluorobenzene (Surr)	99		60 - 140					
Toluene-d8 (Surr)	98		60 - 140					

Lab Sample ID: LCSD 570-309627/4
Matrix: Water
Analysis Batch: 309627

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
		Result	Qualifier						
1,1-Dichloroethene	10.0	10.3		ug/L		103	50 - 150	2	32
1,2-Dichloroethane	10.0	9.21		ug/L		92	70 - 130	3	49
Trichloroethene	10.0	10.5		ug/L		105	65 - 135	4	48
Surrogate	LCSD	LCSD	Limits			D	%Rec	Limits	RPD
	%Recovery	Qualifier							
4-Bromofluorobenzene (Surr)	97		60 - 140						
Toluene-d8 (Surr)	99		60 - 140						

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-310236/1-A
Matrix: Water
Analysis Batch: 310507

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310236

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		03/09/23 10:10	03/10/23 07:51	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129988-1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 570-310236/2-A
Matrix: Water
Analysis Batch: 310507

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310236

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	37.3		mg/L		93	78 - 114

Lab Sample ID: LCSD 570-310236/3-A
Matrix: Water
Analysis Batch: 310507

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310236

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.7		mg/L		97	78 - 114	4	18

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129988-1

GC/MS VOA

Analysis Batch: 309627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129988-1	Outfall002_20230306_Grab	Total/NA	Water	624.1	
570-129988-3	TB-20230306	Total/NA	Water	624.1	
MB 570-309627/6	Method Blank	Total/NA	Water	624.1	
LCS 570-309627/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-309627/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 309623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129988-1	Outfall002_20230306_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 310236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129988-1	Outfall002_20230306_Grab	Total/NA	Water	1664A	
MB 570-310236/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-310236/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-310236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 310507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129988-1	Outfall002_20230306_Grab	Total/NA	Water	1664A	310236
MB 570-310236/1-A	Method Blank	Total/NA	Water	1664A	310236
LCS 570-310236/2-A	Lab Control Sample	Total/NA	Water	1664A	310236
LCSD 570-310236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	310236

Analysis Batch: 312656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129988-1	Outfall002_20230306_Grab	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129988-1

Client Sample ID: Outfall002_20230306_Grab

Lab Sample ID: 570-129988-1

Date Collected: 03/06/23 08:05

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	309627	03/07/23 18:08	N1A	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			942 mL	1000 mL	310236	03/09/23 10:10	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			310507	03/10/23 07:51	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			312656	03/17/23 16:49	BDH9	EET CAL 4
Instrument ID: COND13										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	309623	03/07/23 13:34	GG0B	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230306

Lab Sample ID: 570-129988-3

Date Collected: 03/06/23 08:05

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	309627	03/07/23 16:39	N1A	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Job ID: 570-129988-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129988-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 002 - Grat

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 002 -
Grab

Job ID: 570-129988-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129988-1	Outfall002_20230306_Grab	Water	03/06/23 08:05	03/06/23 17:00
570-129988-3	TB-20230306	Water	03/06/23 08:05	03/06/23 17:00

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129988-1

Login Number: 129988

List Number: 1

Creator: Cruise, Noel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 7:24:55 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 - Comp

JOB NUMBER

570-130108-1

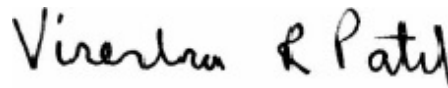
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
3/22/2023 7:24:55 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
IB	CCV recovery above limit; analyte not detected
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 - Comp

Job ID: 570-130108-1

Job ID: 570-130108-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130108-1

Comments

No additional comments.

Receipt

The samples were received on 3/7/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 1.7° C.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

Method 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-309785 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Chloride and Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method 300.0: Due to the high concentration of Chloride and Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 570-309785 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Methods 245.1, 7470A: The continuing calibration verification (CCV) associated with batch 570-310669 recovered above the upper control limit for Mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: Outfall002_20230307_Comp_F (570-130108-3) and (CCV 570-310614/9-A).

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230307_Comp_F (570-130108-3). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230307_Comp_F (570-130108-3), Outfall002_20230307_Comp_F (570-130108-3[MS]) and Outfall002_20230307_Comp_F (570-130108-3[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method Kelada 01: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 570-312131 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-310287. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 608.3 PEST LL

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 - Comp

Job ID: 570-130108-1

Job ID: 570-130108-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.29		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate - DL	130		10	2.4	mg/L	10		300.0	Total/NA
Nitrate Nitrite as N	0.29		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	1.8	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Iron	20		20	3.7	ug/L	1		200.8	Total Recoverable
Selenium	0.67	J,DX	2.0	0.52	ug/L	1		200.8	Total Recoverable
Turbidity	0.25		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	390		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall002_20230307_Comp_F

Lab Sample ID: 570-130108-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.15	J,DX BU	1.0	0.13	ug/L	1		200.8	Dissolved
Copper	1.8	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Iron	14	J,DX BU	20	3.7	ug/L	1		200.8	Dissolved
Lead	0.19	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Selenium	0.65	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Zinc	3.1	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.95	0.13	ug/L		03/10/23 12:12	03/13/23 22:55	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		03/10/23 12:12	03/13/23 22:55	1
Bis(2-ethylhexyl) phthalate	ND		4.7	3.4	ug/L		03/10/23 12:12	03/13/23 22:55	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		03/10/23 12:12	03/13/23 22:55	1
Pentachlorophenol	ND		0.95	0.80	ug/L		03/10/23 12:12	03/13/23 22:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	64		31 - 120	03/10/23 12:12	03/13/23 22:55	1
Phenol-d6 (Surr)	22		10 - 120	03/10/23 12:12	03/13/23 22:55	1
p-Terphenyl-d14 (Surr)	78		45 - 120	03/10/23 12:12	03/13/23 22:55	1
2,4,6-Tribromophenol	81		28 - 127	03/10/23 12:12	03/13/23 22:55	1
2-Fluorophenol	34		17 - 120	03/10/23 12:12	03/13/23 22:55	1
Nitrobenzene-d5	70		27 - 120	03/10/23 12:12	03/13/23 22:55	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		03/09/23 12:21	03/13/23 22:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	47		20 - 139				03/09/23 12:21	03/13/23 22:59	1
DCB Decachlorobiphenyl (Surr)	106		20 - 154				03/09/23 12:21	03/13/23 22:59	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16		1.0	0.36	mg/L			03/08/23 06:24	1
Nitrite as N	ND		0.10	0.043	mg/L			03/08/23 06:24	1
Nitrate as N	0.29		0.10	0.020	mg/L			03/08/23 06:24	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 300.0 - Anions, Ion Chromatography - DL

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	130		10	2.4	mg/L			03/08/23 09:13	10

1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/10/23 05:35	1

1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.29		0.10	0.020	mg/L			03/10/23 16:06	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/08/23 08:49	03/08/23 12:13	1
Copper	1.8	J,DX	2.0	0.32	ug/L		03/08/23 08:49	03/08/23 12:13	1
Iron	20		20	3.7	ug/L		03/08/23 08:49	03/08/23 12:13	1
Lead	ND		1.0	0.12	ug/L		03/08/23 08:49	03/08/23 12:13	1
Selenium	0.67	J,DX	2.0	0.52	ug/L		03/08/23 08:49	03/08/23 12:13	1
Zinc	ND		20	2.8	ug/L		03/08/23 08:49	03/08/23 12:13	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230307_Comp_F

Lab Sample ID: 570-130108-3

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.15	J,DX BU	1.0	0.13	ug/L			03/08/23 14:22	1
Copper	1.8	J,DX BU	2.0	0.32	ug/L			03/08/23 14:22	1
Iron	14	J,DX BU	20	3.7	ug/L			03/08/23 14:22	1
Lead	0.19	J,DX BU	1.0	0.12	ug/L			03/08/23 14:22	1
Selenium	0.65	J,DX BU	2.0	0.52	ug/L			03/08/23 14:22	1
Zinc	3.1	J,DX BU	20	2.8	ug/L			03/08/23 14:22	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/08/23 22:22	03/10/23 12:56	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230307_Comp_F

Lab Sample ID: 570-130108-3

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	IB	0.20	0.12	ug/L		03/08/23 17:10	03/10/23 14:25	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

General Chemistry

Client Sample ID: Outfall002_20230307_Comp

Date Collected: 03/07/23 07:10

Date Received: 03/07/23 18:00

Lab Sample ID: 570-130108-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		03/13/23 13:40	03/13/23 15:49	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/14/23 19:36	1
Turbidity (SM 2130B)	0.25		0.05	0.05	NTU			03/08/23 12:52	1
Total Dissolved Solids (SM 2540C)	390		10	8.7	mg/L			03/10/23 18:35	1
Total Suspended Solids (SM 2540D)	ND		1.0	0.83	mg/L			03/10/23 12:07	1
Biochemical Oxygen Demand (SM 5210B)	ND		2.0	1.0	mg/L		03/08/23 16:04	03/08/23 16:37	1
MBAS (SM 5540C)	ND		0.20	0.050	mg/L		03/07/23 20:00	03/07/23 21:13	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-130108-1	Outfall002_20230307_Comp	64	22	78	81	34	70
LCS 570-310496/2-A	Lab Control Sample	80	34	92	90	51	73
LCSD 570-310496/3-A	Lab Control Sample Dup	73	33	86	87	47	68
MB 570-310496/1-A	Method Blank	64	27	82	63	41	68

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 TBP = 2,4,6-Tribromophenol
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX1 (20-139)	DCB1 (20-154)
570-130108-1	Outfall002_20230307_Comp	47	106
LCS 570-310287/2-A	Lab Control Sample	53	72
LCSD 570-310287/3-A	Lab Control Sample Dup	63	77
MB 570-310287/1-A	Method Blank	36	61

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-310496/1-A
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310496

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		03/10/23 06:36	03/13/23 19:26	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		03/10/23 06:36	03/13/23 19:26	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		03/10/23 06:36	03/13/23 19:26	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		03/10/23 06:36	03/13/23 19:26	1
Pentachlorophenol	ND		1.0	0.84	ug/L		03/10/23 06:36	03/13/23 19:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	64		31 - 120	03/10/23 06:36	03/13/23 19:26	1
Phenol-d6 (Surr)	27		10 - 120	03/10/23 06:36	03/13/23 19:26	1
p-Terphenyl-d14 (Surr)	82		45 - 120	03/10/23 06:36	03/13/23 19:26	1
2,4,6-Tribromophenol	63		28 - 127	03/10/23 06:36	03/13/23 19:26	1
2-Fluorophenol	41		17 - 120	03/10/23 06:36	03/13/23 19:26	1
Nitrobenzene-d5	68		27 - 120	03/10/23 06:36	03/13/23 19:26	1

Lab Sample ID: LCS 570-310496/2-A
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310496

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	18.4		ug/L		92	52 - 129
2,4-Dinitrotoluene	20.0	21.4		ug/L		107	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	20.6		ug/L		103	29 - 137
N-Nitrosodimethylamine	20.0	11.2		ug/L		56	20 - 120
Pentachlorophenol	20.0	10.5		ug/L		53	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	80		31 - 120
Phenol-d6 (Surr)	34		10 - 120
p-Terphenyl-d14 (Surr)	92		45 - 120
2,4,6-Tribromophenol	90		28 - 127
2-Fluorophenol	51		17 - 120
Nitrobenzene-d5	73		27 - 120

Lab Sample ID: LCSD 570-310496/3-A
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310496

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	17.0		ug/L		85	52 - 129	8	35
2,4-Dinitrotoluene	20.0	20.3		ug/L		102	48 - 127	5	25
Bis(2-ethylhexyl) phthalate	20.0	19.3		ug/L		97	29 - 137	6	50
N-Nitrosodimethylamine	20.0	10.5		ug/L		52	20 - 120	7	21
Pentachlorophenol	20.0	10.2		ug/L		51	38 - 152	3	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	73		31 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-310496/3-A
Matrix: Water
Analysis Batch: 311097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310496

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Phenol-d6 (Surr)	33		10 - 120
p-Terphenyl-d14 (Surr)	86		45 - 120
2,4,6-Tribromophenol	87		28 - 127
2-Fluorophenol	47		17 - 120
Nitrobenzene-d5	68		27 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-310287/1-A
Matrix: Water
Analysis Batch: 310461

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310287

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		03/09/23 12:21	03/10/23 17:22	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	36		20 - 139	03/09/23 12:21	03/10/23 17:22	1
DCB Decachlorobiphenyl (Surr)	61		20 - 154	03/09/23 12:21	03/10/23 17:22	1

Lab Sample ID: LCS 570-310287/2-A
Matrix: Water
Analysis Batch: 311052

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310287

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0183		ug/L		55	37 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	53		20 - 139
DCB Decachlorobiphenyl (Surr)	72		20 - 154

Lab Sample ID: LCSD 570-310287/3-A
Matrix: Water
Analysis Batch: 311052

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310287

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	0.0333	0.0205		ug/L		62	37 - 140	11	36

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	63		20 - 139
DCB Decachlorobiphenyl (Surr)	77		20 - 154

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-309784/6
Matrix: Water
Analysis Batch: 309784

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			03/08/23 03:48	1
Nitrate as N	ND		0.10	0.020	mg/L			03/08/23 03:48	1

Lab Sample ID: LCS 570-309784/7
Matrix: Water
Analysis Batch: 309784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.65		mg/L		106	90 - 110
Nitrate as N	5.00	5.05		mg/L		101	90 - 110

Lab Sample ID: LCSD 570-309784/8
Matrix: Water
Analysis Batch: 309784

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.55		mg/L		102	90 - 110	4	15
Nitrate as N	5.00	4.95		mg/L		99	90 - 110	2	15

Lab Sample ID: MB 570-309785/6
Matrix: Water
Analysis Batch: 309785

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/08/23 03:48	1
Sulfate	ND		1.0	0.24	mg/L			03/08/23 03:48	1

Lab Sample ID: LCS 570-309785/7
Matrix: Water
Analysis Batch: 309785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.8		mg/L		98	90 - 110
Sulfate	50.0	49.7		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-309785/8
Matrix: Water
Analysis Batch: 309785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	48.0		mg/L		96	90 - 110	2	15
Sulfate	50.0	48.8		mg/L		98	90 - 110	2	15

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-310432/7
Matrix: Water
Analysis Batch: 310432

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/10/23 04:32	1

Lab Sample ID: LCS 570-310432/8
Matrix: Water
Analysis Batch: 310432

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	24.5		ug/L		98	85 - 115

Lab Sample ID: LCSD 570-310432/9
Matrix: Water
Analysis Batch: 310432

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	24.3		ug/L		97	85 - 115	1	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-309830/1-A
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/08/23 08:49	03/08/23 11:45	1
Copper	ND		2.0	0.32	ug/L		03/08/23 08:49	03/08/23 11:45	1
Iron	ND		20	3.7	ug/L		03/08/23 08:49	03/08/23 11:45	1
Lead	ND		1.0	0.12	ug/L		03/08/23 08:49	03/08/23 11:45	1
Selenium	ND		2.0	0.52	ug/L		03/08/23 08:49	03/08/23 11:45	1
Zinc	ND		20	2.8	ug/L		03/08/23 08:49	03/08/23 11:45	1

Lab Sample ID: LCS 570-309830/2-A
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	81.1		ug/L		101	85 - 115
Copper	80.0	81.4		ug/L		102	85 - 115
Iron	800	843		ug/L		105	85 - 115
Lead	80.0	83.3		ug/L		104	85 - 115
Selenium	80.0	80.9		ug/L		101	85 - 115
Zinc	80.0	78.8		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-309830/3-A
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	79.3		ug/L		99	85 - 115	2	20
Copper	80.0	80.1		ug/L		100	85 - 115	2	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-309830/3-A
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
Iron	800	822		ug/L		103	85 - 115	2	20	
Lead	80.0	82.1		ug/L		103	85 - 115	1	20	
Selenium	80.0	77.9		ug/L		97	85 - 115	4	20	
Zinc	80.0	77.2		ug/L		96	85 - 115	2	20	

Lab Sample ID: 570-130108-1 MS
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Outfall002_20230307_Comp
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Cadmium	ND		80.0	78.6		ug/L		98	80 - 120			
Copper	1.8	J,DX	80.0	79.9		ug/L		98	80 - 120			
Iron	20		800	838		ug/L		102	80 - 120			
Lead	ND		80.0	80.2		ug/L		100	80 - 120			
Selenium	0.67	J,DX	80.0	79.9		ug/L		99	80 - 120			
Zinc	ND		80.0	77.6		ug/L		97	80 - 120			

Lab Sample ID: 570-130108-1 MSD
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Outfall002_20230307_Comp
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Cadmium	ND		80.0	80.2		ug/L		100	80 - 120	2	20	
Copper	1.8	J,DX	80.0	80.5		ug/L		98	80 - 120	1	20	
Iron	20		800	844		ug/L		103	80 - 120	1	20	
Lead	ND		80.0	80.1		ug/L		100	80 - 120	0	20	
Selenium	0.67	J,DX	80.0	81.9		ug/L		102	80 - 120	3	20	
Zinc	ND		80.0	78.0		ug/L		98	80 - 120	1	20	

Lab Sample ID: 570-130108-3 MS
Matrix: Water
Analysis Batch: 310017

Client Sample ID: Outfall002_20230307_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Cadmium	0.15	J,DX BU	80.0	69.6	BU	ug/L		87	80 - 120			
Copper	1.8	J,DX BU	80.0	68.8	BU	ug/L		84	80 - 120			
Iron	14	J,DX BU	800	714	BU	ug/L		87	80 - 120			
Lead	0.19	J,DX BU	80.0	65.7	BU	ug/L		82	80 - 120			
Selenium	0.65	J,DX BU	80.0	77.9	BU	ug/L		97	80 - 120			
Zinc	3.1	J,DX BU	80.0	69.2	BU	ug/L		83	80 - 120			

Lab Sample ID: 570-130108-3 MSD
Matrix: Water
Analysis Batch: 310017

Client Sample ID: Outfall002_20230307_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Cadmium	0.15	J,DX BU	80.0	70.5	BU	ug/L		88	80 - 120	1	20	
Copper	1.8	J,DX BU	80.0	71.7	BU	ug/L		87	80 - 120	4	20	
Iron	14	J,DX BU	800	735	BU	ug/L		90	80 - 120	3	20	

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-130108-3 MSD
Matrix: Water
Analysis Batch: 310017

Client Sample ID: Outfall002_20230307_Comp_F
Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
Lead	0.19	J,DX BU	80.0	67.3	BU	ug/L		84	80 - 120	2	20	
Selenium	0.65	J,DX BU	80.0	78.7	BU	ug/L		98	80 - 120	1	20	
Zinc	3.1	J,DX BU	80.0	70.8	BU	ug/L		85	80 - 120	2	20	

Lab Sample ID: MB 570-309983/1-A
Matrix: Water
Analysis Batch: 310023

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cadmium	ND		1.0	0.13	ug/L			03/08/23 14:29	1
Copper	ND		2.0	0.32	ug/L			03/08/23 14:29	1
Iron	ND		20	3.7	ug/L			03/08/23 14:29	1
Lead	ND		1.0	0.12	ug/L			03/08/23 14:29	1
Selenium	ND		2.0	0.52	ug/L			03/08/23 14:29	1
Zinc	ND		20	2.8	ug/L			03/08/23 14:29	1

Lab Sample ID: LCS 570-309983/2-A
Matrix: Water
Analysis Batch: 310023

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike	LCS		Unit	D	%Rec	%Rec	
		Added	Result				Qualifier	Limits
Cadmium	80.0	73.5		ug/L		92	85 - 115	
Copper	80.0	75.3		ug/L		94	85 - 115	
Iron	800	790		ug/L		99	85 - 115	
Lead	80.0	78.0		ug/L		98	85 - 115	
Selenium	80.0	74.3		ug/L		93	85 - 115	
Zinc	80.0	71.1		ug/L		89	85 - 115	

Lab Sample ID: LCSD 570-309983/3-A
Matrix: Water
Analysis Batch: 310023

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike	LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Added	Result				Qualifier	Limits		
Cadmium	80.0	71.0		ug/L		89	85 - 115	3	20	
Copper	80.0	73.2		ug/L		91	85 - 115	3	20	
Iron	800	758		ug/L		95	85 - 115	4	20	
Lead	80.0	75.9		ug/L		95	85 - 115	3	20	
Selenium	80.0	71.1		ug/L		89	85 - 115	4	20	
Zinc	80.0	68.7		ug/L		86	85 - 115	3	20	

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-310131/1-A
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310131

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.12	ug/L		03/08/23 22:22	03/10/23 12:50	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-310131/2-A
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310131

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.74		ug/L		109	85 - 115

Lab Sample ID: LCSD 570-310131/3-A
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310131

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.77		ug/L		110	85 - 115	0	10

Lab Sample ID: 570-130108-1 MS
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Outfall002_20230307_Comp
Prep Type: Total/NA
Prep Batch: 310131

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.70		ug/L		109	85 - 115

Lab Sample ID: 570-130108-1 MSD
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Outfall002_20230307_Comp
Prep Type: Total/NA
Prep Batch: 310131

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.75		ug/L		109	85 - 115	0	10

Lab Sample ID: MB 570-309778/1-B
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 309780

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/08/23 17:10	03/10/23 14:10	1

Lab Sample ID: LCS 570-309778/2-B
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 309780

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.29		ug/L		104	85 - 115

Lab Sample ID: LCSD 570-309778/3-B
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 309780

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.64		ug/L		108	85 - 115	4	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-311129/5-A
 Matrix: Water
 Analysis Batch: 311145

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 311129

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		03/13/23 13:40	03/13/23 15:19	1

Lab Sample ID: LCS 570-311129/6-A
 Matrix: Water
 Analysis Batch: 311145

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 311129

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.518		mg/L		104	90 - 110

Lab Sample ID: LCSD 570-311129/7-A
 Matrix: Water
 Analysis Batch: 311145

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 311129

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.498		mg/L		100	90 - 110	4	20

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-312131/14
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/14/23 19:36	1

Lab Sample ID: LCS 570-312131/16
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	252		ug/L		101	90 - 110

Lab Sample ID: LCSD 570-312131/17
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	266		ug/L		107	90 - 110	5	20

Lab Sample ID: MRL 570-312131/13
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	6.06		ug/L		121	50 - 150

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-309933/1
 Matrix: Water
 Analysis Batch: 309933

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		100.6	99.0 - 101.0

Lab Sample ID: LCSSRM 570-309933/2
 Matrix: Water
 Analysis Batch: 309933

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		101.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-309933/3
 Matrix: Water
 Analysis Batch: 309933

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-310762/1
 Matrix: Water
 Analysis Batch: 310762

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/10/23 18:35	1

Lab Sample ID: LCS 570-310762/2
 Matrix: Water
 Analysis Batch: 310762

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	960		mg/L		96	84 - 108

Lab Sample ID: LCSD 570-310762/3
 Matrix: Water
 Analysis Batch: 310762

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	986		mg/L		99	84 - 108	3	10

Lab Sample ID: 570-130108-1 DU
 Matrix: Water
 Analysis Batch: 310762

Client Sample ID: Outfall002_20230307_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	390		371		mg/L		5	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-310629/1
 Matrix: Water
 Analysis Batch: 310629

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/10/23 12:07	1

Lab Sample ID: LCS 570-310629/2
 Matrix: Water
 Analysis Batch: 310629

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	102		mg/L		102	77 - 116

Lab Sample ID: LCSD 570-310629/3
 Matrix: Water
 Analysis Batch: 310629

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	101		mg/L		101	77 - 116	1	10

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: LCS 570-309842/2-A
 Matrix: Water
 Analysis Batch: 311089

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 309842

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	198		mg/L		100	84.6 - 115.4

Lab Sample ID: SCB 570-311089/3
 Matrix: Water
 Analysis Batch: 311089

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	SCB Result	SCB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		0.0000020	0.0000010	mg/L			03/08/23 09:18	1

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-310123/5-A
 Matrix: Water
 Analysis Batch: 309768

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 310123

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.20	0.050	mg/L		03/07/23 20:00	03/07/23 21:08	1

Lab Sample ID: LCS 570-310123/6-A
 Matrix: Water
 Analysis Batch: 309768

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 310123

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	0.500	0.457		mg/L		91	83 - 122

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: LCSD 570-310123/7-A
Matrix: Water
Analysis Batch: 309768

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310123

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
MBAS	0.500	0.454		mg/L		91	83 - 122	1	10	

Lab Sample ID: 570-130108-1 MS
Matrix: Water
Analysis Batch: 309768

Client Sample ID: Outfall002_20230307_Comp
Prep Type: Total/NA
Prep Batch: 310123

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
MBAS	ND		0.500	0.527		mg/L		105	64 - 141			

Lab Sample ID: 570-130108-1 MSD
Matrix: Water
Analysis Batch: 309768

Client Sample ID: Outfall002_20230307_Comp
Prep Type: Total/NA
Prep Batch: 310123

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
MBAS	ND		0.500	0.544		mg/L		109	64 - 141	3	10	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

GC/MS Semi VOA

Prep Batch: 310496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	625	
MB 570-310496/1-A	Method Blank	Total/NA	Water	625	
LCS 570-310496/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-310496/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 311097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	625.1 SIM	310496
MB 570-310496/1-A	Method Blank	Total/NA	Water	625.1 SIM	310496
LCS 570-310496/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	310496
LCSD 570-310496/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	310496

GC Semi VOA

Prep Batch: 310287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	608	
MB 570-310287/1-A	Method Blank	Total/NA	Water	608	
LCS 570-310287/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-310287/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 310461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-310287/1-A	Method Blank	Total/NA	Water	608.3	310287

Analysis Batch: 311052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	608.3	310287
LCS 570-310287/2-A	Lab Control Sample	Total/NA	Water	608.3	310287
LCSD 570-310287/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	310287

HPLC/IC

Analysis Batch: 309784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	300.0	
MB 570-309784/6	Method Blank	Total/NA	Water	300.0	
LCS 570-309784/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309784/8	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 309785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	300.0	
570-130108-1 - DL	Outfall002_20230307_Comp	Total/NA	Water	300.0	
MB 570-309785/6	Method Blank	Total/NA	Water	300.0	
LCS 570-309785/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309785/8	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 310432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	314.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

HPLC/IC (Continued)

Analysis Batch: 310432 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-310432/7	Method Blank	Total/NA	Water	314.0	
LCS 570-310432/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-310432/9	Lab Control Sample Dup	Total/NA	Water	314.0	

Analysis Batch: 310704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 309778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-3	Outfall002_20230307_Comp_F	Dissolved	Water	Filtration	
MB 570-309778/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-309778/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-309778/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	

Prep Batch: 309780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-3	Outfall002_20230307_Comp_F	Dissolved	Water	245.1	309778
MB 570-309778/1-B	Method Blank	Dissolved	Water	245.1	309778
LCS 570-309778/2-B	Lab Control Sample	Dissolved	Water	245.1	309778
LCSD 570-309778/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309778

Prep Batch: 309830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total Recoverable	Water	200.8	
MB 570-309830/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-309830/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-309830/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-130108-1 MS	Outfall002_20230307_Comp	Total Recoverable	Water	200.8	
570-130108-1 MSD	Outfall002_20230307_Comp	Total Recoverable	Water	200.8	

Filtration Batch: 309983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-3	Outfall002_20230307_Comp_F	Dissolved	Water	Filtration	
MB 570-309983/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-309983/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-309983/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-130108-3 MS	Outfall002_20230307_Comp_F	Dissolved	Water	Filtration	
570-130108-3 MSD	Outfall002_20230307_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 309984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total Recoverable	Water	200.8	309830
MB 570-309830/1-A	Method Blank	Total Recoverable	Water	200.8	309830
LCS 570-309830/2-A	Lab Control Sample	Total Recoverable	Water	200.8	309830
LCSD 570-309830/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	309830
570-130108-1 MS	Outfall002_20230307_Comp	Total Recoverable	Water	200.8	309830
570-130108-1 MSD	Outfall002_20230307_Comp	Total Recoverable	Water	200.8	309830

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Metals

Analysis Batch: 310017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-3	Outfall002_20230307_Comp_F	Dissolved	Water	200.8	309983
570-130108-3 MS	Outfall002_20230307_Comp_F	Dissolved	Water	200.8	309983
570-130108-3 MSD	Outfall002_20230307_Comp_F	Dissolved	Water	200.8	309983

Analysis Batch: 310023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-309983/1-A	Method Blank	Dissolved	Water	200.8	309983
LCS 570-309983/2-A	Lab Control Sample	Dissolved	Water	200.8	309983
LCSD 570-309983/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	309983

Prep Batch: 310131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	245.1	
MB 570-310131/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-310131/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-310131/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-130108-1 MS	Outfall002_20230307_Comp	Total/NA	Water	245.1	
570-130108-1 MSD	Outfall002_20230307_Comp	Total/NA	Water	245.1	

Analysis Batch: 310669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	245.1	310131
570-130108-3	Outfall002_20230307_Comp_F	Dissolved	Water	245.1	309780
MB 570-309778/1-B	Method Blank	Dissolved	Water	245.1	309780
MB 570-310131/1-A	Method Blank	Total/NA	Water	245.1	310131
LCS 570-309778/2-B	Lab Control Sample	Dissolved	Water	245.1	309780
LCS 570-310131/2-A	Lab Control Sample	Total/NA	Water	245.1	310131
LCSD 570-309778/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309780
LCSD 570-310131/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	310131
570-130108-1 MS	Outfall002_20230307_Comp	Total/NA	Water	245.1	310131
570-130108-1 MSD	Outfall002_20230307_Comp	Total/NA	Water	245.1	310131

General Chemistry

Analysis Batch: 309768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	SM 5540C	310123
MB 570-310123/5-A	Method Blank	Total/NA	Water	SM 5540C	310123
LCS 570-310123/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	310123
LCSD 570-310123/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	310123
570-130108-1 MS	Outfall002_20230307_Comp	Total/NA	Water	SM 5540C	310123
570-130108-1 MSD	Outfall002_20230307_Comp	Total/NA	Water	SM 5540C	310123

Prep Batch: 309842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	BOD Prep	
LCS 570-309842/2-A	Lab Control Sample	Total/NA	Water	BOD Prep	

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

General Chemistry

Analysis Batch: 309933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-309933/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-309933/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-309933/3	Lab Control Sample	Total/NA	Water	SM 2130B	

Prep Batch: 310123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	SM 5540C	
MB 570-310123/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-310123/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-310123/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-130108-1 MS	Outfall002_20230307_Comp	Total/NA	Water	SM 5540C	
570-130108-1 MSD	Outfall002_20230307_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 310629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	SM 2540D	
MB 570-310629/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-310629/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-310629/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 310762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	SM 2540C	
MB 570-310762/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-310762/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-310762/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-130108-1 DU	Outfall002_20230307_Comp	Total/NA	Water	SM 2540C	

Analysis Batch: 311089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	SM 5210B	309842
SCB 570-311089/3	Method Blank	Total/NA	Water	SM 5210B	
LCS 570-309842/2-A	Lab Control Sample	Total/NA	Water	SM 5210B	309842

Prep Batch: 311129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-311129/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-311129/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-311129/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 311145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	350.1	311129
MB 570-311129/5-A	Method Blank	Total/NA	Water	350.1	311129
LCS 570-311129/6-A	Lab Control Sample	Total/NA	Water	350.1	311129
LCSD 570-311129/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	311129

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QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

General Chemistry

Analysis Batch: 312131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	Kelada 01	
MB 570-312131/14	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-312131/16	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-312131/17	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-312131/13	Lab Control Sample	Total/NA	Water	Kelada 01	

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1055.1 mL	2 mL	310496	03/10/23 12:12	H1SH	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	311097	03/13/23 22:55	ULLI	EET CAL 4
		Instrument ID: GCMSJJJ								
Total/NA	Prep	608			1500 mL	1 mL	310287	03/09/23 12:21	H1SH	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	311052	03/13/23 22:59	N5Y3	EET CAL 4
		Instrument ID: GC52A								
Total/NA	Analysis	300.0		1	4 mL	4 mL	309784	03/08/23 06:24	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	300.0		1	4 mL	4 mL	309785	03/08/23 06:24	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	300.0	DL	10	4 mL	4 mL	309785	03/08/23 09:13	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	314.0		1	4 mL	4 mL	310432	03/10/23 05:35	PS	EET CAL 4
		Instrument ID: IC13								
Total/NA	Analysis	NO2NO3 Calc		1			310704	03/10/23 16:06	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total Recoverable	Prep	200.8			50 mL	50 mL	309830	03/08/23 08:49	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			309984	03/08/23 12:13	Y2WS	EET CAL 4
		Instrument ID: ICPMS10								
Total/NA	Prep	245.1			25 mL	50 mL	310131	03/08/23 22:22	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			310669	03/10/23 12:56	C0YH	EET CAL 4
		Instrument ID: HG8								
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	311129	03/13/23 13:40	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	311145	03/13/23 15:49	UXCH	EET CAL 4
		Instrument ID: ACA2								
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	312131	03/14/23 19:36	GG0B	EET CAL 4
		Instrument ID: LACHAT01								
Total/NA	Analysis	SM 2130B		1			309933	03/08/23 12:52	ZVB7	EET CAL 4
		Instrument ID: TUR4								
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	310762	03/10/23 18:35	ZL7L	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	310629	03/10/23 12:07	WVA4	EET CAL 4
		Instrument ID: BAL71								
Total/NA	Prep	BOD Prep					309842	03/08/23 16:04	U7UR	EET CAL 4
Total/NA	Analysis	SM 5210B		1	300 mL	300 mL	311089	03/08/23 16:37	TN8Z	EET CAL 4
		Instrument ID: BOD3								
Total/NA	Prep	SM 5540C			100 mL	100 mL	310123	03/07/23 20:00	TXA8	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	309768	03/07/23 21:13	TXA8	EET CAL 4
		Instrument ID: UV8								

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-1

Client Sample ID: Outfall002_20230307_Comp_F

Lab Sample ID: 570-130108-3

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	309983	03/08/23 13:45	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			310017	03/08/23 14:22	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Dissolved	Filtration	Filtration			25 mL	25 mL	309778	03/08/23 00:17	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	309780	03/08/23 17:10	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			310669	03/10/23 14:25	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Job ID: 570-130108-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23



Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	EPA	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5210B	BOD, 5-Day	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET CAL 4
625	Liquid-Liquid Extraction	EPA	EET CAL 4
BOD Prep	Preparation, BOD	SM	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Job ID: 570-130108-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130108-1	Outfall002_20230307_Comp	Water	03/07/23 07:10	03/07/23 18:00
570-130108-3	Outfall002_20230307_Comp_F	Water	03/07/23 07:10	03/07/23 18:00

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CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp					ANALYSIS REQUIRED																		
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)					Comments																		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																											
Sampler: Adrian Mobeka																											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.8): Zn, Pb, Cd, Se (E200.8): Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E395.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Total Dissolved Metals: Mercury (E245.1)	Total Dissolved Metals: (E200.8): Fe														
Outfall 002	Outfall002_20230307_Comp_F	3/7/2023 /0710	WM	1L Poly	1	None	200	Yes	X			X	Filter and preserve w/in 24hrs of receipt at lab. Outfall 002 analyze for Fe.														
			WM	borosilicate vials	1	None	320	No			X	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.															
	Outfall002_20230307_Comp	3/7/2023 /0710	WM	500 mL Poly	1	NaOH	220	No		X																	
			WM	2.5 Gal Cube	1	None	225	No				X	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.														
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																											
Relinquished By: <i>[Signature]</i> Date/Time: 3-7-2023 / 13:30 Company: H.A				Received By: <i>[Signature]</i> Date/Time: EC 3-7-23 13:30				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u> X </u> 48 Hour: _____ 5 Day: _____ Normal: _____																			
Relinquished By: <i>[Signature]</i> Date/Time: 3-7-23 18:00 Company: EC				Received By: <i>[Signature]</i> Date/Time: EC 3-7-23 18:00				Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u> X </u>																			

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130108-1

SDG Number:

Login Number: 130108

List Number: 1

Creator: Cruise, Noel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 - Comp

JOB NUMBER

570-130108-2

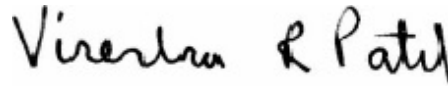
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 - Comp

Job ID: 570-130108-2

Job ID: 570-130108-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130108-2

Comments

No additional comments.

Receipt

The samples were received on 3/7/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 1.7° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 12D5 exceeded this criteria: Outfall002_20230307_Comp (570-130108-1), (CCV 320-663420/2), (LCS 320-662474/2-A), (LCSD 320-662474/3-A) and (MB 320-662474/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
2,3,4,7,8-PeCDF	0.00000044	J,DX q	0.000047	0.00000028	ug/L	1		1613B	Total/NA
1,2,3,4,7,8-HxCDD	0.00000021	J,DX MB	0.000047	0.000000033	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDD	0.00000055	J,DX q	0.000047	0.000000034	ug/L	1		1613B	Total/NA
1,2,3,4,7,8-HxCDF	0.00000069	J,DX MB	0.000047	0.000000017	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDF	0.00000035	J,DX q MB	0.000047	0.000000016	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDF	0.00000055	J,DX MB	0.000047	0.000000018	ug/L	1		1613B	Total/NA
2,3,4,6,7,8-HxCDF	0.00000045	J,DX MB	0.000047	0.000000016	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.00000027	J,DX MB	0.000047	0.000000035	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.00000019	J,DX q MB	0.000047	0.000000030	ug/L	1		1613B	Total/NA
OCDD	0.0000014	J,DX MB	0.000094	0.000000038	ug/L	1		1613B	Total/NA
OCDF	0.00000039	J,DX q MB	0.000094	0.000000032	ug/L	1		1613B	Total/NA
Total TCDD	0.00000021	J,DX q	0.0000094	0.000000058	ug/L	1		1613B	Total/NA
Total TCDF	0.00000011	J,DX	0.0000094	0.000000023	ug/L	1		1613B	Total/NA
Total PeCDF	0.00000044	J,DX q	0.000047	0.000000025	ug/L	1		1613B	Total/NA
Total HxCDD	0.00000026	J,DX q MB	0.000047	0.000000030	ug/L	1		1613B	Total/NA
Total HxCDF	0.00000025	J,DX q MB	0.000047	0.000000016	ug/L	1		1613B	Total/NA
Total HpCDD	0.00000052	J,DX q MB	0.000047	0.000000035	ug/L	1		1613B	Total/NA
Total HpCDF	0.00000031	J,DX q MB	0.000047	0.000000030	ug/L	1		1613B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230307_Comp

Date Collected: 03/07/23 07:10

Date Received: 03/07/23 18:00

Lab Sample ID: 570-130108-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000094	0.0000005	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,7,8-PeCDD	ND		0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,7,8-PeCDF	ND		0.000047	0.0000002	ug/L		03/22/23 04:36	03/25/23 00:30	1
2,3,4,7,8-PeCDF	0.00000044	J,DX q	0.000047	0.0000002	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,4,7,8-HxCDD	0.00000021	J,DX MB	0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,6,7,8-HxCDD	0.00000055	J,DX q	0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,7,8,9-HxCDD	ND		0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,4,7,8-HxCDF	0.00000069	J,DX MB	0.000047	0.0000001	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,6,7,8-HxCDF	0.00000035	J,DX q MB	0.000047	0.0000001	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,7,8,9-HxCDF	0.00000055	J,DX MB	0.000047	0.0000001	ug/L		03/22/23 04:36	03/25/23 00:30	1
2,3,4,6,7,8-HxCDF	0.00000045	J,DX MB	0.000047	0.0000001	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,4,6,7,8-HpCDD	0.00000027	J,DX MB	0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,4,6,7,8-HpCDF	0.00000019	J,DX q MB	0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
1,2,3,4,7,8,9-HpCDF	ND		0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
OCDD	0.000014	J,DX MB	0.000094	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
OCDF	0.0000039	J,DX q MB	0.000094	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
Total TCDD	0.0000021	J,DX q	0.0000094	0.0000005	ug/L		03/22/23 04:36	03/25/23 00:30	1
Total TCDF	0.0000011	J,DX	0.0000094	0.0000002	ug/L		03/22/23 04:36	03/25/23 00:30	1
Total PeCDD	ND		0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
Total PeCDF	0.00000044	J,DX q	0.000047	0.0000002	ug/L		03/22/23 04:36	03/25/23 00:30	1
Total HxCDD	0.00000026	J,DX q MB	0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
Total HxCDF	0.00000025	J,DX q MB	0.000047	0.0000001	ug/L		03/22/23 04:36	03/25/23 00:30	1
Total HpCDD	0.00000052	J,DX q MB	0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
Total HpCDF	0.00000031	J,DX q MB	0.000047	0.0000003	ug/L		03/22/23 04:36	03/25/23 00:30	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	79		25 - 164				03/22/23 04:36	03/25/23 00:30	1
13C-2,3,7,8-TCDF	85		24 - 169				03/22/23 04:36	03/25/23 00:30	1
13C-1,2,3,7,8-PeCDD	78		25 - 181				03/22/23 04:36	03/25/23 00:30	1
13C-1,2,3,7,8-PeCDF	87		24 - 185				03/22/23 04:36	03/25/23 00:30	1
13C-2,3,4,7,8-PeCDF	88		21 - 178				03/22/23 04:36	03/25/23 00:30	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230307_Comp

Date Collected: 03/07/23 07:10

Date Received: 03/07/23 18:00

Lab Sample ID: 570-130108-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,4,7,8-HxCDD	78		32 - 141	03/22/23 04:36	03/25/23 00:30	1
13C-1,2,3,6,7,8-HxCDD	87		28 - 130	03/22/23 04:36	03/25/23 00:30	1
13C-1,2,3,4,7,8-HxCDF	82		26 - 152	03/22/23 04:36	03/25/23 00:30	1
13C-1,2,3,6,7,8-HxCDF	95		26 - 123	03/22/23 04:36	03/25/23 00:30	1
13C-1,2,3,7,8,9-HxCDF	94		29 - 147	03/22/23 04:36	03/25/23 00:30	1
13C-2,3,4,6,7,8-HxCDF	95		28 - 136	03/22/23 04:36	03/25/23 00:30	1
13C-1,2,3,4,6,7,8-HpCDD	78		23 - 140	03/22/23 04:36	03/25/23 00:30	1
13C-1,2,3,4,6,7,8-HpCDF	80		28 - 143	03/22/23 04:36	03/25/23 00:30	1
13C-1,2,3,4,7,8,9-HpCDF	88		26 - 138	03/22/23 04:36	03/25/23 00:30	1
13C-OCDD	87		17 - 157	03/22/23 04:36	03/25/23 00:30	1
13C-OCDF	97		17 - 157	03/22/23 04:36	03/25/23 00:30	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	91		35 - 197	03/22/23 04:36	03/25/23 00:30	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall002_20230307_Comp

Date Collected: 03/07/23 07:10

Date Received: 03/07/23 18:00

Lab Sample ID: 570-130108-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.0000094	0.0000003	ug/L	-	03/22/23 04:36	03/28/23 15:20	1
				7					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	79		24 - 169				03/22/23 04:36	03/28/23 15:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	92		35 - 197				03/22/23 04:36	03/28/23 15:20	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Job ID: 570-130108-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-130108-1	Outfall002_20230307_Comp	91
570-130108-1 - RA	Outfall002_20230307_Comp	92
MB 320-662474/1-A	Method Blank	90

Surrogate Legend

37TCDD = 37Cl₄-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-662474/2-A	Lab Control Sample	91
LCSD 320-662474/3-A	Lab Control Sample Dup	91

Surrogate Legend

37TCDD = 37Cl₄-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-130108-1	Outfall002_20230307_Comp	79	85	78	87	88	78	87	82
570-130108-1 - RA	Outfall002_20230307_Comp		79						
MB 320-662474/1-A	Method Blank	86	94	86	98	96	84	94	89

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxCDF (26-123)	HxCF (29-147)	13CHxCDF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-130108-1	Outfall002_20230307_Comp	95	94	95	78	80	88	87	97
570-130108-1 - RA	Outfall002_20230307_Comp								
MB 320-662474/1-A	Method Blank	104	102	102	82	85	94	92	104

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxCDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCDF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-662474/2-A	Lab Control Sample	87	95	89	99	98	85	96	92
LCSD 320-662474/3-A	Lab Control Sample Dup	87	94	88	98	97	83	97	89

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxCDF (21-159)	HxCF (17-205)	13CHxCDF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-662474/2-A	Lab Control Sample	106	104	103	86	88	98	98	111
LCSD 320-662474/3-A	Lab Control Sample Dup	106	106	105	86	88	98	98	110

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD

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Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

HxDD = 13C-1,2,3,6,7,8-HxCDD

HxCDF = 13C-1,2,3,4,7,8-HxCDF

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-662474/1-A
Matrix: Water
Analysis Batch: 663420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 662474

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	86		25 - 181	03/22/23 04:36	03/24/23 20:32	1
13C-1,2,3,7,8-PeCDF	98		24 - 185	03/22/23 04:36	03/24/23 20:32	1
13C-2,3,4,7,8-PeCDF	96		21 - 178	03/22/23 04:36	03/24/23 20:32	1
13C-1,2,3,4,7,8-HxCDD	84		32 - 141	03/22/23 04:36	03/24/23 20:32	1
13C-1,2,3,6,7,8-HxCDD	94		28 - 130	03/22/23 04:36	03/24/23 20:32	1
13C-1,2,3,4,7,8-HxCDF	89		26 - 152	03/22/23 04:36	03/24/23 20:32	1
13C-1,2,3,6,7,8-HxCDF	104		26 - 123	03/22/23 04:36	03/24/23 20:32	1
13C-1,2,3,7,8,9-HxCDF	102		29 - 147	03/22/23 04:36	03/24/23 20:32	1
13C-2,3,4,6,7,8-HxCDF	102		28 - 136	03/22/23 04:36	03/24/23 20:32	1
13C-1,2,3,4,6,7,8-HpCDD	82		23 - 140	03/22/23 04:36	03/24/23 20:32	1
13C-1,2,3,4,6,7,8-HpCDF	85		28 - 143	03/22/23 04:36	03/24/23 20:32	1
13C-1,2,3,4,7,8,9-HpCDF	94		26 - 138	03/22/23 04:36	03/24/23 20:32	1
13C-OCDD	92		17 - 157	03/22/23 04:36	03/24/23 20:32	1
13C-OCDF	104		17 - 157	03/22/23 04:36	03/24/23 20:32	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	90		35 - 197	03/22/23 04:36	03/24/23 20:32	1

Lab Sample ID: LCS 320-662474/2-A
Matrix: Water
Analysis Batch: 663420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 662474

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000228		ug/L		114	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00101		ug/L		101	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00104		ug/L		104	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00106		ug/L		106	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000995		ug/L		100	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00108		ug/L		108	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00101		ug/L		101	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000983		ug/L		98	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00100		ug/L		100	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00104		ug/L		104	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00109		ug/L		109	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00104		ug/L		104	78 - 138
OCDD	0.00200	0.00212		ug/L		106	78 - 144
OCDF	0.00200	0.00209		ug/L		105	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	87		20 - 175
13C-2,3,7,8-TCDF	95		22 - 152
13C-1,2,3,7,8-PeCDD	89		21 - 227
13C-1,2,3,7,8-PeCDF	99		21 - 192
13C-2,3,4,7,8-PeCDF	98		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-662474/2-A
Matrix: Water
Analysis Batch: 663420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 662474

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDD	85		21 - 193
13C-1,2,3,6,7,8-HxCDD	96		25 - 163
13C-1,2,3,4,7,8-HxCDF	92		19 - 202
13C-1,2,3,6,7,8-HxCDF	106		21 - 159
13C-1,2,3,7,8,9-HxCDF	104		17 - 205
13C-2,3,4,6,7,8-HxCDF	103		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	86		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	88		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	98		20 - 186
13C-OCDD	98		13 - 199
13C-OCDF	111		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	91		31 - 191

Lab Sample ID: LCSD 320-662474/3-A
Matrix: Water
Analysis Batch: 663420

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 662474

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,3,7,8-TCDD	0.000200	0.000213		ug/L		107	67 - 158	0	50
2,3,7,8-TCDF	0.000200	0.000233		ug/L		116	75 - 158	2	50
1,2,3,7,8-PeCDD	0.00100	0.00107		ug/L		107	70 - 142	5	50
1,2,3,7,8-PeCDF	0.00100	0.00106		ug/L		106	80 - 134	2	50
2,3,4,7,8-PeCDF	0.00100	0.00108		ug/L		108	68 - 160	2	50
1,2,3,4,7,8-HxCDD	0.00100	0.00101		ug/L		101	70 - 164	2	50
1,2,3,6,7,8-HxCDD	0.00100	0.00109		ug/L		109	76 - 134	1	50
1,2,3,7,8,9-HxCDD	0.00100	0.00104		ug/L		104	64 - 162	4	50
1,2,3,4,7,8-HxCDF	0.00100	0.00101		ug/L		101	72 - 134	3	50
1,2,3,6,7,8-HxCDF	0.00100	0.00103		ug/L		103	84 - 130	1	50
1,2,3,7,8,9-HxCDF	0.00100	0.00100		ug/L		100	78 - 130	0	50
2,3,4,6,7,8-HxCDF	0.00100	0.00104		ug/L		104	70 - 156	2	50
1,2,3,4,6,7,8-HpCDD	0.00100	0.00106		ug/L		106	70 - 140	2	50
1,2,3,4,6,7,8-HpCDF	0.00100	0.00109		ug/L		109	82 - 122	0	50
1,2,3,4,7,8,9-HpCDF	0.00100	0.00105		ug/L		105	78 - 138	1	50
OCDD	0.00200	0.00214		ug/L		107	78 - 144	1	50
OCDF	0.00200	0.00212		ug/L		106	63 - 170	1	50

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	87		20 - 175
13C-2,3,7,8-TCDF	94		22 - 152
13C-1,2,3,7,8-PeCDD	88		21 - 227
13C-1,2,3,7,8-PeCDF	98		21 - 192
13C-2,3,4,7,8-PeCDF	97		13 - 328
13C-1,2,3,4,7,8-HxCDD	83		21 - 193
13C-1,2,3,6,7,8-HxCDD	97		25 - 163
13C-1,2,3,4,7,8-HxCDF	89		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-662474/3-A

Matrix: Water

Analysis Batch: 663420

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 662474

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,6,7,8-HxCDF	106		21 - 159
13C-1,2,3,7,8,9-HxCDF	106		17 - 205
13C-2,3,4,6,7,8-HxCDF	105		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	86		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	88		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	98		20 - 186
13C-OCDD	98		13 - 199
13C-OCDF	110		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	91		31 - 191

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QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Specialty Organics

Prep Batch: 662474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1 - RA	Outfall002_20230307_Comp	Total/NA	Water	1613B	
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	1613B	
MB 320-662474/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-662474/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-662474/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 663420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	1613B	662474
MB 320-662474/1-A	Method Blank	Total/NA	Water	1613B	662474
LCS 320-662474/2-A	Lab Control Sample	Total/NA	Water	1613B	662474
LCSD 320-662474/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	662474

Analysis Batch: 664479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1 - RA	Outfall002_20230307_Comp	Total/NA	Water	1613B	662474

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-2

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B	RA		1063.4 mL	20.0 uL	662474	03/22/23 04:36	FC	EET SAC
Total/NA	Analysis	1613B	RA	1	1 uL	1 uL	664479	03/28/23 15:20	DB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1063.4 mL	20.0 uL	662474	03/22/23 04:36	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	663420	03/25/23 00:30	DB	EET SAC
Instrument ID: 12D5										

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	03-29-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

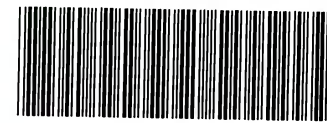
Job ID: 570-130108-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130108-1	Outfall002_20230307_Comp	Water	03/07/23 07:10	03/07/23 18:00

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130108

CHAIN OF CUSTODY FORM



570-130108 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp					ANALYSIS REQUIRED																	
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6344 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)					Comments																	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																										
Sampler: Adrian Mobeka																										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.B), Zn (E200.B), Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E105.1)(SM5210B_BODCalc)	Surfactants (MBAS) (SM5540C/E025.1)	Cl-, SO4-, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrochloroene, Bis(2-ethylhexyl)phthalate, NDMA, P-CP (SVOCs E623)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.B), Fe						
Outfall 002	Outfall002_20230307_Comp	3/7/2023 10710	WM	500 mL Poly	1	HNO3	90	Yes	X											X	X	Outfall 002 analyze for Fe.				
			WM	1 L Glass Amber	2	None	110	No			X															
			WM	1L Poly	1	None	115	No				X														
			WM	500 mL Poly	2	None	120	No					X													
			WM	500 mL Poly	2	None	130	No						X											48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None	150	No							X										48 hour holding time for turbidity	
			WM	500 mL Poly	1	H2SO4	160	No									X									
			WM	1 L Glass Amber	2	None	170	No											X							
			WM	1 L Glass Amber	2	None	180	No													X					
			WM	1L Poly	1	None	185	No									X									
2	Outfall002_20230307_Comp_Extra	3/7/2023 10710	WM	1 L Glass Amber	2	None	110	No		H													Hold			
			WM	500 mL Poly	2	None	120	No				H												Hold		
			WM	500 mL Poly	2	None	130	No					H											Hold		
			WM	1 L Glass Amber	2	None	170	No											H					Hold		
			WM	1 L Glass Amber	2	None	180	No												H				Hold		

Legend: C=Conditional, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-7-2023/13:30 Company: H:A	Received By: <i>[Signature]</i> Date/Time: 3-7-23 13:30	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____ Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>
Relinquished By: <i>[Signature]</i> Date/Time: 3-7-23 16:00 Company: EC	Received By: <i>[Signature]</i> Date/Time: EC 3-7-23 18:00	
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	

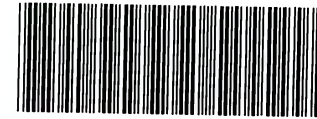
1.7/1.7 1.3/1.3 SC11

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp					ANALYSIS REQUIRED												
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)					Comments												
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																	
Sampler: Adrian Mobeka																					
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.8): Zn, Pb, Cd, Se (E200.8)	Cyanide (SM4500-CN-E / E395.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Total Dissolved Metals: Mercury (E245.1)	Total Dissolved Metals: (E200.8): Fe								
3 1 Outfall 002	Outfall002_20230307_Comp_F	3/7/2023 /0710	WM	1L Poly	1	None	200	Yes	X				X	Filter and preserve w/in 24hrs of receipt at lab. Outfall 002 analyze for Fe.							
			WM	borosilicate vials	1	None	320	No				X		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.							
	Outfall002_20230307_Comp	3/7/2023 /0710	WM	500 mL Poly	1	NaOH	220	No		X											
			WM	2.5 Gal Cube	1	None	225	No							Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.						
WM	1 L Glass Amber	1	None	230	No																
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																					
Relinquished By: <i>[Signature]</i> Date/Time: 3-7-2023 / 13:30 Company: H.A				Received By: <i>[Signature]</i> Date/Time: EC 3-7-23 13:30				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____													
Relinquished By: <i>[Signature]</i> Date/Time: 3-7-23 18:00 Company: EC				Received By: <i>[Signature]</i> Date/Time: EC 3-7-23 18:00				Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>													

130108

CHAIN OF CUSTODY FORM



570-130108 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108			Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp			ANALYSIS REQUIRED													
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187			Project Manager: Katherine Miller 520.289.8606, 520.904.6344 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)			Total Recoverable Metals: (E200.8): Zn (E200.8): Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM5210B_BODCalc)	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, SO4-, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrochloroene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E623)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.8): Fe	Comments	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																			
Sampler: Adrian Mobeka																			

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.8): Zn (E200.8): Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM5210B_BODCalc)	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, SO4-, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrochloroene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E623)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.8): Fe	Comments					
Outfall 002	Outfall002_20230307_Comp	3/7/2023 10710	WM	500 mL Poly	1	HNO3	90	Yes	X											X	X	Outfall 002 analyze for Fe.				
			WM	1 L Glass Amber	2	None	110	No			X															
			WM	1L Poly	1	None	115	No				X														
			WM	500 mL Poly	2	None	120	No					X													
			WM	500 mL Poly	2	None	130	No						X											48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None	150	No							X										48 hour holding time for turbidity	
			WM	500 mL Poly	1	H2SO4	160	No								X										
			WM	1 L Glass Amber	2	None	170	No										X								
			WM	1 L Glass Amber	2	None	180	No												X						
			WM	1L Poly	1	None	185	No									X									
2	Outfall002_20230307_Comp_Extra	3/7/2023 10710	WM	1 L Glass Amber	2	None	110	No			H												Hold			
			WM	500 mL Poly	2	None	120	No					H											Hold		
			WM	500 mL Poly	2	None	130	No						H										Hold		
			WM	1 L Glass Amber	2	None	170	No											H					Hold		
			WM	1 L Glass Amber	2	None	180	No												H				Hold		

Legend: C=Conditional, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-7-2023/13:30 Company: H:A	Received By: <i>[Signature]</i> Date/Time: 3-7-23 13:30	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X _____ 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3-7-23 16:00 Company: EC	Received By: <i>[Signature]</i> Date/Time: EC 3-7-23 18:00	
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	

Sample Integrity: (Check)
Intact: _____ On Ice: _____
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: X _____

1.7/1.7 1.3/1.3 SC11

Chain of Custody Record



Environment Testing



Client Information (Sub Contract Lab) Client Contact: Patel, Virendra Shipping/Receiving: Virendra.Patel@et.eurofins.com Company: State Program - California		Lab PM: Patel, Virendra E-Mail: Virendra.Patel@et.eurofins.com		Carrier Tracking No(s): State of Origin: California		COC No: 570-209600.1 Page: Page 1 of 1 Job #: 570-130108-1	
Due Date Requested: 3/17/2023 TAT Requested (days):		Accreditations Required (See note): State Program - California		Analysis Requested M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)			
Address: 880 Riverside Parkway, City: West Sacramento State: CA , Zip: 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		Project Name: Boeing NPDES SSFL - Routine Outfall - 002 - Comp Project #: 57013187 SOW#:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
Sample Date: 3/17/23 Sample Time: 07:10 Pacific Sample Date: 3/17/23 Sample Time: 07:10 Pacific		Sample Type (C=comp, G=grab): Matrix (Water, Spew, Other): Preservation Code:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 16138/16138_Sox_Sep_P (MOD) Standard List w/ 16138/16138_Sox_Sep_P (MOD) Standard List w/ Totals (Hold)		Total Number of Containers Special Instructions/Note: See QAS, Boeig, w/u to zero, ug/L, Use Boeig glassware. See QAS, Boeig, w/u to zero, ug/L, Use Boeig glassware.	
Sample Identification - Client ID (Lab ID) Outfall002_20230307_Comp (570-130108-1) Outfall002_20230307_Comp_Extra (570-130108-2)		Sample Date: 3/17/23 Sample Time: 07:10 Pacific Sample Date: 3/17/23 Sample Time: 07:10 Pacific		Matrix (Water, Spew, Other): Preservation Code:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 16138/16138_Sox_Sep_P (MOD) Standard List w/ 16138/16138_Sox_Sep_P (MOD) Standard List w/ Totals (Hold)	
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:			
Relinquished by: <i>[Signature]</i> Relinquished by: <i>[Signature]</i> Relinquished by:		Date/Time: 03/08/23 10:07 Date/Time:		Date/Time: 3-9-23 9:5 Date/Time:		Date/Time: 3-9-23 9:5 Date/Time:	
Relinquished by:		Date/Time:		Date/Time:		Date/Time:	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Relinquished by: <i>[Signature]</i> Date/Time:		Relinquished by: <i>[Signature]</i> Date/Time:		Relinquished by: <i>[Signature]</i> Date/Time:	
Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.10		Cooler Temperature(s) °C and Other Remarks:			



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PMF:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	570-209600.1	570-209600.1
Company: Eurofins Environment Testing Northern Ca		Phone: Virendra.Patel@et.eurofins.com	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		Accreditations Required (See note): State Program - California	Job #: 570-130108-1	Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Due Date Requested: 3/17/2023 TAT Requested (days):		Analysis Requested			
PO #:	Matrix (Wetwater, Swab, On-water, Oil)	Total Number of containers			
WO #:	Sample Type (C=Comp, G=grab)	16138/16138_Sox_Sep_P (MOD) Standard List w/			
Project #: 57013187	Sample Time	16138/16138_Sox_Sep_P (MOD) Standard List w/			
SSOW#:	Sample Date	Perform MS/MSD (Yes or No)			
Boeing NPDES SSFL - Routine Outfall - 002 - Comp	Sample Date	Field Filtered Sample (Yes or No)			
Site:	Sample Date	Totals			
	3/7/23	16138/16138_Sox_Sep_P (MOD) Standard List w/			
	07:10 Pacific	Totals (Hold)			
	3/7/23	2			
	07:10 Pacific	2			
		Special Instructions/Note:			
		See QAS, Boeing_w/lu to zero, ug/L; Use Boeing glassware.			
		See QAS, Boeing_w/lu to zero, ug/L; Use Boeing glassware.			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 03/08/23 10:07 Company: FC
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seals Intact: Yes No No
 Custody Seal No.: _____
 Cooler Temperature(s) °C and Other Remarks: 3.10

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements: _____
 Method of Shipment: _____
 Received by: _____ Date/Time: 3-9-23 9:55 Company: BEAN
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PMF:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	570-209600.1	570-209600.1
Company: Eurofins Environment Testing Northern Ca		Phone:	E-Mail:	State of Origin:	Page:
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	California	Page 1 of 1
Project Name: Boeing NPDES SSFL - Routine Outfall - 002 - Comp Site:		Accreditations Required (See note): State Program - California		Job #:	570-130108-1
Due Date Requested: 3/17/2023 TAT Requested (days):		Analysis Requested			
PO #:		Field Filtered Sample (Yes or No)		1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
WO #:		Perform MS/MSD (Yes or No)		1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
Project #: 57013187		Sample Date		Totals (Hold)	
SSOW#:		Sample Time		Totals	
		Sample Type (C=Comp, G=grab)		1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
		Matrix (W=water, S=solid, O=organic, A=air)		1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
		Preservation Code:		Total Number of containers	
		Sample Date		Special Instructions/Note:	
		Sample Time		See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.	
		Sample Type (C=Comp, G=grab)		See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.	
		Matrix (W=water, S=solid, O=organic, A=air)			
		Preservation Code:			
		Sample Date			
		Sample Time			
		Sample Type (C=Comp, G=grab)			
		Matrix (W=water, S=solid, O=organic, A=air)			
		Preservation Code:			

Sample Identification - Client ID (Lab ID)

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=organic, A=air)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P (MOD) Standard List w/	1613B/1613B_Sox_Sep_P (MOD) Standard List w/	Totals (Hold)	Total Number of containers	Special Instructions/Note:
Outfall002_20230307_Comp (570-130108-1)	3/7/23	07:10 Pacific		Water		X					2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.
Outfall002_20230307_Comp_Extra (570-130108-2)	3/7/23	07:10 Pacific		Water			X				2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification

Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____
 Relinquished by: _____ Date/Time: 03/08/23 10:07 Company: FC
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No Seal
 Cooler Temperature(s) °C and Other Remarks: 3.10



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130108-2

SDG Number:

Login Number: 130108

List Number: 1

Creator: Cruise, Noel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130108-2

SDG Number:

Login Number: 130108

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/09/23 05:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.1c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/12/2023 7:43:12 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 - Comp

JOB NUMBER

570-130108-3

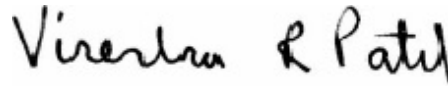
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 - Comp

Job ID: 570-130108-3

Job ID: 570-130108-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130108-3

Comments

No additional comments.

Receipt

The samples were received on 3/7/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 1.7° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

RAD

Method 900.0: Gross Alpha Beta prep batch 160-606236:

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-606326 and analytical batch 160-606671 were outside control limits for one or more analytes. In addition RER/RPD was also outside of control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 900.0: Gross Alpha Beta prep batch 160-606326:

The detection goal was not met for the following sample(s). The samples and batch QC were prepped at full volume. Matrix interferences are suspected because the method blank achieved the detection goal demonstrating acceptable sample preparation and instrument performance. (570-129852-R-1-F)

Method 900.0: Gross Alpha Beta prep batch 160-606326:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230307_Comp (570-130108-1), (LCS 160-606326/2-A), (LCSB 160-606326/3-A), (MB 160-606326/1-A), (570-129852-R-1-F), (570-129852-R-1-J MS), (570-129852-R-1-L MSBT), (570-129852-R-1-M MSBTD) and (570-129852-R-1-K MSD)

Method 901.1: Gamma Prep Batch 160-604032

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 - Comp

Job ID: 570-130108-3

Job ID: 570-130108-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

**The method blank (MB) Z-score is within limits and is located in the level IV raw data.

Outfall002_20230307_Comp (570-130108-1), (570-128840-R-1-D) and (570-128840-R-1-E DU)

Methods 903.0, 9315: Radium-226 prep batch 160-604353:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230307_Comp (570-130108-1), (LCS 160-604353/2-A), (LCSD 160-604353/3-A) and (MB 160-604353/1-A)

Methods 904.0, 9320: Radium-228 batch 604358

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230307_Comp (570-130108-1), (LCS 160-604358/2-A), (LCSD 160-604358/3-A) and (MB 160-604358/1-A)

Method 905: Strontium-90 batch 604379

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230307_Comp (570-130108-1), (LCS 160-604379/2-A), (MB 160-604379/1-A), (570-129852-R-1-D), (570-129852-L-1-E MS) and (570-129852-L-1-F MSD)

Method 906.0: Tritium 605397

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230307_Comp (570-130108-1), (LCS 160-605397/2-A), (MB 160-605397/1-A), (570-129852-Q-1-B), (570-129852-K-1-D MS) and (570-129852-K-1-E MSD)

Method 906.0: The matrix spike duplicate (MSD) recovery was inadvertently not spiked. However the matrix spike (MS) was within range and all other QC was within limits. Per client, the data will be reported with this narrative. Outfall002_20230307_Comp (570-130108-1), (570-129852-Q-1-B), (570-129852-K-1-D MS) and (570-129852-K-1-E MSD)

Method A-01-R: Isotopic Uranium Batch 605724

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230307_Comp (570-130108-1), (LCS 160-605724/2-A), (MB 160-605724/1-A), (570-129852-R-1-E), (570-129852-L-1-G MS) and (570-129852-L-1-H MSD)

Method ExtChrom: Uranium Prep Batch 160-605724:

The following sample was prepared at a reduced aliquot due to sediment and discoloration: Outfall002_20230307_Comp

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 - Comp

Job ID: 570-130108-3

Job ID: 570-130108-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

(570-130108-1).

Method PrecSep_0: Radium-228 Prep Batch 160-604358

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall002_20230307_Comp (570-130108-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-604353

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall002_20230307_Comp (570-130108-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-7:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

No Detections.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230307_Comp

Date Collected: 03/07/23 07:10

Date Received: 03/07/23 18:00

Lab Sample ID: 570-130108-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.155	U F	1.43	1.43	3.00	2.77	pCi/L	04/06/23 10:28	04/11/23 06:08	1
Gross Beta	2.38		0.727	0.765	4.00	0.929	pCi/L	04/06/23 10:28	04/11/23 06:08	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	3.75	U	9.76	9.77	20.0	11.7	pCi/L	03/17/23 14:08	03/29/23 17:44	1
Potassium-40	57.2	U	126	127		135	pCi/L	03/17/23 14:08	03/29/23 17:44	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230307_Comp
Date Collected: 03/07/23 07:10
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130108-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0463	U	0.0886	0.0887	1.00	0.159	pCi/L	03/20/23 11:13	04/11/23 06:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.1		30 - 110					03/20/23 11:13	04/11/23 06:43	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230307_Comp
Date Collected: 03/07/23 07:10
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130108-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.143	U	0.407	0.407	1.00	0.725	pCi/L	03/20/23 11:35	04/05/23 11:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.1		30 - 110					03/20/23 11:35	04/05/23 11:36	1
Y Carrier	84.9		30 - 110					03/20/23 11:35	04/05/23 11:36	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230307_Comp
Date Collected: 03/07/23 07:10
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130108-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.192	U	0.311	0.311	3.00	0.619	pCi/L	03/20/23 13:22	03/29/23 16:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	77.4		30 - 110					03/20/23 13:22	03/29/23 16:07	1
Y Carrier	81.9		30 - 110					03/20/23 13:22	03/29/23 16:07	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	69.4	U F	146	146	500	256	pCi/L	03/29/23 11:02	04/04/23 22:30	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	1.50		0.465	0.473	1.00	0.199	pCi/L	03/30/23 15:31	04/04/23 20:41	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	87.5		30 - 110					03/30/23 15:31	04/04/23 20:41	1

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
570-130108-1	Outfall002_20230307_Comp	85.1
LCS 160-604353/2-A	Lab Control Sample	90.5
LCSD 160-604353/3-A	Lab Control Sample Dup	93.6
MB 160-604353/1-A	Method Blank	90.5

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
570-130108-1	Outfall002_20230307_Comp	85.1	84.9
LCS 160-604358/2-A	Lab Control Sample	90.5	90.8
LCSD 160-604358/3-A	Lab Control Sample Dup	93.6	85.2
MB 160-604358/1-A	Method Blank	90.5	86.4

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)
570-130108-1	Outfall002_20230307_Comp	77.4	81.9
LCS 160-604379/2-A	Lab Control Sample	85.6	76.6
MB 160-604379/1-A	Method Blank	79.3	70.3

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)
570-130108-1	Outfall002_20230307_Comp	87.5
LCS 160-605724/2-A	Lab Control Sample	92.1
MB 160-605724/1-A	Method Blank	92.8

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-606326/1-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606326

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Gross Alpha	0.4133	U	0.657	0.658	3.00	1.12	pCi/L	04/06/23 10:28	04/10/23 20:47		1	
Gross Beta	0.02677	U	0.496	0.496	4.00	0.874	pCi/L	04/06/23 10:28	04/10/23 20:47		1	

Lab Sample ID: LCS 160-606326/2-A
Matrix: Water
Analysis Batch: 606895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	51.96		7.62	3.00	2.05	pCi/L	103	75 - 125

Lab Sample ID: LCSB 160-606326/3-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.4	74.51		7.98	4.00	0.927	pCi/L	102	75 - 125

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-604032/1-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604032

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Cesium-137	-0.4655	U	10.3	10.3	20.0	12.1	pCi/L	03/17/23 14:08	03/22/23 19:49		1	
Potassium-40	12.53	U	78.9	78.9		135	pCi/L	03/17/23 14:08	03/22/23 19:49		1	

Lab Sample ID: LCS 160-604032/2-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604032

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Americium-241	135000	143200		17000		415	pCi/L	106	75 - 125
Cesium-137	40900	41780		4980	20.0	92.9	pCi/L	102	75 - 125
Cobalt-60	17800	18360		2190		50.3	pCi/L	103	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-604353/1-A
Matrix: Water
Analysis Batch: 606895

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604353

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.03495	U	0.0804	0.0804	1.00	0.172	pCi/L	03/20/23 11:13	04/11/23 06:30	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	90.5		30 - 110					03/20/23 11:13	04/11/23 06:30	1

Lab Sample ID: LCS 160-604353/2-A
Matrix: Water
Analysis Batch: 606896

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604353

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.56		1.21	1.00	0.118	pCi/L	102	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	90.5		30 - 110					03/20/23 11:13	04/11/23 06:30

Lab Sample ID: LCSD 160-604353/3-A
Matrix: Water
Analysis Batch: 606896

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604353

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	11.64		1.22	1.00	0.130	pCi/L	103	75 - 125	0.03	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	93.6		30 - 110					03/20/23 11:13	04/05/23 11:42	1	

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-604358/1-A
Matrix: Water
Analysis Batch: 606261

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604358

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.09792	U	0.271	0.272	1.00	0.484	pCi/L	03/20/23 11:35	04/05/23 11:42	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	90.5		30 - 110					03/20/23 11:35	04/05/23 11:42	1
Y Carrier	86.4		30 - 110		03/20/23 11:35	04/05/23 11:42	1			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-604358/2-A
Matrix: Water
Analysis Batch: 606261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604358

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.06	8.920		1.20	1.00	0.395	pCi/L	111	75 - 125	
Carrier	%Yield	LCS Qualifier	Limits							
Ba Carrier	90.5		30 - 110							
Y Carrier	90.8		30 - 110							

Lab Sample ID: LCSD 160-604358/3-A
Matrix: Water
Analysis Batch: 606261

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604358

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
Radium-228	8.06	8.860		1.20	1.00	0.421	pCi/L	110	75 - 125	0.03	1	
Carrier	%Yield	LCSD Qualifier	Limits									
Ba Carrier	93.6		30 - 110									
Y Carrier	85.2		30 - 110									

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-604379/1-A
Matrix: Water
Analysis Batch: 605413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604379

Analyte	MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier										
Strontium-90	-0.1030	U	0.268	0.268	3.00	0.492	pCi/L	03/20/23 13:22	03/29/23 15:59		1	
Carrier	%Yield	MB Qualifier	Limits									
Sr Carrier	79.3		30 - 110									
Y Carrier	70.3		30 - 110									

Lab Sample ID: LCS 160-604379/2-A
Matrix: Water
Analysis Batch: 605413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604379

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Strontium-90	7.35	7.405		0.842	3.00	0.323	pCi/L	101	75 - 125	
Carrier	%Yield	LCS Qualifier	Limits							
Sr Carrier	85.6		30 - 110							
Y Carrier	76.6		30 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-605397/1-A
 Matrix: Water
 Analysis Batch: 606179

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605397

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	81.53	U	151	151	500	263	pCi/L	03/29/23 11:02	04/04/23 16:05	1

Lab Sample ID: LCS 160-605397/2-A
 Matrix: Water
 Analysis Batch: 606179

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605397

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Tritium	2090	1744		317	500	251	pCi/L	83	75 - 125

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-605724/1-A
 Matrix: Water
 Analysis Batch: 606117

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605724

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.03149	U	0.08996	0.09003	1.00	0.148	pCi/L	03/30/23 15:31	04/04/23 20:40	1

Tracer	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	92.8		30 - 110	03/30/23 15:31	04/04/23 20:40	1

Lab Sample ID: LCS 160-605724/2-A
 Matrix: Water
 Analysis Batch: 606357

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605724

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Uranium-234	12.7	13.25		1.55	1.00	0.113	pCi/L	104	75 - 125
Uranium-238	13.0	13.61		1.58	1.00	0.123	pCi/L	105	75 - 125

Tracer	LCS %Yield	LCS Qualifier	Limits
Uranium-232	92.1		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Rad

Prep Batch: 604032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-604032/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-604032/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 604353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	PrecSep-21	
MB 160-604353/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-604353/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-604353/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 604358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	PrecSep_0	
MB 160-604358/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-604358/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-604358/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 604379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	PrecSep-7	
MB 160-604379/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-604379/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	

Prep Batch: 605397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-605397/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-605397/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 605724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	ExtChrom	
MB 160-605724/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-605724/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 606326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130108-1	Outfall002_20230307_Comp	Total/NA	Water	Evaporation	
MB 160-606326/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-606326/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-606326/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Client Sample ID: Outfall002_20230307_Comp

Lab Sample ID: 570-130108-1

Date Collected: 03/07/23 07:10

Matrix: Water

Date Received: 03/07/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			199.95 mL	1.0 g	606326	04/06/23 10:28	MST	EET SL
Total/NA	Analysis	900.0		1			606895	04/11/23 06:08	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	604032	03/17/23 14:08	SEH	EET SL
Total/NA	Analysis	901.1		1			605375	03/29/23 17:44	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			746.66 mL	1.0 g	604353	03/20/23 11:13	DJP	EET SL
Total/NA	Analysis	903.0		1			606893	04/11/23 06:43	SCB	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			746.66 mL	1.0 g	604358	03/20/23 11:35	DJP	EET SL
Total/NA	Analysis	904.0		1			606157	04/05/23 11:36	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep-7			495.55 mL	1.0 g	604379	03/20/23 13:22	DJP	EET SL
Total/NA	Analysis	905		1			605412	03/29/23 16:07	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	LSC_Dist_Susp			96.50 mL	1.0 g	605397	03/29/23 11:02	SEH	EET SL
Total/NA	Analysis	906.0		1			606179	04/04/23 22:30	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			299.3 mL	1.0 mL	605724	03/30/23 15:31	CMM	EET SL
Total/NA	Analysis	A-01-R		1			606118	04/04/23 20:41	EJS	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
 Comp

Job ID: 570-130108-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130108-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 -
Comp

Job ID: 570-130108-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130108-1	Outfall002_20230307_Comp	Water	03/07/23 07:10	03/07/23 18:00

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Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra		Lab PM: Patel, Virendra		COC No: 570-209583.1	
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Address: 13715 Rider Trail North, Earth City, MO, 63045		Accreditations Required (See note): State Program - California		Job #: 570-130108-1	
Due Date Requested: 3/17/2023		TAT Requested (days):		Analysis Requested		Preservation Codes:	
PO #:		WO #:		Field Filtered Sample (Yes or No)		M - Hexane	
Project #:		Project #:		Perform MS/MSD (Yes or No)		N - None	
Site:		Site:		900.0/Evaporation Gross Alpha/Beta		O - AsNaO2	
Boeing NPDES SSFL - Routine Outfall - 002 - Comp		Boeing NPDES SSFL - Routine Outfall - 002 - Comp		905.0/PreSep_0 Radium-226		P - Na2O4S	
Sample Identification - Client ID (Lab ID)		Sample Identification - Client ID (Lab ID)		906.0/SC_Dist_Susp Tritium		Q - Na2SO3	
Outfall002_20230307_Comp (570-130108-1)		Outfall002_20230307_Comp (570-130108-1)		909.0/PreSep_21 Radium-226		R - Na2S2O3	
Sample Date		Sample Time		904.0/PreSep_0 Radium-228		S - H2SO4	
3/17/23		07:10 Pacific		901.1_Ca/Fill_Geo_0 K-40 and Cesium-137		T - TSP Dodecahydrate	
Sample Type (C=Comp, G=grab)		Sample Matrix (Water, Solid, Other)		A01R_UExtChrom_Actin Total Uranium		U - Acetone	
G=grab		Water		904.0/PreSep_0 Radium-228		V - MCAA	
Preservation Code:		Preservation Code:		905.0/PreSep_7 Strontium-90		W - pH 4-5	
Water		Water		906.0/SC_Dist_Susp Tritium		X - Trizma	
Special Instructions/Note:		Special Instructions/Note:		900.0/Evaporation Gross Alpha/Beta		Y - EDTA	
Boeing SSFL; DO NOT FILTER; use prep date from preservation		Boeing SSFL; DO NOT FILTER; use prep date from preservation		901.1_Ca/Fill_Geo_0 K-40 and Cesium-137		Z - other (specify)	
Total Number of containers		Total Number of containers		904.0/PreSep_0 Radium-228		Other:	
2		2		905.0/PreSep_21 Radium-226			
				906.0/SC_Dist_Susp Tritium			
				909.0/PreSep_7 Strontium-90			
				904.0/PreSep_0 Radium-228			
				901.1_Ca/Fill_Geo_0 K-40 and Cesium-137			
				A01R_UExtChrom_Actin Total Uranium			
				904.0/PreSep_0 Radium-228			
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				904.0/PreSep_0 Radium-228			

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130108-3

SDG Number:

Login Number: 130108

List Number: 1

Creator: Cruise, Noel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130108-3

SDG Number:

Login Number: 130108

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/09/23 03:21 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 8:00:02 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Grab

JOB NUMBER

570-130858-1

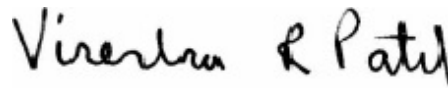
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grab

Job ID: 570-130858-1

Job ID: 570-130858-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-130858-1

Comments

No additional comments.

Receipt

The samples were received on 3/13/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3° C.

Receipt Exceptions

Method SM 2540F: The following sample was received outside of holding time for SettleableSolids: Outfall002_20230310_Grab (570-130858-1).

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

Client Sample ID: Outfall002_20230310_Grab

Lab Sample ID: 570-130858-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	1100		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: TB-20230310

Lab Sample ID: 570-130858-3

No Detections.

- 1
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This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230310_Grab
Date Collected: 03/10/23 08:55
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130858-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/14/23 16:57	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/14/23 16:57	1
Trichloroethene	ND		0.50	0.17	ug/L			03/14/23 16:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		60 - 140					03/14/23 16:57	1
Toluene-d8 (Surr)	96		60 - 140					03/14/23 16:57	1
Dibromofluoromethane (Surr)	84		60 - 140					03/14/23 16:57	1
1,2-Dichloroethane-d4 (Surr)	90		60 - 140					03/14/23 16:57	1

Client Sample ID: TB-20230310
Date Collected: 03/10/23 08:55
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130858-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/14/23 16:12	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/14/23 16:12	1
Trichloroethene	ND		0.50	0.17	ug/L			03/14/23 16:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		60 - 140					03/14/23 16:12	1
Toluene-d8 (Surr)	97		60 - 140					03/14/23 16:12	1
Dibromofluoromethane (Surr)	89		60 - 140					03/14/23 16:12	1
1,2-Dichloroethane-d4 (Surr)	91		60 - 140					03/14/23 16:12	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

General Chemistry

Client Sample ID: Outfall002_20230310_Grab

Date Collected: 03/10/23 08:55

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130858-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.98	0.50	mg/L		03/14/23 10:20	03/14/23 14:08	1
Specific Conductance (SM 2510B)	1100		1.0	1.0	umhos/cm			03/20/23 20:23	1
Settleable Solids (SM 2540F)	ND	BU BV	0.10	0.10	mL/L			03/14/23 11:03	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL	DBFM	DCA
		(60-140)	(60-140)	(60-140)	(60-140)
570-130858-1	Outfall002_20230310_Grab	93	96	84	90
570-130858-3	TB-20230310	92	97	89	91
LCS 570-311452/1003	Lab Control Sample	96	99	97	89
LCSD 570-311452/4	Lab Control Sample Dup	98	95	94	90
MB 570-311452/6	Method Blank	94	98	88	87

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-311452/6
Matrix: Water
Analysis Batch: 311452

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/14/23 15:49	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/14/23 15:49	1
Trichloroethene	ND		0.50	0.17	ug/L			03/14/23 15:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		60 - 140		03/14/23 15:49	1
Toluene-d8 (Surr)	98		60 - 140		03/14/23 15:49	1
Dibromofluoromethane (Surr)	88		60 - 140		03/14/23 15:49	1
1,2-Dichloroethane-d4 (Surr)	87		60 - 140		03/14/23 15:49	1

Lab Sample ID: LCS 570-311452/1003
Matrix: Water
Analysis Batch: 311452

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	10.0	9.27		ug/L		93	50 - 150
1,2-Dichloroethane	10.0	8.71		ug/L		87	70 - 130
Trichloroethene	10.0	9.35		ug/L		93	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		60 - 140
Toluene-d8 (Surr)	99		60 - 140
Dibromofluoromethane (Surr)	97		60 - 140
1,2-Dichloroethane-d4 (Surr)	89		60 - 140

Lab Sample ID: LCSD 570-311452/4
Matrix: Water
Analysis Batch: 311452

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	10.0	9.61		ug/L		96	50 - 150	4	32
1,2-Dichloroethane	10.0	8.84		ug/L		88	70 - 130	1	49
Trichloroethene	10.0	9.88		ug/L		99	65 - 135	6	48

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		60 - 140
Toluene-d8 (Surr)	95		60 - 140
Dibromofluoromethane (Surr)	94		60 - 140
1,2-Dichloroethane-d4 (Surr)	90		60 - 140

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-311356/1-A
Matrix: Water
Analysis Batch: 311464

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		03/14/23 10:20	03/14/23 14:08	1

Euromins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: LCS 570-311356/2-A
Matrix: Water
Analysis Batch: 311464

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311356

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	38.2		mg/L		95	78 - 114

Lab Sample ID: LCSD 570-311356/3-A
Matrix: Water
Analysis Batch: 311464

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311356

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	36.2		mg/L		91	78 - 114	5	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-313431/7
Matrix: Water
Analysis Batch: 313431

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/20/23 19:15	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

GC/MS VOA

Analysis Batch: 311452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130858-1	Outfall002_20230310_Grab	Total/NA	Water	624.1	
570-130858-3	TB-20230310	Total/NA	Water	624.1	
MB 570-311452/6	Method Blank	Total/NA	Water	624.1	
LCS 570-311452/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-311452/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Prep Batch: 311356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130858-1	Outfall002_20230310_Grab	Total/NA	Water	1664A	
MB 570-311356/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-311356/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-311356/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 311384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130858-1	Outfall002_20230310_Grab	Total/NA	Water	SM 2540F	

Analysis Batch: 311464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130858-1	Outfall002_20230310_Grab	Total/NA	Water	1664A	311356
MB 570-311356/1-A	Method Blank	Total/NA	Water	1664A	311356
LCS 570-311356/2-A	Lab Control Sample	Total/NA	Water	1664A	311356
LCSD 570-311356/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	311356

Analysis Batch: 313431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130858-1	Outfall002_20230310_Grab	Total/NA	Water	SM 2510B	
MB 570-313431/7	Method Blank	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

Client Sample ID: Outfall002_20230310_Grab

Lab Sample ID: 570-130858-1

Date Collected: 03/10/23 08:55

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	311452	03/14/23 16:57	A1W	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			1016 mL	1000 mL	311356	03/14/23 10:20	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			311464	03/14/23 14:08	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			313431	03/20/23 20:23	BDH9	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	311384	03/14/23 11:03	GG0B	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230310

Lab Sample ID: 570-130858-3

Date Collected: 03/10/23 08:55

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	311452	03/14/23 16:12	A1W	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Grat

Job ID: 570-130858-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

- 1664A = EPA-821-98-002
- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Grab

Job ID: 570-130858-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130858-1	Outfall002_20230310_Grab	Water	03/10/23 08:55	03/13/23 19:25
570-130858-3	TB-20230310	Water	03/10/23 08:55	03/13/23 19:25

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130858-1

Login Number: 130858

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/16/2023 8:37:06 AM Revision 1

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-130860-1

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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4/16/2023 8:37:06 AM
Revision 1

Authorized for release by
Virendra Patel, Project Manager I
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(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
LQ	LCS/LCSD recovery above method control limits

General Chemistry

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BU	Sample was prepped beyond the specified holding time
BV	Sample received after holding time expired

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-130860-1

Job ID: 570-130860-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-130860-1**

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 4/11/2023. The report (revision 1) is being revised due to: The report was revised to update the EPA 314.0 Perchlorate data - reported with error. The results reported included a spike concentration and therefore were not correct due to analyst error..

Receipt

The samples were received on 3/13/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.3° C.

Receipt Exceptions

Methods BOD Prep, SM 5210B: The following sample was received outside of holding time for BOD: Outfall002_20230311_Comp (570-130860-1).

Methods 300.0, SM 2130B, SM 5540C: The following samples were received outside of holding time MBAS, 300.0 NO3 NO2, and Turbidity: Outfall002_20230311_Comp (570-130860-1), Outfall002_20230311_Comp (570-130860-1[MS]), Outfall002_20230311_Comp (570-130860-1[MSD]), Outfall002_20230311_Comp_Extra (570-130860-2), Outfall002_20230311_Comp_F (570-130860-3), Outfall002_20230311_Comp_F (570-130860-3[MS]) and Outfall002_20230311_Comp_F (570-130860-3[MSD]).

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

Method 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-311256 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Chloride and Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method 300.0: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 570-311256 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method 300.0: The following sample was received outside of holding time: Outfall002_20230311_Comp (570-130860-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-312120 and analytical batch 570-312206 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 245.1: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-311254, 570-311580 and 570-311609 and analytical batch 570-311965 recovered outside control limits for the following analytes: Mercury. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 245.1: The following samples were analyzed outside of analytical holding time : Outfall002_20230311_Comp_F (570-130860-3), Outfall002_20230311_Comp_F (570-130860-3[MS]) and Outfall002_20230311_Comp_F (570-130860-3[MSD]).

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-130860-1

Job ID: 570-130860-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230311_Comp_F (570-130860-3), Outfall002_20230311_Comp_F (570-130860-3[MS]) and Outfall002_20230311_Comp_F (570-130860-3[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method SM 5540C: The following sample was received outside of holding time: Outfall002_20230311_Comp (570-130860-1).

Method Kelada 01: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 570-312131 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method SM 2130B: The following sample was received outside of holding time: Outfall002_20230311_Comp (570-130860-1).

Method SM 5210B: The following sample was analyzed outside of analytical holding time due to log in error: Outfall002_20230311_Comp (570-130860-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-312577. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Method 608.3 PEST LL

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-311840. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method:625 Sim

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130860-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Comp

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	15		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.42	BU BV	0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate - DL	150		10	2.4	mg/L	10		300.0	Total/NA
Nitrate Nitrite as N	0.42		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	2.1		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.77	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Selenium	1.0	J,DX	2.0	0.52	ug/L	1		200.8	Total Recoverable
Zinc	7.2	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Turbidity	33	BU BV	0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	420		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	20		2.0	1.7	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall002_20230311_Comp_F

Lab Sample ID: 570-130860-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.2	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Selenium	0.85	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.94	0.13	ug/L		03/15/23 13:38	03/23/23 19:27	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		03/15/23 13:38	03/23/23 19:27	1
Bis(2-ethylhexyl) phthalate	ND		4.7	3.4	ug/L		03/15/23 13:38	03/23/23 19:27	1
N-Nitrosodimethylamine	ND		0.19	0.17	ug/L		03/15/23 13:38	03/23/23 19:27	1
Pentachlorophenol	ND		0.94	0.79	ug/L		03/15/23 13:38	03/23/23 19:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	66		31 - 120	03/15/23 13:38	03/23/23 19:27	1
Phenol-d6 (Surr)	27		10 - 120	03/15/23 13:38	03/23/23 19:27	1
p-Terphenyl-d14 (Surr)	85		45 - 120	03/15/23 13:38	03/23/23 19:27	1
2,4,6-Tribromophenol	94		28 - 127	03/15/23 13:38	03/23/23 19:27	1
2-Fluorophenol	40		17 - 120	03/15/23 13:38	03/23/23 19:27	1
Nitrobenzene-d5	68		27 - 120	03/15/23 13:38	03/23/23 19:27	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: EPA 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230311_Comp

Date Collected: 03/11/23 08:30

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		03/17/23 12:20	03/23/23 14:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Tetrachloro-m-xylene</i>	58		20 - 139				03/17/23 12:20	03/23/23 14:16	1
<i>DCB Decachlorobiphenyl (Surr)</i>	44		20 - 154				03/17/23 12:20	03/23/23 14:16	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230311_Comp

Date Collected: 03/11/23 08:30

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15		1.0	0.36	mg/L			03/14/23 09:44	1
Nitrite as N	ND	BU BV	0.10	0.043	mg/L			03/14/23 09:44	1
Nitrate as N	0.42	BU BV	0.10	0.020	mg/L			03/14/23 09:44	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Method: EPA 300.0 - Anions, Ion Chromatography - DL

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	150		10	2.4	mg/L			03/14/23 11:42	10

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230311_Comp

Date Collected: 03/11/23 08:30

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/14/23 19:45	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.42		0.10	0.020	mg/L			03/20/23 12:49	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130860-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/15/23 09:08	03/15/23 13:04	1
Copper	2.1		2.0	0.32	ug/L		03/15/23 09:08	03/15/23 13:04	1
Lead	0.77	J,DX	1.0	0.12	ug/L		03/15/23 09:08	03/15/23 13:04	1
Selenium	1.0	J,DX	2.0	0.52	ug/L		03/15/23 09:08	03/15/23 13:04	1
Zinc	7.2	J,DX	20	2.8	ug/L		03/15/23 09:08	03/15/23 13:04	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230311_Comp_F

Date Collected: 03/11/23 08:30

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	BU	1.0	0.13	ug/L			03/16/23 12:30	1
Copper	1.2	J,DX BU	2.0	0.32	ug/L			03/16/23 12:30	1
Lead	ND	BU	1.0	0.12	ug/L			03/16/23 12:30	1
Selenium	0.85	J,DX BU	2.0	0.52	ug/L			03/16/23 12:30	1
Zinc	ND	BU	20	2.8	ug/L			03/16/23 12:30	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230311_Comp

Date Collected: 03/11/23 08:30

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	LQ	0.20	0.12	ug/L		03/14/23 22:32	03/15/23 19:18	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230311_Comp_F

Lab Sample ID: 570-130860-3

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU LQ	0.20	0.12	ug/L		03/14/23 19:37	03/15/23 20:13	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

General Chemistry

Client Sample ID: Outfall002_20230311_Comp

Date Collected: 03/11/23 08:30

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		03/23/23 12:55	03/23/23 14:58	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/14/23 19:36	1
Turbidity (SM 2130B)	33	BU BV	0.05	0.05	NTU			03/14/23 17:45	1
Total Dissolved Solids (SM 2540C)	420		10	8.7	mg/L			03/15/23 18:27	1
Total Suspended Solids (SM 2540D)	20		2.0	1.7	mg/L			03/15/23 18:42	1
Biochemical Oxygen Demand (SM 5210B)	ND	BU BV	2.0	1.0	mg/L		03/22/23 17:07	03/22/23 20:05	1
MBAS (SM 5540C)	ND	BU BV	0.20	0.050	mg/L		03/14/23 17:30	03/14/23 19:50	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-130860-1	Outfall002_20230311_Comp	66	27	85	94	40	68
LCS 570-311840/2-A	Lab Control Sample	75	42	85	95	60	75
LCSD 570-311840/3-A	Lab Control Sample Dup	79	46	96	99	65	78
MB 570-311840/1-A	Method Blank	74	33	81	50	49	81

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 TBP = 2,4,6-Tribromophenol
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (20-139)	DCB1 (20-154)
570-130860-1	Outfall002_20230311_Comp	58	44
LCS 570-312577/2-A	Lab Control Sample	57	73
LCSD 570-312577/3-A	Lab Control Sample Dup	63	70
MB 570-312577/1-A	Method Blank	53	56

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-311840/1-A
Matrix: Water
Analysis Batch: 314108

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311840

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		03/15/23 13:38	03/23/23 11:25	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		03/15/23 13:38	03/23/23 11:25	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		03/15/23 13:38	03/23/23 11:25	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		03/15/23 13:38	03/23/23 11:25	1
Pentachlorophenol	ND		1.0	0.84	ug/L		03/15/23 13:38	03/23/23 11:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	74		31 - 120	03/15/23 13:38	03/23/23 11:25	1
Phenol-d6 (Surr)	33		10 - 120	03/15/23 13:38	03/23/23 11:25	1
p-Terphenyl-d14 (Surr)	81		45 - 120	03/15/23 13:38	03/23/23 11:25	1
2,4,6-Tribromophenol	50		28 - 127	03/15/23 13:38	03/23/23 11:25	1
2-Fluorophenol	49		17 - 120	03/15/23 13:38	03/23/23 11:25	1
Nitrobenzene-d5	81		27 - 120	03/15/23 13:38	03/23/23 11:25	1

Lab Sample ID: LCS 570-311840/2-A
Matrix: Water
Analysis Batch: 314108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311840

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	19.2		ug/L		96	52 - 129
2,4-Dinitrotoluene	20.0	21.1		ug/L		106	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	25.4		ug/L		127	29 - 137
N-Nitrosodimethylamine	20.0	9.67		ug/L		48	20 - 120
Pentachlorophenol	20.0	17.0		ug/L		85	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	75		31 - 120
Phenol-d6 (Surr)	42		10 - 120
p-Terphenyl-d14 (Surr)	85		45 - 120
2,4,6-Tribromophenol	95		28 - 127
2-Fluorophenol	60		17 - 120
Nitrobenzene-d5	75		27 - 120

Lab Sample ID: LCSD 570-311840/3-A
Matrix: Water
Analysis Batch: 314108

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311840

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	19.3		ug/L		97	52 - 129	0	35
2,4-Dinitrotoluene	20.0	21.4		ug/L		107	48 - 127	1	25
Bis(2-ethylhexyl) phthalate	20.0	26.0		ug/L		130	29 - 137	3	50
N-Nitrosodimethylamine	20.0	10.8		ug/L		54	20 - 120	11	21
Pentachlorophenol	20.0	15.6		ug/L		78	38 - 152	9	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	79		31 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-311840/3-A
Matrix: Water
Analysis Batch: 314108

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311840

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Phenol-d6 (Surr)	46		10 - 120
p-Terphenyl-d14 (Surr)	96		45 - 120
2,4,6-Tribromophenol	99		28 - 127
2-Fluorophenol	65		17 - 120
Nitrobenzene-d5	78		27 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-312577/1-A
Matrix: Water
Analysis Batch: 312740

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 312577

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		03/17/23 12:20	03/20/23 18:04	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	53		20 - 139	03/17/23 12:20	03/20/23 18:04	1
DCB Decachlorobiphenyl (Surr)	56		20 - 154	03/17/23 12:20	03/20/23 18:04	1

Lab Sample ID: LCS 570-312577/2-A
Matrix: Water
Analysis Batch: 312740

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 312577

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0196		ug/L		59	37 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	57		20 - 139
DCB Decachlorobiphenyl (Surr)	73		20 - 154

Lab Sample ID: LCSD 570-312577/3-A
Matrix: Water
Analysis Batch: 312740

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 312577

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	0.0333	0.0237		ug/L		71	37 - 140	19	36

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	63		20 - 139
DCB Decachlorobiphenyl (Surr)	70		20 - 154

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-311256/5
Matrix: Water
Analysis Batch: 311256

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/14/23 06:38	1
Sulfate	ND		1.0	0.24	mg/L			03/14/23 06:38	1

Lab Sample ID: LCS 570-311256/6
Matrix: Water
Analysis Batch: 311256

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.2		mg/L		98	90 - 110
Sulfate	50.0	49.4		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-311256/7
Matrix: Water
Analysis Batch: 311256

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.2		mg/L		98	90 - 110	0	15
Sulfate	50.0	49.4		mg/L		99	90 - 110	0	15

Lab Sample ID: MB 570-311257/5
Matrix: Water
Analysis Batch: 311257

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			03/14/23 06:38	1
Nitrate as N	ND		0.10	0.020	mg/L			03/14/23 06:38	1

Lab Sample ID: LCS 570-311257/6
Matrix: Water
Analysis Batch: 311257

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.54		mg/L		101	90 - 110
Nitrate as N	5.00	4.93		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-311257/7
Matrix: Water
Analysis Batch: 311257

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.53		mg/L		101	90 - 110	0	15
Nitrate as N	5.00	4.96		mg/L		99	90 - 110	1	15

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-311491/7
 Matrix: Water
 Analysis Batch: 311491

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/14/23 18:01	1

Lab Sample ID: LCS 570-311491/8
 Matrix: Water
 Analysis Batch: 311491

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	25.0		ug/L		100	85 - 115

Lab Sample ID: LCSD 570-311491/9
 Matrix: Water
 Analysis Batch: 311491

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	25.1		ug/L		100	85 - 115	0	15

Lab Sample ID: MB 570-311891/7
 Matrix: Water
 Analysis Batch: 311891

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/15/23 18:00	1

Lab Sample ID: LCS 570-311891/8
 Matrix: Water
 Analysis Batch: 311891

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	25.1		ug/L		100	85 - 115

Lab Sample ID: LCSD 570-311891/9
 Matrix: Water
 Analysis Batch: 311891

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	24.8		ug/L		99	85 - 115	1	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-311694/1-A
 Matrix: Water
 Analysis Batch: 311853

Client Sample ID: Method Blank
 Prep Type: Total Recoverable
 Prep Batch: 311694

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/15/23 09:08	03/15/23 12:02	1
Copper	ND		2.0	0.32	ug/L		03/15/23 09:08	03/15/23 12:02	1
Lead	ND		1.0	0.12	ug/L		03/15/23 09:08	03/15/23 12:02	1
Selenium	ND		2.0	0.52	ug/L		03/15/23 09:08	03/15/23 12:02	1
Zinc	ND		20	2.8	ug/L		03/15/23 09:08	03/15/23 12:02	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-311694/2-A
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 311694

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	78.1		ug/L		98	85 - 115
Copper	80.0	77.7		ug/L		97	85 - 115
Lead	80.0	78.3		ug/L		98	85 - 115
Selenium	80.0	75.4		ug/L		94	85 - 115
Zinc	80.0	76.0		ug/L		95	85 - 115

Lab Sample ID: LCSD 570-311694/3-A
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 311694

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	79.7		ug/L		100	85 - 115	2	20
Copper	80.0	80.4		ug/L		101	85 - 115	3	20
Lead	80.0	80.3		ug/L		100	85 - 115	3	20
Selenium	80.0	77.0		ug/L		96	85 - 115	2	20
Zinc	80.0	77.3		ug/L		97	85 - 115	2	20

Lab Sample ID: 570-130860-1 MS
Matrix: Water
Analysis Batch: 311852

Client Sample ID: Outfall002_20230311_Comp
Prep Type: Total Recoverable
Prep Batch: 311694

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	74.7		ug/L		93	80 - 120
Copper	2.1		80.0	73.8		ug/L		90	80 - 120
Lead	0.77	J,DX	80.0	71.9		ug/L		89	80 - 120
Selenium	1.0	J,DX	80.0	75.7		ug/L		93	80 - 120
Zinc	7.2	J,DX	80.0	77.8		ug/L		88	80 - 120

Lab Sample ID: 570-130860-1 MSD
Matrix: Water
Analysis Batch: 311852

Client Sample ID: Outfall002_20230311_Comp
Prep Type: Total Recoverable
Prep Batch: 311694

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	77.3		ug/L		97	80 - 120	3	20
Copper	2.1		80.0	77.7		ug/L		94	80 - 120	5	20
Lead	0.77	J,DX	80.0	73.6		ug/L		91	80 - 120	2	20
Selenium	1.0	J,DX	80.0	75.9		ug/L		94	80 - 120	0	20
Zinc	7.2	J,DX	80.0	80.1		ug/L		91	80 - 120	3	20

Lab Sample ID: MB 570-312120/1-A
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			03/16/23 11:52	1
Copper	ND		2.0	0.32	ug/L			03/16/23 11:52	1
Lead	ND		1.0	0.12	ug/L			03/16/23 11:52	1
Selenium	ND		2.0	0.52	ug/L			03/16/23 11:52	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-312120/1-A
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	2.8	ug/L			03/16/23 11:52	1

Lab Sample ID: LCS 570-312120/2-A
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	77.6		ug/L		97	85 - 115
Copper	80.0	77.9		ug/L		97	85 - 115
Lead	80.0	80.3		ug/L		100	85 - 115
Selenium	80.0	75.4		ug/L		94	85 - 115
Zinc	80.0	75.1		ug/L		94	85 - 115

Lab Sample ID: LCSD 570-312120/3-A
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	79.6		ug/L		99	85 - 115	3	20
Copper	80.0	79.2		ug/L		99	85 - 115	2	20
Lead	80.0	82.0		ug/L		102	85 - 115	2	20
Selenium	80.0	79.0		ug/L		99	85 - 115	5	20
Zinc	80.0	76.9		ug/L		96	85 - 115	2	20

Lab Sample ID: 570-130860-3 MS
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Outfall002_20230311_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND	BU	80.0	55.3	BU LN	ug/L		69	80 - 120
Copper	1.2	J,DX BU	80.0	56.1	BU LN	ug/L		69	80 - 120
Lead	ND	BU	80.0	55.5	BU LN	ug/L		69	80 - 120
Selenium	0.85	J,DX BU	80.0	56.7	BU LN	ug/L		70	80 - 120
Zinc	ND	BU	80.0	53.6	BU LN	ug/L		67	80 - 120

Lab Sample ID: 570-130860-3 MSD
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Outfall002_20230311_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND	BU	80.0	65.2	BU	ug/L		82	80 - 120	16	20
Copper	1.2	J,DX BU	80.0	66.7	BU	ug/L		82	80 - 120	17	20
Lead	ND	BU	80.0	66.0	BU	ug/L		83	80 - 120	17	20
Selenium	0.85	J,DX BU	80.0	68.2	BU	ug/L		84	80 - 120	18	20
Zinc	ND	BU	80.0	64.0	BU	ug/L		80	80 - 120	18	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-311609/1-A
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311609

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/14/23 22:32	03/15/23 19:03	1

Lab Sample ID: LCS 570-311609/2-A
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311609

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	9.08		ug/L		113	85 - 115

Lab Sample ID: LCSD 570-311609/3-A
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311609

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	9.28	LQ	ug/L		116	85 - 115	2	10

Lab Sample ID: 570-130860-1 MS
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Outfall002_20230311_Comp
Prep Type: Total/NA
Prep Batch: 311609

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	LQ	8.00	9.20		ug/L		115	85 - 115

Lab Sample ID: 570-130860-1 MSD
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Outfall002_20230311_Comp
Prep Type: Total/NA
Prep Batch: 311609

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND	LQ	8.00	9.07		ug/L		113	85 - 115	1	10

Lab Sample ID: MB 570-311254/1-B
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 311580

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/14/23 19:37	03/15/23 19:56	1

Lab Sample ID: LCS 570-311254/2-B
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 311580

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	9.25	LQ	ug/L		116	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 570-311254/3-B
 Matrix: Water
 Analysis Batch: 311965

Client Sample ID: Lab Control Sample Dup
 Prep Type: Dissolved
 Prep Batch: 311580

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	9.03		ug/L		113	85 - 115	2	10

Lab Sample ID: 570-130860-3 MS
 Matrix: Water
 Analysis Batch: 311965

Client Sample ID: Outfall002_20230311_Comp_F
 Prep Type: Dissolved
 Prep Batch: 311580

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	BU LQ	8.00	8.94	BU	ug/L		112	85 - 115

Lab Sample ID: 570-130860-3 MSD
 Matrix: Water
 Analysis Batch: 311965

Client Sample ID: Outfall002_20230311_Comp_F
 Prep Type: Dissolved
 Prep Batch: 311580

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND	BU LQ	8.00	9.01	BU	ug/L		113	85 - 115	1	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-314231/5-A
 Matrix: Water
 Analysis Batch: 314249

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 314231

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		03/23/23 12:55	03/23/23 14:28	1

Lab Sample ID: LCS 570-314231/6-A
 Matrix: Water
 Analysis Batch: 314249

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 314231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.477		mg/L		95	90 - 110

Lab Sample ID: LCSD 570-314231/7-A
 Matrix: Water
 Analysis Batch: 314249

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 314231

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.476		mg/L		95	90 - 110	0	20

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-312131/14
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/14/23 19:36	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: LCS 570-312131/16
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	252		ug/L		101	90 - 110

Lab Sample ID: LCSD 570-312131/17
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	266		ug/L		107	90 - 110	5	20

Lab Sample ID: MRL 570-312131/13
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	6.06		ug/L		121	50 - 150

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-311520/3
 Matrix: Water
 Analysis Batch: 311520

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-311975/1
 Matrix: Water
 Analysis Batch: 311975

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/15/23 18:27	1

Lab Sample ID: LCS 570-311975/2
 Matrix: Water
 Analysis Batch: 311975

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1030		mg/L		103	84 - 108

Lab Sample ID: LCSD 570-311975/3
 Matrix: Water
 Analysis Batch: 311975

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108	1	10

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-311979/1
 Matrix: Water
 Analysis Batch: 311979

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/15/23 18:42	1

Lab Sample ID: LCS 570-311979/2
 Matrix: Water
 Analysis Batch: 311979

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.0		mg/L		95	77 - 116

Lab Sample ID: LCSD 570-311979/3
 Matrix: Water
 Analysis Batch: 311979

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	98.0		mg/L		98	77 - 116	3	10

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 570-313892/1-A
 Matrix: Water
 Analysis Batch: 315126

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 313892

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L		03/22/23 17:07	03/22/23 18:46	1

Lab Sample ID: LCS 570-313892/2-A
 Matrix: Water
 Analysis Batch: 315126

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 313892

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	199		mg/L		100	84.6 - 115.4

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-311756/5-A
 Matrix: Water
 Analysis Batch: 311602

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 311756

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.20	0.050	mg/L		03/14/23 17:30	03/14/23 19:30	1

Lab Sample ID: LCS 570-311756/6-A
 Matrix: Water
 Analysis Batch: 311602

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 311756

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	0.500	0.462		mg/L		92	83 - 122

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: LCSD 570-311756/7-A
Matrix: Water
Analysis Batch: 311602

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311756

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	0.500	0.472		mg/L		94	83 - 122	2	10

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

GC/MS Semi VOA

Prep Batch: 311840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	625	
MB 570-311840/1-A	Method Blank	Total/NA	Water	625	
LCS 570-311840/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-311840/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 314108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	625.1 SIM	311840
MB 570-311840/1-A	Method Blank	Total/NA	Water	625.1 SIM	311840
LCS 570-311840/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	311840
LCSD 570-311840/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	311840

GC Semi VOA

Prep Batch: 312577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	608	
MB 570-312577/1-A	Method Blank	Total/NA	Water	608	
LCS 570-312577/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-312577/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 312740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-312577/1-A	Method Blank	Total/NA	Water	608.3	312577
LCS 570-312577/2-A	Lab Control Sample	Total/NA	Water	608.3	312577
LCSD 570-312577/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	312577

Analysis Batch: 313951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	608.3	312577

HPLC/IC

Analysis Batch: 311256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	300.0	
570-130860-1 - DL	Outfall002_20230311_Comp	Total/NA	Water	300.0	
MB 570-311256/5	Method Blank	Total/NA	Water	300.0	
LCS 570-311256/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-311256/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 311257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	300.0	
MB 570-311257/5	Method Blank	Total/NA	Water	300.0	
LCS 570-311257/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-311257/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 311491

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	314.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

HPLC/IC (Continued)

Analysis Batch: 311491 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-311491/7	Method Blank	Total/NA	Water	314.0	
LCS 570-311491/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-311491/9	Lab Control Sample Dup	Total/NA	Water	314.0	

Analysis Batch: 311891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-311891/7	Method Blank	Total/NA	Water	314.0	
LCS 570-311891/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-311891/9	Lab Control Sample Dup	Total/NA	Water	314.0	

Analysis Batch: 313055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 311254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-3	Outfall002_20230311_Comp_F	Dissolved	Water	Filtration	
MB 570-311254/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-311254/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-311254/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-130860-3 MS	Outfall002_20230311_Comp_F	Dissolved	Water	Filtration	
570-130860-3 MSD	Outfall002_20230311_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 311580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-3	Outfall002_20230311_Comp_F	Dissolved	Water	245.1	311254
MB 570-311254/1-B	Method Blank	Dissolved	Water	245.1	311254
LCS 570-311254/2-B	Lab Control Sample	Dissolved	Water	245.1	311254
LCSD 570-311254/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	311254
570-130860-3 MS	Outfall002_20230311_Comp_F	Dissolved	Water	245.1	311254
570-130860-3 MSD	Outfall002_20230311_Comp_F	Dissolved	Water	245.1	311254

Prep Batch: 311609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	245.1	
MB 570-311609/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-311609/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-311609/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-130860-1 MS	Outfall002_20230311_Comp	Total/NA	Water	245.1	
570-130860-1 MSD	Outfall002_20230311_Comp	Total/NA	Water	245.1	

Prep Batch: 311694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total Recoverable	Water	200.8	
MB 570-311694/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-311694/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-311694/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-130860-1 MS	Outfall002_20230311_Comp	Total Recoverable	Water	200.8	

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Metals (Continued)

Prep Batch: 311694 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1 MSD	Outfall002_20230311_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 311852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total Recoverable	Water	200.8	311694
570-130860-1 MS	Outfall002_20230311_Comp	Total Recoverable	Water	200.8	311694
570-130860-1 MSD	Outfall002_20230311_Comp	Total Recoverable	Water	200.8	311694

Analysis Batch: 311853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-311694/1-A	Method Blank	Total Recoverable	Water	200.8	311694
LCS 570-311694/2-A	Lab Control Sample	Total Recoverable	Water	200.8	311694
LCSD 570-311694/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	311694

Analysis Batch: 311965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	245.1	311609
570-130860-3	Outfall002_20230311_Comp_F	Dissolved	Water	245.1	311580
MB 570-311254/1-B	Method Blank	Dissolved	Water	245.1	311580
MB 570-311609/1-A	Method Blank	Total/NA	Water	245.1	311609
LCS 570-311254/2-B	Lab Control Sample	Dissolved	Water	245.1	311580
LCS 570-311609/2-A	Lab Control Sample	Total/NA	Water	245.1	311609
LCSD 570-311254/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	311580
LCSD 570-311609/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	311609
570-130860-1 MS	Outfall002_20230311_Comp	Total/NA	Water	245.1	311609
570-130860-1 MSD	Outfall002_20230311_Comp	Total/NA	Water	245.1	311609
570-130860-3 MS	Outfall002_20230311_Comp_F	Dissolved	Water	245.1	311580
570-130860-3 MSD	Outfall002_20230311_Comp_F	Dissolved	Water	245.1	311580

Filtration Batch: 312120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-3	Outfall002_20230311_Comp_F	Dissolved	Water	Filtration	
MB 570-312120/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-312120/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-312120/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-130860-3 MS	Outfall002_20230311_Comp_F	Dissolved	Water	Filtration	
570-130860-3 MSD	Outfall002_20230311_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 312206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-3	Outfall002_20230311_Comp_F	Dissolved	Water	200.8	312120
MB 570-312120/1-A	Method Blank	Dissolved	Water	200.8	312120
LCS 570-312120/2-A	Lab Control Sample	Dissolved	Water	200.8	312120
LCSD 570-312120/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	312120
570-130860-3 MS	Outfall002_20230311_Comp_F	Dissolved	Water	200.8	312120
570-130860-3 MSD	Outfall002_20230311_Comp_F	Dissolved	Water	200.8	312120

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

General Chemistry

Analysis Batch: 311520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-311520/3	Lab Control Sample	Total/NA	Water	SM 2130B	

Analysis Batch: 311602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	SM 5540C	311756
MB 570-311756/5-A	Method Blank	Total/NA	Water	SM 5540C	311756
LCS 570-311756/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	311756
LCSD 570-311756/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	311756

Prep Batch: 311756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	SM 5540C	
MB 570-311756/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-311756/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-311756/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	

Analysis Batch: 311975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	SM 2540C	
MB 570-311975/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-311975/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-311975/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 311979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	SM 2540D	
MB 570-311979/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-311979/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-311979/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 312131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	Kelada 01	
MB 570-312131/14	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-312131/16	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-312131/17	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-312131/13	Lab Control Sample	Total/NA	Water	Kelada 01	

Prep Batch: 313892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	BOD Prep	
USB 570-313892/1-A	Method Blank	Total/NA	Water	BOD Prep	
LCS 570-313892/2-A	Lab Control Sample	Total/NA	Water	BOD Prep	

Prep Batch: 314231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-314231/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-314231/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

General Chemistry (Continued)

Prep Batch: 314231 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-314231/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 314249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	350.1	314231
MB 570-314231/5-A	Method Blank	Total/NA	Water	350.1	314231
LCS 570-314231/6-A	Lab Control Sample	Total/NA	Water	350.1	314231
LCSD 570-314231/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	314231

Analysis Batch: 315126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	SM 5210B	313892
USB 570-313892/1-A	Method Blank	Total/NA	Water	SM 5210B	313892
LCS 570-313892/2-A	Lab Control Sample	Total/NA	Water	SM 5210B	313892

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1065.4 mL	2 mL	311840	03/15/23 13:38	UM1W	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	314108	03/23/23 19:27	ULLI	EET CAL 4
		Instrument ID: GCMSJJJ								
Total/NA	Prep	608			1500 mL	1 mL	312577	03/17/23 12:20	H1SH	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	313951	03/23/23 14:16	N5Y3	EET CAL 4
		Instrument ID: GC52A								
Total/NA	Analysis	300.0		1	4 mL	4 mL	311256	03/14/23 09:44	PS	EET CAL 4
		Instrument ID: IC7								
Total/NA	Analysis	300.0		1	4 mL	4 mL	311257	03/14/23 09:44	PS	EET CAL 4
		Instrument ID: IC7								
Total/NA	Analysis	300.0	DL	10	4 mL	4 mL	311256	03/14/23 11:42	PS	EET CAL 4
		Instrument ID: IC7								
Total/NA	Analysis	314.0		1	4 mL	4 mL	311491	03/14/23 19:45	PS	EET CAL 4
		Instrument ID: IC8								
Total/NA	Analysis	NO2NO3 Calc		1			313055	03/20/23 12:49	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total Recoverable	Prep	200.8			50 mL	50 mL	311694	03/15/23 09:08	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			311852	03/15/23 13:04	Y2WS	EET CAL 4
		Instrument ID: ICPMS09								
Total/NA	Prep	245.1			25 mL	50 mL	311609	03/14/23 22:32	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			311965	03/15/23 19:18	T1W	EET CAL 4
		Instrument ID: HG7								
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	314231	03/23/23 12:55	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	314249	03/23/23 14:58	UXCH	EET CAL 4
		Instrument ID: ACA2								
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	312131	03/14/23 19:36	GG0B	EET CAL 4
		Instrument ID: LACHAT01								
Total/NA	Analysis	SM 2130B		1			311520	03/14/23 17:45	ZVB7	EET CAL 4
		Instrument ID: TUR4								
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	311975	03/15/23 18:27	UWCT	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540D		1	500 mL	1000 mL	311979	03/15/23 18:42	WVA4	EET CAL 4
		Instrument ID: BAL71								
Total/NA	Prep	BOD Prep					313892	03/22/23 17:07	TN8Z	EET CAL 4
Total/NA	Analysis	SM 5210B		1	300 mL	300 mL	315126	03/22/23 20:05	U7UR	EET CAL 4
		Instrument ID: BOD3								
Total/NA	Prep	SM 5540C			100 mL	100 mL	311756	03/14/23 17:30	ZVB7	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	311602	03/14/23 19:50	TXA8	EET CAL 4
		Instrument ID: UV9								

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Client Sample ID: Outfall002_20230311_Comp_F

Lab Sample ID: 570-130860-3

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	312120	03/16/23 10:02	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			312206	03/16/23 12:30	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Dissolved	Filtration	Filtration			25 mL	25 mL	311254	03/14/23 04:21	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	311580	03/14/23 19:37	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			311965	03/15/23 20:13	T1W	EET CAL 4
Instrument ID: HG7										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	EPA	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5210B	BOD, 5-Day	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET CAL 4
625	Liquid-Liquid Extraction	EPA	EET CAL 4
BOD Prep	Preparation, BOD	SM	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130860-1	Outfall002_20230311_Comp	Water	03/11/23 08:30	03/13/23 19:25
570-130860-3	Outfall002_20230311_Comp_F	Water	03/11/23 08:30	03/13/23 19:25

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Virendra Patel

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Thursday, March 16, 2023 9:27 AM
To: Virendra Patel; Rapp, Kerry
Cc: Dominick, Mark
Subject: RE: Eurofins Calscience sample confirmation files from 570-130860-1 Boeing NPDES SSFL - Routine Outfall - 002 Comp

EXTERNAL EMAIL*

Hi Virendra,

Please remove iron from SDG. We meet the conditional requirements and no longer need to keep analyzing for iron at OF002 this year.

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Sent: Tuesday, March 14, 2023 11:16 AM
To: Miller, Katherine <KMiller@haleyaldrich.com>; Rapp, Kerry <KRapp@haleyaldrich.com>; Dallalah, Michelle <MDallalah@haleyaldrich.com>; Patel Virendra <Virendra.Patel@et.eurofinsus.com>
Subject: Eurofins Calscience sample confirmation files from 570-130860-1 Boeing NPDES SSFL - Routine Outfall - 002 Comp

CAUTION: External Email

Hello,

Attached please find the sample confirmation files for job 570-130860-1; Boeing NPDES SSFL - Routine Outfall - 002 Comp

Please feel free to contact me if you have any questions.

Thank you.

Virendra Patel
Project Manager

Eurofins Calscience
Phone: 714-895-5494
Mobile: 714-887-9901

E-mail: Virendra.Patel@et.eurofinsus.com
www.eurofinsus.com/env



Reference: [570-437570]
Attachments: 3

> > Bank information has changed, please refer to remittance information on invoice. < <

* WARNING - EXTERNAL: This email originated from outside of Eurofins Environment Testing America. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!



CHAIN OF CUSTODY FORM



570-130860 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp					ANALYSIS REQUIRED																
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project #57013187									Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				Total Recoverable Metals: (E200.8); Zn (E200.8); Cu, Pb, Cd, Se												
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.									Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)				TCDD (and all congeners) (E1613B) BOD5 (20 degrees C) (E405.1)(SM6210B_BODCalc) Surfactants (MBAS) (SM5540C)(E425.1) Cl ⁻ , SO ₄ ²⁻ , Nitrate-N, Nitrite-N, NO ₃ ⁻ +NO ₂ ⁻ , Peroxide (E300) Turbidity, TDS (SM2540C)(E180.1) TSS (160.2 (SM2540D)) Ammonia-N (350.2) alpha-BHC (E608) 2,4-D TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVCCs E825) Total Recoverable Metals: Mercury (E245.1) Total Recoverable Metals: (E200.6); Fe												
Sampler: Adrian Mobeka								Comments																	
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.8); Zn (E200.8); Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM6210B_BODCalc)	Surfactants (MBAS) (SM5540C)(E425.1)	Cl ⁻ , SO ₄ ²⁻ , Nitrate-N, Nitrite-N, NO ₃ ⁻ +NO ₂ ⁻ , Peroxide (E300)	Turbidity, TDS (SM2540C)(E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4-D TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVCCs E825)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.6); Fe	Comments				
① Outfall 002	Outfall002_20230311_Comp	3/11/2023 10830	WM	500 mL Poly	1	HNO ₃	90	Yes	X											X	X	Outfall 001 analyze for Fe Outfall 002 analyze for Fe.			
			WM	1 L Glass Amber	2	None	110	No		X															
			WM	1L Poly	1	None	115	No			X														
			WM	500 mL Poly	2	None	120	No				X													
			WM	500 mL Poly	2	None	130	No						X											48 hours Holding Time NO ₃ & NO ₂
			WM	500 mL Poly	1	None	150	No							X										48 hour holding time for turbidity
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X								
			WM	1 L Glass Amber	2	None	170	No										X							
			WM	1L Poly	1	None	185	No									X								
②	Outfall002_20230311_Comp_Extra	3/11/2023 6830	WM	1 L Glass Amber	2	None	110	No		H													Hold		
			WM	500 mL Poly	2	None	120	No				H												Hold	
			WM	500 mL Poly	2	None	130	No					H											Hold	
			WM	1 L Glass Amber	2	None	170	No										H						Hold	
			WM	1 L Glass Amber	2	None	180	No												H					Hold

Legend: C=Conditional, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-13-2023/1045 Company: 14-A	Received By: <i>[Signature]</i> Date/Time: 3/13/23 1045 EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/13/23 1925 Company: EC	Received By: <i>[Signature]</i> Date/Time: EC 3-13-23 19:25	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>

1.3/1.3 1.1/1.1 sc11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130860-1

Login Number: 130860

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-130860-2

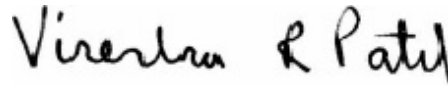
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-130860-2

Job ID: 570-130860-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-130860-2

Comments

No additional comments.

Receipt

The samples were received on 3/13/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.3° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 12D5 exceeded this criteria: Outfall002_20230311_Comp (570-130860-1), (CCV 320-664723/2), (LCS 320-664296/2-A), (LCSD 320-664296/3-A) and (MB 320-664296/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-2

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000018	J,DX q MB	0.000047	0.0000005	ug/L	1		1613B	Total/NA
				3					
1,2,3,7,8,9-HxCDD	0.0000010	J,DX MB	0.000047	0.0000004	ug/L	1		1613B	Total/NA
				6					
1,2,3,4,7,8-HxCDF	0.00000067	J,DX q MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				8					
1,2,3,6,7,8-HxCDF	0.00000041	J,DX q MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				7					
1,2,3,7,8,9-HxCDF	0.00000036	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				9					
2,3,4,6,7,8-HxCDF	0.00000032	J,DX q MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				3					
1,2,3,4,6,7,8-HpCDD	0.000019	J,DX MB	0.000047	0.0000008	ug/L	1		1613B	Total/NA
				1					
1,2,3,4,6,7,8-HpCDF	0.0000078	J,DX q MB	0.000047	0.0000009	ug/L	1		1613B	Total/NA
				1					
OCDD	0.00020	MB	0.000094	0.0000009	ug/L	1		1613B	Total/NA
				6					
OCDF	0.000017	J,DX MB	0.000094	0.0000004	ug/L	1		1613B	Total/NA
				1					
Total HxCDD	0.0000058	J,DX q MB	0.000047	0.0000004	ug/L	1		1613B	Total/NA
				6					
Total HxCDF	0.0000039	J,DX q MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				3					
Total HpCDD	0.000039	J,DX MB	0.000047	0.0000008	ug/L	1		1613B	Total/NA
				1					
Total HpCDF	0.000016	J,DX q MB	0.000047	0.0000009	ug/L	1		1613B	Total/NA
				1					

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230311_Comp

Date Collected: 03/11/23 08:30

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000094	0.0000005	ug/L		03/30/23 06:55	04/04/23 21:43	1
2,3,7,8-TCDF	ND		0.0000094	0.0000002	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,7,8-PeCDD	ND		0.000047	0.0000004	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,7,8-PeCDF	ND		0.000047	0.0000002	ug/L		03/30/23 06:55	04/04/23 21:43	1
2,3,4,7,8-PeCDF	ND		0.000047	0.0000003	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,4,7,8-HxCDD	0.0000018	J,DX q MB	0.000047	0.0000005	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,6,7,8-HxCDD	ND		0.000047	0.0000005	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,7,8,9-HxCDD	0.0000010	J,DX MB	0.000047	0.0000004	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,4,7,8-HxCDF	0.00000067	J,DX q MB	0.000047	0.0000002	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,6,7,8-HxCDF	0.00000041	J,DX q MB	0.000047	0.0000002	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,7,8,9-HxCDF	0.00000036	J,DX MB	0.000047	0.0000002	ug/L		03/30/23 06:55	04/04/23 21:43	1
2,3,4,6,7,8-HxCDF	0.00000032	J,DX q MB	0.000047	0.0000002	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,4,6,7,8-HpCDD	0.000019	J,DX MB	0.000047	0.0000008	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,4,6,7,8-HpCDF	0.0000078	J,DX q MB	0.000047	0.0000009	ug/L		03/30/23 06:55	04/04/23 21:43	1
1,2,3,4,7,8,9-HpCDF	ND		0.000047	0.0000010	ug/L		03/30/23 06:55	04/04/23 21:43	1
OCDD	0.00020	MB	0.000094	0.0000009	ug/L		03/30/23 06:55	04/04/23 21:43	1
OCDF	0.000017	J,DX MB	0.000094	0.0000004	ug/L		03/30/23 06:55	04/04/23 21:43	1
Total TCDD	ND		0.0000094	0.0000005	ug/L		03/30/23 06:55	04/04/23 21:43	1
Total TCDF	ND		0.0000094	0.0000002	ug/L		03/30/23 06:55	04/04/23 21:43	1
Total PeCDD	ND		0.000047	0.0000004	ug/L		03/30/23 06:55	04/04/23 21:43	1
Total PeCDF	ND		0.000047	0.0000002	ug/L		03/30/23 06:55	04/04/23 21:43	1
Total HxCDD	0.0000058	J,DX q MB	0.000047	0.0000004	ug/L		03/30/23 06:55	04/04/23 21:43	1
Total HxCDF	0.0000039	J,DX q MB	0.000047	0.0000002	ug/L		03/30/23 06:55	04/04/23 21:43	1
Total HpCDD	0.000039	J,DX MB	0.000047	0.0000008	ug/L		03/30/23 06:55	04/04/23 21:43	1
Total HpCDF	0.000016	J,DX q MB	0.000047	0.0000009	ug/L		03/30/23 06:55	04/04/23 21:43	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	62		25 - 164				03/30/23 06:55	04/04/23 21:43	1
13C-2,3,7,8-TCDF	59		24 - 169				03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,7,8-PeCDD	60		25 - 181				03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,7,8-PeCDF	61		24 - 185				03/30/23 06:55	04/04/23 21:43	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230311_Comp

Date Collected: 03/11/23 08:30

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-2,3,4,7,8-PeCDF	59		21 - 178	03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,4,7,8-HxCDD	54		32 - 141	03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,6,7,8-HxCDD	63		28 - 130	03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,4,7,8-HxCDF	49		26 - 152	03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,6,7,8-HxCDF	61		26 - 123	03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,7,8,9-HxCDF	65		29 - 147	03/30/23 06:55	04/04/23 21:43	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136	03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,4,6,7,8-HpCDD	73		23 - 140	03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,4,6,7,8-HpCDF	63		28 - 143	03/30/23 06:55	04/04/23 21:43	1
13C-1,2,3,4,7,8,9-HpCDF	72		26 - 138	03/30/23 06:55	04/04/23 21:43	1
13C-OCDD	75		17 - 157	03/30/23 06:55	04/04/23 21:43	1
13C-OCDF	73		17 - 157	03/30/23 06:55	04/04/23 21:43	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	88		35 - 197	03/30/23 06:55	04/04/23 21:43	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-130860-1	Outfall002_20230311_Comp	88
MB 320-664296/1-A	Method Blank	92

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-664296/2-A	Lab Control Sample	88
LCSD 320-664296/3-A	Lab Control Sample Dup	89

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-130860-1	Outfall002_20230311_Comp	62	59	60	61	59	54	63	49
MB 320-664296/1-A	Method Blank	72	70	72	71	70	62	73	56

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-130860-1	Outfall002_20230311_Comp	61	65	65	73	63	72	75	73
MB 320-664296/1-A	Method Blank	70	74	76	77	67	77	76	75

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-664296/2-A	Lab Control Sample	67	64	69	68	64	56	70	51
LCSD 320-664296/3-A	Lab Control Sample Dup	68	64	69	68	62	55	64	50

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-664296/2-A	Lab Control Sample	64	70	72	75	63	74	73	72
LCSD 320-664296/3-A	Lab Control Sample Dup	60	71	73	75	60	73	71	70

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Job ID: 570-130860-2

Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-664296/1-A
Matrix: Water
Analysis Batch: 664723

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 664296

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	72		25 - 181	03/30/23 06:55	04/04/23 13:00	1
13C-1,2,3,7,8-PeCDF	71		24 - 185	03/30/23 06:55	04/04/23 13:00	1
13C-2,3,4,7,8-PeCDF	70		21 - 178	03/30/23 06:55	04/04/23 13:00	1
13C-1,2,3,4,7,8-HxCDD	62		32 - 141	03/30/23 06:55	04/04/23 13:00	1
13C-1,2,3,6,7,8-HxCDD	73		28 - 130	03/30/23 06:55	04/04/23 13:00	1
13C-1,2,3,4,7,8-HxCDF	56		26 - 152	03/30/23 06:55	04/04/23 13:00	1
13C-1,2,3,6,7,8-HxCDF	70		26 - 123	03/30/23 06:55	04/04/23 13:00	1
13C-1,2,3,7,8,9-HxCDF	74		29 - 147	03/30/23 06:55	04/04/23 13:00	1
13C-2,3,4,6,7,8-HxCDF	76		28 - 136	03/30/23 06:55	04/04/23 13:00	1
13C-1,2,3,4,6,7,8-HpCDD	77		23 - 140	03/30/23 06:55	04/04/23 13:00	1
13C-1,2,3,4,6,7,8-HpCDF	67		28 - 143	03/30/23 06:55	04/04/23 13:00	1
13C-1,2,3,4,7,8,9-HpCDF	77		26 - 138	03/30/23 06:55	04/04/23 13:00	1
13C-OCDD	76		17 - 157	03/30/23 06:55	04/04/23 13:00	1
13C-OCDF	75		17 - 157	03/30/23 06:55	04/04/23 13:00	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	92		35 - 197	03/30/23 06:55	04/04/23 13:00	1

Lab Sample ID: LCS 320-664296/2-A
Matrix: Water
Analysis Batch: 664723

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 664296

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000192		ug/L		96	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000869		ug/L		87	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000887		ug/L		89	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000899		ug/L		90	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000841		ug/L		84	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000910		ug/L		91	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000975		ug/L		98	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000853		ug/L		85	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000846		ug/L		85	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000855		ug/L		86	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000864		ug/L		86	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000871		ug/L		87	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000931		ug/L		93	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000885		ug/L		88	78 - 138
OCDD	0.00200	0.00176		ug/L		88	78 - 144
OCDF	0.00200	0.00177		ug/L		88	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	67		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	69		21 - 227
13C-1,2,3,7,8-PeCDF	68		21 - 192
13C-2,3,4,7,8-PeCDF	64		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-664296/2-A
Matrix: Water
Analysis Batch: 664723

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 664296

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-1,2,3,4,7,8-HxCDD	56		21 - 193
13C-1,2,3,6,7,8-HxCDD	70		25 - 163
13C-1,2,3,4,7,8-HxCDF	51		19 - 202
13C-1,2,3,6,7,8-HxCDF	64		21 - 159
13C-1,2,3,7,8,9-HxCDF	70		17 - 205
13C-2,3,4,6,7,8-HxCDF	72		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	75		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	63		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	74		20 - 186
13C-OCDD	73		13 - 199
13C-OCDF	72		13 - 199

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
37Cl4-2,3,7,8-TCDD	88		31 - 191

Lab Sample ID: LCSD 320-664296/3-A
Matrix: Water
Analysis Batch: 664723

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 664296

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
2,3,7,8-TCDD	0.000200	0.000189		ug/L		94	67 - 158	3	50
2,3,7,8-TCDF	0.000200	0.000201		ug/L		101	75 - 158	4	50
1,2,3,7,8-PeCDD	0.00100	0.000919		ug/L		92	70 - 142	6	50
1,2,3,7,8-PeCDF	0.00100	0.000926		ug/L		93	80 - 134	4	50
2,3,4,7,8-PeCDF	0.00100	0.000942		ug/L		94	68 - 160	5	50
1,2,3,4,7,8-HxCDD	0.00100	0.000880		ug/L		88	70 - 164	5	50
1,2,3,6,7,8-HxCDD	0.00100	0.000927		ug/L		93	76 - 134	2	50
1,2,3,7,8,9-HxCDD	0.00100	0.00107		ug/L		107	64 - 162	10	50
1,2,3,4,7,8-HxCDF	0.00100	0.000866		ug/L		87	72 - 134	2	50
1,2,3,6,7,8-HxCDF	0.00100	0.000906		ug/L		91	84 - 130	7	50
1,2,3,7,8,9-HxCDF	0.00100	0.000865		ug/L		87	78 - 130	1	50
2,3,4,6,7,8-HxCDF	0.00100	0.000888		ug/L		89	70 - 156	3	50
1,2,3,4,6,7,8-HpCDD	0.00100	0.000886		ug/L		89	70 - 140	2	50
1,2,3,4,6,7,8-HpCDF	0.00100	0.000947		ug/L		95	82 - 122	2	50
1,2,3,4,7,8,9-HpCDF	0.00100	0.000921		ug/L		92	78 - 138	4	50
OCDD	0.00200	0.00182		ug/L		91	78 - 144	3	50
OCDF	0.00200	0.00181		ug/L		90	63 - 170	2	50

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-2,3,7,8-TCDD	68		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	69		21 - 227
13C-1,2,3,7,8-PeCDF	68		21 - 192
13C-2,3,4,7,8-PeCDF	62		13 - 328
13C-1,2,3,4,7,8-HxCDD	55		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163
13C-1,2,3,4,7,8-HxCDF	50		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-664296/3-A

Matrix: Water

Analysis Batch: 664723

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 664296

<u>Isotope Dilution</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
13C-1,2,3,6,7,8-HxCDF	60		21 - 159
13C-1,2,3,7,8,9-HxCDF	71		17 - 205
13C-2,3,4,6,7,8-HxCDF	73		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	75		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	60		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	73		20 - 186
13C-OCDD	71		13 - 199
13C-OCDF	70		13 - 199

<u>Surrogate</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
37Cl4-2,3,7,8-TCDD	89		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-2

Specialty Organics

Prep Batch: 664296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	1613B	
MB 320-664296/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-664296/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-664296/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 664723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	1613B	664296
MB 320-664296/1-A	Method Blank	Total/NA	Water	1613B	664296
LCS 320-664296/2-A	Lab Control Sample	Total/NA	Water	1613B	664296
LCSD 320-664296/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	664296

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-2

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1061.4 mL	20.0 uL	664296	03/30/23 06:55	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	664723	04/04/23 21:43	DB	EET SAC

Instrument ID: 12D5

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130860-1	Outfall002_20230311_Comp	Water	03/11/23 08:30	03/13/23 19:25

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- 16

CHAIN OF CUSTODY FORM



570-130860 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp							ANALYSIS REQUIRED															
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)							Total Recoverable Metals: (E200.8); Zn (E200.8); Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOB5 (20 degrees C) (E405.1)(SM6210B_BODCalc)	Surfactants (MBAS) (SM5540C/E425.1)	Cl ⁻ , SO ₄ ²⁻ , Nitrate-N, Nitrite-N, NO ₃ ⁻ +NO ₂ ⁻ , Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4-D TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVCCs E625)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.6); Fe	Comments			
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																								
Sampler: Adrian Mobeka																								
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.8); Zn (E200.8); Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOB5 (20 degrees C) (E405.1)(SM6210B_BODCalc)	Surfactants (MBAS) (SM5540C/E425.1)	Cl ⁻ , SO ₄ ²⁻ , Nitrate-N, Nitrite-N, NO ₃ ⁻ +NO ₂ ⁻ , Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4-D TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVCCs E625)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.6); Fe	Comments			
① Outfall 002	Outfall002_20230311_Comp	3/11/2023 10830	WM	500 mL Poly	1	HNO ₃	90	Yes	X											X	X	Outfall 001 analyze for Fe Outfall 002 analyze for Fe.		
			WM	1 L Glass Amber	2	None	110	No		X														
			WM	1L Poly	1	None	115	No			X													
			WM	500 mL Poly	2	None	120	No				X												
			WM	500 mL Poly	2	None	130	No						X										48 hours Holding Time NO ₃ & NO ₂
			WM	500 mL Poly	1	None	150	No							X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X							
			WM	1 L Glass Amber	2	None	170	No											X					
			WM	1L Poly	1	None	185	No									X							
②	Outfall002_20230311_Comp_Extra	3/11/2023 6830	WM	1 L Glass Amber	2	None	110	No		H												Hold		
			WM	500 mL Poly	2	None	120	No				H											Hold	
			WM	500 mL Poly	2	None	130	No					H										Hold	
			WM	1 L Glass Amber	2	None	170	No										H					Hold	
			WM	1 L Glass Amber	2	None	180	No												H				Hold

Legend: C=Conditional, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-13-2023/1045 Company: 14-A	Received By: <i>[Signature]</i> Date/Time: 3/13/23 1045 EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/13/23 1925 Company: EC	Received By: <i>[Signature]</i> Date/Time: EC 3-13-23 19:25	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

1.3/1.3 1.1/1.1 sc11

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Lab PM: Patel, Virendra		Carrier Tracking No(s): 570-210461.1	
Client Contact: Shipping/Receiving		Phone: E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	
Company: Eurofins Environment Testing Northern Ca		Address: 880 Riverside Parkway, West Sacramento, CA, 95605		Job #: 570-130860-2	
Due Date Requested: 3/29/2023		TAT Requested (days):		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
PO #: WO #:		Project #: 57013187		Other:	
Project Name: Boeing NPDES SSFL - Routine Outfall - 002 Comp		Site:		Analysis Requested	
Sample Date: 3/11/23		Sample Time: 08:30 Pacific		Total Number of containers	
Sample Identification - Client ID (Lab ID): Outfall002_20230311_Comp (570-130860-1)		Sample Type (C=Comp, G=grab)		Field Filtered Sample (Yes or No)	
Matrix (W=water, S=solid, O=waste/oil)		Preservation Code: Water		Perform MS/MSD (Yes or No)	
Sample Date: 3/11/23		Sample Time: 08:30 Pacific		1613B/1613B Sox Sep P (MOD) Standard List w/ Totals	
Sample Date: 3/11/23		Sample Time: 08:30 Pacific		X	
Sample Date: 3/11/23		Sample Time: 08:30 Pacific		Special Instructions/Note: See QAS, Boeing, w/u to zero, ug/L; Use Boeing glassware.	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____
 Relinquished by: _____ Date/Time: 03/19/23 9:40 Company: EC
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No
 Cooler Temperature(s) °C and Other Remarks: 35, 45

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130860-2

Login Number: 130860

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130860-2

Login Number: 130860

List Number: 3

Creator: Oropeza, Salvador

List Source: Eurofins Sacramento

List Creation: 03/15/23 01:24 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6C, 4.5C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/17/2023 2:50:32 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-130860-3

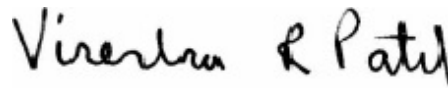
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
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(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-3

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-130860-3

Job ID: 570-130860-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130860-3

Comments

No additional comments.

Receipt

The samples were received on 3/13/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.3° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: Outfall002_20230311_Comp. The samples were preserved to the appropriate pH in the laboratory.

RAD

Method 900.0: Gross Alpha Beta prep batch 160-606326:

The detection goal was not met for the following sample due to a reduction of the sample size attributed to high residual mass: Outfall002_20230311_Comp (570-130860-1). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha Beta prep batch 160-606236:

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-606326 and analytical batch 160-606671 were outside control limits for one or more analytes. In addition RER/RPD was also outside of control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 900.0: Gross Alpha Beta prep batch 160-606326:

The detection goal was not met for the following sample(s). The samples and batch QC were prepped at full volume. Matrix interferences are suspected because the method blank achieved the detection goal demonstrating acceptable sample preparation and instrument performance. (570-129852-R-1-F)

Method 900.0: Gross Alpha Beta prep batch 160-606326:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230311_Comp (570-130860-1), (LCS 160-606326/2-A), (LCSB 160-606326/3-A), (MB 160-606326/1-A), (570-129852-R-1-F), (570-129852-R-1-J MS), (570-129852-R-1-L MSBT), (570-129852-R-1-M MSBTD) and (570-129852-R-1-K MSD)

Method 901.1: Gamma Prep Batch 160-604735

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-130860-3

Job ID: 570-130860-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230311_Comp (570-130860-1), (570-129084-R-1-F) and (570-129084-R-1-H DU)

Methods 903.0, 9315: Radium-226 batch 604617

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230311_Comp (570-130860-1), (LCS 160-604617/2-A), (MB 160-604617/1-A), (280-173679-B-6-A), (280-173679-B-6-B MS) and (280-173679-B-6-C MSD)

Methods 904.0, 9320: Radium-228 prep batch 160-604706:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230311_Comp (570-130860-1), (LCS 160-604706/2-A), (MB 160-604706/1-A), (280-173679-B-6-D), (280-173679-B-6-E MS) and (280-173679-B-6-F MSD)

Method 905: Strontium-90 batch 605090

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230311_Comp (570-130860-1), (LCS 160-605090/2-A), (MB 160-605090/1-A), (380-41106-B-1-A) and (380-41106-C-1-A DU)

Method 906.0: Tritium 605783

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230311_Comp (570-130860-1), (LCS 160-605783/2-A), (MB 160-605783/1-A), (160-49448-A-1-C), (160-49448-A-1-D MS), (570-130128-R-1-A) and (570-130128-R-1-B DU)

Method A-01-R: Isotopic Uranium Batch 605724

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230311_Comp (570-130860-1), (LCS 160-605724/2-A), (MB 160-605724/1-A), (570-129852-R-1-E), (570-129852-L-1-G MS) and (570-129852-L-1-H MSD)

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-130860-3

Job ID: 570-130860-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method ExtChrom: Uranium Prep Batch 160-605724:

The following sample was prepared at a reduced aliquot due to sediment and discoloration: Outfall002_20230311_Comp (570-130860-1).

Method PrecSep_0:

Method PrecSep-21:

Method PrecSep-7: Strontium 90 Prep Batch 160-605090

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230311_Comp (570-130860-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-3

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	2.15	U F G	2.72	2.73	3.00	4.52	pCi/L	04/06/23 10:28	04/10/23 20:45	1
Gross Beta	3.27		1.35	1.39	4.00	1.87	pCi/L	04/06/23 10:28	04/10/23 20:45	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230311_Comp
Date Collected: 03/11/23 08:30
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	1.04	U	10.7	10.7	20.0	13.7	pCi/L	03/22/23 16:26	03/30/23 08:14	1
Potassium-40	80.6	U	98.7	99.1		156	pCi/L	03/22/23 16:26	03/30/23 08:14	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230311_Comp
Date Collected: 03/11/23 08:30
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.21		0.434	0.478	1.00	0.246	pCi/L	03/22/23 11:47	04/14/23 14:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	73.7		30 - 110					03/22/23 11:47	04/14/23 14:42	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230311_Comp
Date Collected: 03/11/23 08:30
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.187	U	0.457	0.457	1.00	0.806	pCi/L	03/22/23 12:28	04/12/23 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	73.7		30 - 110					03/22/23 12:28	04/12/23 12:00	1
Y Carrier	86.4		30 - 110					03/22/23 12:28	04/12/23 12:00	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230311_Comp
Date Collected: 03/11/23 08:30
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.309	U	0.270	0.271	3.00	0.551	pCi/L	03/27/23 13:47	04/10/23 16:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	87.0		30 - 110					03/27/23 13:47	04/10/23 16:36	1
Y Carrier	84.9		30 - 110					03/27/23 13:47	04/10/23 16:36	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230311_Comp
 Date Collected: 03/11/23 08:30
 Date Received: 03/13/23 19:25

Lab Sample ID: 570-130860-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	88.7	U	195	196	500	339	pCi/L	03/31/23 16:36	04/05/23 15:13	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	1.44		0.593	0.600	1.00	0.337	pCi/L	03/30/23 15:31	04/04/23 20:42	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	77.6		30 - 110					03/30/23 15:31	04/04/23 20:42	1

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)							
570-130860-1	Outfall002_20230311_Comp	73.7							
LCS 160-604617/2-A	Lab Control Sample	96.1							
MB 160-604617/1-A	Method Blank	91.5							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)						
570-130860-1	Outfall002_20230311_Comp	73.7	86.4						
LCS 160-604706/2-A	Lab Control Sample	96.1	80.4						
MB 160-604706/1-A	Method Blank	91.5	81.5						

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)						
570-130860-1	Outfall002_20230311_Comp	87.0	84.9						
LCS 160-605090/2-A	Lab Control Sample	83.8	75.9						
MB 160-605090/1-A	Method Blank	83.0	70.3						

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)							
570-130860-1	Outfall002_20230311_Comp	77.6							
LCS 160-605724/2-A	Lab Control Sample	92.1							
MB 160-605724/1-A	Method Blank	92.8							

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-606326/1-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606326

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Gross Alpha	0.4133	U	0.657	0.658	3.00	1.12	pCi/L	04/06/23 10:28	04/10/23 20:47		1	
Gross Beta	0.02677	U	0.496	0.496	4.00	0.874	pCi/L	04/06/23 10:28	04/10/23 20:47		1	

Lab Sample ID: LCS 160-606326/2-A
Matrix: Water
Analysis Batch: 606895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	51.96		7.62	3.00	2.05	pCi/L	103	75 - 125

Lab Sample ID: LCSB 160-606326/3-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.4	74.51		7.98	4.00	0.927	pCi/L	102	75 - 125

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-604735/1-A
Matrix: Water
Analysis Batch: 605378

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604735

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Cesium-137	5.575	U	11.5	11.5	20.0	14.5	pCi/L	03/22/23 16:26	03/29/23 21:25		1	
Potassium-40	-139.9	U	180	180		285	pCi/L	03/22/23 16:26	03/29/23 21:25		1	

Lab Sample ID: LCS 160-604735/2-A
Matrix: Water
Analysis Batch: 605376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604735

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Americium-241	135000	135500		16100		443	pCi/L	100	75 - 125
Cesium-137	40800	42170		5030	20.0	105	pCi/L	103	75 - 125
Cobalt-60	17800	18660		2230		54.8	pCi/L	105	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-604617/1-A
Matrix: Water
Analysis Batch: 607421

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604617

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.03823	U	0.0834	0.0834	1.00	0.155	pCi/L	03/22/23 11:47	04/14/23 14:41	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	91.5		30 - 110					03/22/23 11:47	04/14/23 14:41	1

Lab Sample ID: LCS 160-604617/2-A
Matrix: Water
Analysis Batch: 607421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604617

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.43		1.18	1.00	0.142	pCi/L	92	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	96.1		30 - 110					03/22/23 11:47	04/14/23 14:41

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-604706/1-A
Matrix: Water
Analysis Batch: 607021

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604706

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.02768	U	0.257	0.257	1.00	0.494	pCi/L	03/22/23 12:28	04/12/23 11:59	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	91.5		30 - 110					03/22/23 12:28	04/12/23 11:59	1
Y Carrier	81.5		30 - 110		03/22/23 12:28	04/12/23 11:59	1			

Lab Sample ID: LCS 160-604706/2-A
Matrix: Water
Analysis Batch: 607021

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604706

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-228	8.04	8.045		1.13	1.00	0.409	pCi/L	100	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	96.1		30 - 110					03/22/23 12:28	04/12/23 11:59
Y Carrier	80.4		30 - 110		03/22/23 12:28	04/12/23 11:59	1		

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-605090/1-A
 Matrix: Water
 Analysis Batch: 606669

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605090

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.09802	U	0.194	0.194	3.00	0.333	pCi/L	03/27/23 13:47	04/10/23 16:12	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Sr Carrier	83.0		30 - 110					03/27/23 13:47	04/10/23 16:12	1
Y Carrier	70.3		30 - 110		03/27/23 13:47	04/10/23 16:12	1			

Lab Sample ID: LCS 160-605090/2-A
 Matrix: Water
 Analysis Batch: 606671

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605090

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual	Uncert. (2σ+/-)					
Strontium-90	7.34	7.184		0.800	3.00	0.317	pCi/L	98	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Sr Carrier	83.8		30 - 110						
Y Carrier	75.9		30 - 110						

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-605783/1-A
 Matrix: Water
 Analysis Batch: 606300

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605783

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-38.29	U	176	176	500	335	pCi/L	03/31/23 16:36	04/05/23 09:13	1

Lab Sample ID: LCS 160-605783/2-A
 Matrix: Water
 Analysis Batch: 606300

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605783

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual	Uncert. (2σ+/-)					
Tritium	2090	2124		427	500	344	pCi/L	101	75 - 125

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-605724/1-A
 Matrix: Water
 Analysis Batch: 606117

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605724

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.03149	U	0.08996	0.09003	1.00	0.148	pCi/L	03/30/23 15:31	04/04/23 20:40	1

Eurolins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: MB 160-605724/1-A
Matrix: Water
Analysis Batch: 606117

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605724

<i>Tracer</i>	<i>MB MB</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	92.8		30 - 110

<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
03/30/23 15:31	04/04/23 20:40	1

Lab Sample ID: LCS 160-605724/2-A
Matrix: Water
Analysis Batch: 606357

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605724

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qual</i>	<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>%Rec</i>	<i>%Rec Limits</i>
Uranium-238	13.0	13.61		1.58	1.00	0.123	pCi/L	105	75 - 125

<i>Tracer</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	92.1		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Rad

Prep Batch: 604617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	PrecSep-21	
MB 160-604617/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-604617/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 604706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	PrecSep_0	
MB 160-604706/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-604706/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 604735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-604735/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-604735/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 605090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	PrecSep-7	
MB 160-605090/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-605090/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	

Prep Batch: 605724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	ExtChrom	
MB 160-605724/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-605724/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 605783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-605783/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-605783/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 606326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	Evaporation	
MB 160-606326/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-606326/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-606326/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			100 mL	1.0 g	606326	04/06/23 10:28	MST	EET SL
Total/NA	Analysis	900.0		1			606669	04/10/23 20:45	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	604735	03/22/23 16:26	SEH	EET SL
Total/NA	Analysis	901.1		1			605605	03/30/23 08:14	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			759.84 mL	1.0 g	604617	03/22/23 11:47	DJP	EET SL
Total/NA	Analysis	903.0		1			607421	04/14/23 14:42	SCB	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			759.84 mL	1.0 g	604706	03/22/23 12:28	DJP	EET SL
Total/NA	Analysis	904.0		1			607021	04/12/23 12:00	FLC	EET SL
Instrument ID: GFPCORANGE										
Total/NA	Prep	PrecSep-7			498.76 mL	1.0 g	605090	03/27/23 13:47	DJP	EET SL
Total/NA	Analysis	905		1			606671	04/10/23 16:36	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			100.32 mL	1.0 g	605783	03/31/23 16:36	SEH	EET SL
Total/NA	Analysis	906.0		1			606300	04/05/23 15:13	REV	EET SL
Instrument ID: LSCTEAL										
Total/NA	Prep	ExtChrom			206.7 mL	1.0 mL	605724	03/30/23 15:31	CMM	EET SL
Total/NA	Analysis	A-01-R		1			606073	04/04/23 20:42	EJS	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130860-1	Outfall002_20230311_Comp	Water	03/11/23 08:30	03/13/23 19:25

1

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CHAIN OF CUSTODY FORM



570-130860 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp							ANALYSIS REQUIRED																
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)							Total Recoverable Metals: (E200.8); Zn (E200.8); Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM6210B_BODCalc)	Surfactants (MBAS) (SM5540C)(E425.1)	Cl ⁻ , SO ₄ ²⁻ , Nitrate-N, Nitrite-N, NO ₃ ⁻ +NO ₂ ⁻ , Perchlorate (E300)	Turbidity, TDS (SM2540C)(E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4-D TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVCCs E625)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.6); Fe	Comments				
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																									
Sampler: Adrian Mobeka																									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.8); Zn (E200.8); Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM6210B_BODCalc)	Surfactants (MBAS) (SM5540C)(E425.1)	Cl ⁻ , SO ₄ ²⁻ , Nitrate-N, Nitrite-N, NO ₃ ⁻ +NO ₂ ⁻ , Perchlorate (E300)	Turbidity, TDS (SM2540C)(E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4-D TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVCCs E625)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.6); Fe	Comments				
① Outfall 002	Outfall002_20230311_Comp	3/11/2023 10830	WM	500 mL Poly	1	HNO ₃	90	Yes	X											X	X	Outfall 001 analyze for Fe Outfall 002 analyze for Fe.			
			WM	1 L Glass Amber	2	None	110	No		X															
			WM	1L Poly	1	None	115	No			X														
			WM	500 mL Poly	2	None	120	No				X													
			WM	500 mL Poly	2	None	130	No						X											48 hours Holding Time NO ₃ & NO ₂
			WM	500 mL Poly	1	None	150	No							X										48 hour holding time for turbidity
			WM	500 mL Poly	1	H ₂ SO ₄	160	No										X							
			WM	1 L Glass Amber	2	None	170	No											X						
			WM	1L Poly	1	None	185	No									X								
②	Outfall002_20230311_Comp_Extra	3/11/2023 10830	WM	1 L Glass Amber	2	None	110	No		H													Hold		
			WM	500 mL Poly	2	None	120	No				H												Hold	
			WM	500 mL Poly	2	None	130	No					H											Hold	
			WM	1 L Glass Amber	2	None	170	No										H						Hold	
			WM	1 L Glass Amber	2	None	180	No												H					Hold

Legend: C=Conditional, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-13-2023/1045 Company: 14-A	Received By: <i>[Signature]</i> Date/Time: 3/13/23 1045 EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/13/23 1925 Company: EC	Received By: <i>[Signature]</i> Date/Time: 3-13-23 19:25	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

1.3/1.3 1.1/1.1 sc11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130860-3

Login Number: 130860

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130860-3

Login Number: 130860

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/15/23 12:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/11/2023 10:47:38 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-130860-4

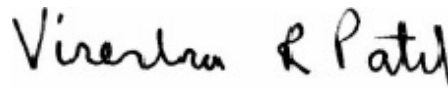
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-4

Qualifiers

LCMS

Qualifier	Qualifier Description
GR	Internal Standard out of range
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-130860-4

Job ID: 570-130860-4

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-130860-4

Comments

No additional comments.

Receipt

The samples were received on 3/13/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.3° C.

LCMS

Method 6850: Internal standard responses were outside of acceptance limits for the following samples: Outfall002_20230311_Comp (570-130860-1), (570-130860-I-1 MS) and (570-130860-I-1 MSD). The sample(s) shows evidence of matrix interference.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-4

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perchlorate	0.24	J,DX GR	1.0	0.021	ug/L	1		6850	Total/NA

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-4

Method: EPA 6850 - Perchlorate by LC/MS or LC/MS/MS

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.24	J,DX GR	1.0	0.021	ug/L			04/05/23 13:06	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-130860-4

Method: 6850 - Perchlorate by LC/MS or LC/MS/MS

Lab Sample ID: MB 570-317611/7
Matrix: Water
Analysis Batch: 317611

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		1.0	0.021	ug/L			04/05/23 12:14	1

Lab Sample ID: LCS 570-317611/8
Matrix: Water
Analysis Batch: 317611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	10.0	10.2		ug/L		102	80 - 120

Lab Sample ID: LCSD 570-317611/9
Matrix: Water
Analysis Batch: 317611

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	10.0	10.1		ug/L		101	80 - 120	1	20

Lab Sample ID: 570-130860-1 MS
Matrix: Water
Analysis Batch: 317611

Client Sample ID: Outfall002_20230311_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	0.24	J,DX GR	10.0	10.1	GR	ug/L		98	80 - 120

Lab Sample ID: 570-130860-1 MSD
Matrix: Water
Analysis Batch: 317611

Client Sample ID: Outfall002_20230311_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	0.24	J,DX GR	10.0	10.4	GR	ug/L		101	80 - 120	3	20

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-4

LCMS

Analysis Batch: 317611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130860-1	Outfall002_20230311_Comp	Total/NA	Water	6850	
MB 570-317611/7	Method Blank	Total/NA	Water	6850	
LCS 570-317611/8	Lab Control Sample	Total/NA	Water	6850	
LCSD 570-317611/9	Lab Control Sample Dup	Total/NA	Water	6850	
570-130860-1 MS	Outfall002_20230311_Comp	Total/NA	Water	6850	
570-130860-1 MSD	Outfall002_20230311_Comp	Total/NA	Water	6850	

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Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-4

Client Sample ID: Outfall002_20230311_Comp

Lab Sample ID: 570-130860-1

Date Collected: 03/11/23 08:30

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6850		1	1.01 mL	1.01 mL	317611	04/05/23 13:06	URMH	EET CAL 4

Instrument ID: LCTQ2

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-4

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-4

Method	Method Description	Protocol	Laboratory
6850	Perchlorate by LC/MS or LC/MS/MS	EPA	EET CAL 4

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-130860-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130860-1	Outfall002_20230311_Comp	Water	03/11/23 08:30	03/13/23 19:25

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Virendra Patel

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Tuesday, April 4, 2023 4:47 PM
To: Virendra Patel
Subject: 570-130860-1 perchlorate by 6850

EXTERNAL EMAIL*

Virendra,

Please analyzed perchlorate by 6850 for 570-130860-1.

Katherine Miller
Project Manager

Haley Aldrich, Inc.
600 South Meyer Ave. | Suite 100
Tucson, AZ 85701

T: (520) 289.8606
C: (520) 904.6944

www.haleyaldrich.com

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CHAIN OF CUSTODY FORM



570-130860 Chain of Custody

Client Name/Address:		Project:		ANALYSIS REQUIRED																					
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp		Total Recoverable Metals: (E200.8); Zn (E200.8); Cu, Pb, Cd, Se TCDD (and all congeners) (E1613B) BOD5 (20 degrees C) (E405.1)(SM6210B_BODCalc) Surfactants (MBAS) (SM5540C)(E425.1) Cl ⁻ , SO ₄ ²⁻ , Nitrate-N, Nitrite-N, NO ₃ ⁻ +NO ₂ ⁻ , Peroxide (E300) Turbidity, TDS (SM2540C)(E180.1) TSS (160.2 (SM2540D)) Ammonia-N (350.2) alpha-BHC (E608) 2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVCCs E625) Total Recoverable Metals: Mercury (E245.1) Total Recoverable Metals: (E200.6); Fe																					
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Comments																					
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																									
Sampler: Adrian Mobeka																									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.8); Zn (E200.8); Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM6210B_BODCalc)	Surfactants (MBAS) (SM5540C)(E425.1)	Cl ⁻ , SO ₄ ²⁻ , Nitrate-N, Nitrite-N, NO ₃ ⁻ +NO ₂ ⁻ , Peroxide (E300)	Turbidity, TDS (SM2540C)(E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVCCs E625)	Total Recoverable Metals: Mercury (E245.1)	Total Recoverable Metals: (E200.6); Fe	Comments				
① Outfall 002	Outfall002_20230311_Comp	3/11/2023 10830	WM	500 mL Poly	1	HNO ₃	90	Yes	X											X	X	Outfall 001 analyze for Fe Outfall 002 analyze for Fe.			
			WM	1 L Glass Amber	2	None	110	No		X															
			WM	1L Poly	1	None	115	No			X														
			WM	500 mL Poly	2	None	120	No				X													
			WM	500 mL Poly	2	None	130	No						X											48 hours Holding Time NO ₃ & NO ₂
			WM	500 mL Poly	1	None	150	No							X										48 hour holding time for turbidity
			WM	500 mL Poly	1	H ₂ SO ₄	160	No								X									
			WM	1 L Glass Amber	2	None	170	No										X							
			WM	1L Poly	1	None	185	No									X								
②	Outfall002_20230311_Comp_Extra	3/11/2023 10830	WM	1 L Glass Amber	2	None	110	No		H													Hold		
			WM	500 mL Poly	2	None	120	No				H												Hold	
			WM	500 mL Poly	2	None	130	No					H											Hold	
			WM	1 L Glass Amber	2	None	170	No										H						Hold	
			WM	1 L Glass Amber	2	None	180	No												H					Hold

Legend: C=Conditional, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-13-2023/1045 Company: 14-A	Received By: <i>[Signature]</i> Date/Time: 3/13/23 1045 EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/13/23 1925 EC	Received By: <i>[Signature]</i> Date/Time: 3-13-23 19:25 EC	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

1.3/1.3 1.1/1.1 sc11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130860-4

Login Number: 130860

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/7/2023 3:36:59 PM

JOB DESCRIPTION

Boeing -SSFL NPDES - Routine Outfall - 002 Grab

JOB NUMBER

570-131815-1

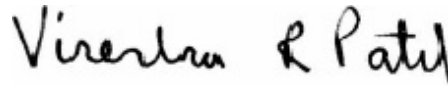
Job Notes

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Authorization



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(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Grab

Job ID: 570-131815-1

Job ID: 570-131815-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-131815-1

Comments

No additional comments.

Receipt

The samples were received on 3/20/2023 6:45 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-313058. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-313706.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

Client Sample ID: Outfall002_20230320_Grab

Lab Sample ID: 570-131815-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.86		0.50	0.17	ug/L	1		624.1	Total/NA
Specific Conductance	600		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: TB-20230320

Lab Sample ID: 570-131815-2

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230320_Grab

Date Collected: 03/20/23 09:25

Date Received: 03/20/23 18:45

Lab Sample ID: 570-131815-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/20/23 23:13	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/20/23 23:13	1
Trichloroethene	0.86		0.50	0.17	ug/L			03/20/23 23:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		60 - 140		03/20/23 23:13	1
4-Bromofluorobenzene (Surr)	108		60 - 140		03/20/23 23:13	1
Dibromofluoromethane (Surr)	91		60 - 140		03/20/23 23:13	1
Toluene-d8 (Surr)	98		60 - 140		03/20/23 23:13	1

Client Sample ID: TB-20230320

Date Collected: 03/20/23 09:25

Date Received: 03/20/23 18:45

Lab Sample ID: 570-131815-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/20/23 22:07	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/20/23 22:07	1
Trichloroethene	ND		0.50	0.17	ug/L			03/20/23 22:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		60 - 140		03/20/23 22:07	1
4-Bromofluorobenzene (Surr)	108		60 - 140		03/20/23 22:07	1
Dibromofluoromethane (Surr)	92		60 - 140		03/20/23 22:07	1
Toluene-d8 (Surr)	101		60 - 140		03/20/23 22:07	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

General Chemistry

Client Sample ID: Outfall002_20230320_Grab

Date Collected: 03/20/23 09:25

Date Received: 03/20/23 18:45

Lab Sample ID: 570-131815-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.97	0.49	mg/L		03/22/23 08:55	03/23/23 07:48	1
Specific Conductance (SM 2510B)	600		1.0	1.0	umhos/cm			03/22/23 19:55	1
Settleable Solids (SM 2540F)	ND		0.10	0.10	mL/L			03/21/23 14:15	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	DBFM	TOL
		(60-140)	(60-140)	(60-140)	(60-140)
570-131815-1	Outfall002_20230320_Grab	99	108	91	98
570-131815-2	TB-20230320	94	108	92	101
LCS 570-313058/1003	Lab Control Sample	99	104	95	99
LCSD 570-313058/4	Lab Control Sample Dup	100	106	96	103
MB 570-313058/6	Method Blank	103	113	93	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-313058/6
Matrix: Water
Analysis Batch: 313058

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/20/23 15:10	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/20/23 15:10	1
Trichloroethene	ND		0.50	0.17	ug/L			03/20/23 15:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		60 - 140		03/20/23 15:10	1
4-Bromofluorobenzene (Surr)	113		60 - 140		03/20/23 15:10	1
Dibromofluoromethane (Surr)	93		60 - 140		03/20/23 15:10	1
Toluene-d8 (Surr)	101		60 - 140		03/20/23 15:10	1

Lab Sample ID: LCS 570-313058/1003
Matrix: Water
Analysis Batch: 313058

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	10.0	10.6		ug/L		106	50 - 150
1,2-Dichloroethane	10.0	11.0		ug/L		110	70 - 130
Trichloroethene	10.0	10.7		ug/L		107	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		60 - 140
4-Bromofluorobenzene (Surr)	104		60 - 140
Dibromofluoromethane (Surr)	95		60 - 140
Toluene-d8 (Surr)	99		60 - 140

Lab Sample ID: LCSD 570-313058/4
Matrix: Water
Analysis Batch: 313058

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	10.0	10.4		ug/L		104	50 - 150	2	32
1,2-Dichloroethane	10.0	11.5		ug/L		115	70 - 130	5	49
Trichloroethene	10.0	10.9		ug/L		109	65 - 135	2	48

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		60 - 140
4-Bromofluorobenzene (Surr)	106		60 - 140
Dibromofluoromethane (Surr)	96		60 - 140
Toluene-d8 (Surr)	103		60 - 140

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-313706/1-A
Matrix: Water
Analysis Batch: 314039

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		03/22/23 08:55	03/23/23 07:48	1

Euromins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: LCS 570-313706/2-A
Matrix: Water
Analysis Batch: 314039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 313706

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	39.3		mg/L		98	78 - 114

Lab Sample ID: LCSD 570-313706/3-A
Matrix: Water
Analysis Batch: 314039

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 313706

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	39.5		mg/L		99	78 - 114	1	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-313959/7
Matrix: Water
Analysis Batch: 313959

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			03/22/23 19:27	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

GC/MS VOA

Analysis Batch: 313058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131815-1	Outfall002_20230320_Grab	Total/NA	Water	624.1	
570-131815-2	TB-20230320	Total/NA	Water	624.1	
MB 570-313058/6	Method Blank	Total/NA	Water	624.1	
LCS 570-313058/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-313058/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 313462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131815-1	Outfall002_20230320_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 313706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131815-1	Outfall002_20230320_Grab	Total/NA	Water	1664A	
MB 570-313706/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-313706/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-313706/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 313959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131815-1	Outfall002_20230320_Grab	Total/NA	Water	SM 2510B	
MB 570-313959/7	Method Blank	Total/NA	Water	SM 2510B	

Analysis Batch: 314039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131815-1	Outfall002_20230320_Grab	Total/NA	Water	1664A	313706
MB 570-313706/1-A	Method Blank	Total/NA	Water	1664A	313706
LCS 570-313706/2-A	Lab Control Sample	Total/NA	Water	1664A	313706
LCSD 570-313706/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	313706

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

Client Sample ID: Outfall002_20230320_Grab

Lab Sample ID: 570-131815-1

Date Collected: 03/20/23 09:25

Matrix: Water

Date Received: 03/20/23 18:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	313058	03/20/23 23:13	A1W	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			1033 mL	1000 mL	313706	03/22/23 08:55	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			314039	03/23/23 07:48	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			313959	03/22/23 19:55	BDH9	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	313462	03/21/23 14:15	TXA8	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230320

Lab Sample ID: 570-131815-2

Date Collected: 03/20/23 09:25

Matrix: Water

Date Received: 03/20/23 18:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	313058	03/20/23 22:07	A1W	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002 Gra

Job ID: 570-131815-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

- 1664A = EPA-821-98-002
- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES - Routine Outfall - 002
Grab

Job ID: 570-131815-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131815-1	Outfall002_20230320_Grab	Water	03/20/23 09:25	03/20/23 18:45
570-131815-2	TB-20230320	Water	03/20/23 09:25	03/20/23 18:45

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131815-1

Login Number: 131815

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/7/2023 4:07:14 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-131940-1

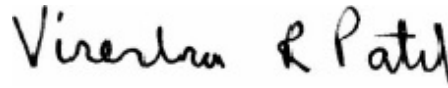
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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4/7/2023 4:07:14 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-131940-1

Job ID: 570-131940-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-131940-1

Comments

No additional comments.

Receipt

The samples were received on 3/21/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.3° C.

GC/MS Semi VOA

Method 625.1 SIM: The laboratory control sample (LCS) for preparation batch 570-314349 and analytical batch 570-314965 recovered outside acceptance limits for 1,2,4-Trichlorobenzene and Hexachlorobenzene. There was insufficient sample to perform a re-extraction or re-analysis; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230321_Comp_F (570-131940-3), Outfall002_20230321_Comp_F (570-131940-3[MS]) and Outfall002_20230321_Comp_F (570-131940-3[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230321_Comp_F (570-131940-3), Outfall002_20230321_Comp_F (570-131940-3[MS]) and Outfall002_20230321_Comp_F (570-131940-3[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method SM 2540D: The sample duplicate (DUP) precision for analytical batch 570-314596 was outside control limits. Sample non-homogeneity is suspected.

Method SM 5210B: The following sample was diluted due to the nature of the sample matrix: Outfall002_20230321_Comp (570-131940-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-314171. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Method 608.3 PEST/PCB LL

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-314349. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-131940-1

Job ID: 570-131940-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

batch. Method 625.1 Sim

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	17		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.28		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate - DL	120		10	2.4	mg/L	10		300.0	Total/NA
Nitrate Nitrite as N	0.28		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	2.0		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.48	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Selenium	0.83	J,DX	2.0	0.52	ug/L	1		200.8	Total Recoverable
Zinc	4.9	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Turbidity	16		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	380		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	12		1.0	0.83	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall002_20230321_Comp_F

Lab Sample ID: 570-131940-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.4	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Date Collected: 03/21/23 09:55

Matrix: Water

Date Received: 03/21/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.95	0.13	ug/L		03/24/23 05:15	03/27/23 19:07	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		03/24/23 05:15	03/27/23 19:07	1
Bis(2-ethylhexyl) phthalate	ND		4.7	3.4	ug/L		03/24/23 05:15	03/27/23 19:07	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		03/24/23 05:15	03/27/23 19:07	1
Pentachlorophenol	ND		0.95	0.80	ug/L		03/24/23 05:15	03/27/23 19:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	53		31 - 120	03/24/23 05:15	03/27/23 19:07	1
Phenol-d6 (Surr)	26		10 - 120	03/24/23 05:15	03/27/23 19:07	1
p-Terphenyl-d14 (Surr)	101		45 - 120	03/24/23 05:15	03/27/23 19:07	1
2,4,6-Tribromophenol	94		28 - 127	03/24/23 05:15	03/27/23 19:07	1
2-Fluorophenol	34		17 - 120	03/24/23 05:15	03/27/23 19:07	1
Nitrobenzene-d5	64		27 - 120	03/24/23 05:15	03/27/23 19:07	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: EPA 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230321_Comp

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		03/23/23 12:38	03/26/23 13:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	63		20 - 139				03/23/23 12:38	03/26/23 13:47	1
DCB Decachlorobiphenyl (Surr)	52		20 - 154				03/23/23 12:38	03/26/23 13:47	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230321_Comp

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17		1.0	0.36	mg/L			03/22/23 07:35	1
Nitrite as N	ND		0.10	0.043	mg/L			03/22/23 07:35	1
Nitrate as N	0.28		0.10	0.020	mg/L			03/22/23 07:35	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Method: EPA 300.0 - Anions, Ion Chromatography - DL

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Date Collected: 03/21/23 09:55

Matrix: Water

Date Received: 03/21/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	120		10	2.4	mg/L			03/22/23 10:57	10

1

2

3

4

5

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14

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230321_Comp

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/22/23 17:33	1

1

2

3

4

5

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12

13

14

15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Date Collected: 03/21/23 09:55

Matrix: Water

Date Received: 03/21/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.28		0.10	0.020	mg/L			03/24/23 10:42	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-131940-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Date Collected: 03/21/23 09:55

Matrix: Water

Date Received: 03/21/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/22/23 06:39	03/22/23 10:48	1
Copper	2.0		2.0	0.32	ug/L		03/22/23 06:39	03/22/23 10:48	1
Lead	0.48	J,DX	1.0	0.12	ug/L		03/22/23 06:39	03/22/23 10:48	1
Selenium	0.83	J,DX	2.0	0.52	ug/L		03/22/23 06:39	03/22/23 10:48	1
Zinc	4.9	J,DX	20	2.8	ug/L		03/22/23 06:39	03/22/23 10:48	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230321_Comp_F

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	BU	1.0	0.13	ug/L			03/22/23 13:17	1
Copper	1.4	J,DX BU	2.0	0.32	ug/L			03/22/23 13:17	1
Lead	ND	BU	1.0	0.12	ug/L			03/22/23 13:17	1
Selenium	ND	BU	2.0	0.52	ug/L			03/22/23 13:17	1
Zinc	ND	BU	20	2.8	ug/L			03/22/23 13:17	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230321_Comp

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/22/23 18:00	03/23/23 14:19	1

1

2

3

4

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6

7

8

9

10

11

12

13

14

15

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230321_Comp_F

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		03/23/23 06:08	03/23/23 18:53	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

General Chemistry

Client Sample ID: Outfall002_20230321_Comp

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		03/27/23 14:02	03/27/23 16:23	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/27/23 15:46	1
Turbidity (SM 2130B)	16		0.05	0.05	NTU			03/22/23 14:38	1
Total Dissolved Solids (SM 2540C)	380		10	8.7	mg/L			03/23/23 17:37	1
Total Suspended Solids (SM 2540D)	12		1.0	0.83	mg/L			03/24/23 16:00	1
Biochemical Oxygen Demand (SM 5210B)	ND		2.0	1.0	mg/L		03/22/23 16:12	03/22/23 17:49	1
MBAS (SM 5540C)	ND		0.20	0.050	mg/L		03/22/23 15:00	03/22/23 17:33	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-131940-1	Outfall002_20230321_Comp	53	26	101	94	34	64
LCS 570-314349/2-A	Lab Control Sample	71	37	99	95	47	67
LCSD 570-314349/3-A	Lab Control Sample Dup	69	35	101	90	47	66
MB 570-314349/1-A	Method Blank	46	25	81	66	35	57

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 TBP = 2,4,6-Tribromophenol
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (20-139)	DCB1 (20-154)
570-131940-1	Outfall002_20230321_Comp	63	52
LCS 570-314171/2-A	Lab Control Sample	54	57
LCSD 570-314171/3-A	Lab Control Sample Dup	57	68

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (20-139)	DCB1 (20-154)
MB 570-314171/1-A	Method Blank	88	101

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-314349/1-A

Matrix: Water

Analysis Batch: 314965

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 314349

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		03/24/23 05:15	03/27/23 14:38	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		03/24/23 05:15	03/27/23 14:38	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		03/24/23 05:15	03/27/23 14:38	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		03/24/23 05:15	03/27/23 14:38	1
Pentachlorophenol	ND		1.0	0.84	ug/L		03/24/23 05:15	03/27/23 14:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	46		31 - 120	03/24/23 05:15	03/27/23 14:38	1
Phenol-d6 (Surr)	25		10 - 120	03/24/23 05:15	03/27/23 14:38	1
p-Terphenyl-d14 (Surr)	81		45 - 120	03/24/23 05:15	03/27/23 14:38	1
2,4,6-Tribromophenol	66		28 - 127	03/24/23 05:15	03/27/23 14:38	1
2-Fluorophenol	35		17 - 120	03/24/23 05:15	03/27/23 14:38	1
Nitrobenzene-d5	57		27 - 120	03/24/23 05:15	03/27/23 14:38	1

Lab Sample ID: LCS 570-314349/2-A

Matrix: Water

Analysis Batch: 314965

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 314349

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	17.1		ug/L		85	52 - 129
2,4-Dinitrotoluene	20.0	22.6		ug/L		113	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	24.4		ug/L		122	29 - 137
N-Nitrosodimethylamine	20.0	9.98		ug/L		50	20 - 120
Pentachlorophenol	20.0	10.3		ug/L		51	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	71		31 - 120
Phenol-d6 (Surr)	37		10 - 120
p-Terphenyl-d14 (Surr)	99		45 - 120
2,4,6-Tribromophenol	95		28 - 127
2-Fluorophenol	47		17 - 120
Nitrobenzene-d5	67		27 - 120

Lab Sample ID: LCSD 570-314349/3-A

Matrix: Water

Analysis Batch: 314965

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 314349

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	16.9		ug/L		84	52 - 129	1	35
2,4-Dinitrotoluene	20.0	21.2		ug/L		106	48 - 127	6	25
Bis(2-ethylhexyl) phthalate	20.0	23.0		ug/L		115	29 - 137	6	50
N-Nitrosodimethylamine	20.0	11.5		ug/L		57	20 - 120	14	21
Pentachlorophenol	20.0	9.33		ug/L		47	38 - 152	10	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	69		31 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-314349/3-A
Matrix: Water
Analysis Batch: 314965

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314349

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Phenol-d6 (Surr)	35		10 - 120
p-Terphenyl-d14 (Surr)	101		45 - 120
2,4,6-Tribromophenol	90		28 - 127
2-Fluorophenol	47		17 - 120
Nitrobenzene-d5	66		27 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-314171/1-A
Matrix: Water
Analysis Batch: 314768

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314171

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		03/23/23 12:38	03/26/23 01:29	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	88		20 - 139	03/23/23 12:38	03/26/23 01:29	1
DCB Decachlorobiphenyl (Surr)	101		20 - 154	03/23/23 12:38	03/26/23 01:29	1

Lab Sample ID: LCS 570-314171/2-A
Matrix: Water
Analysis Batch: 314256

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314171

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0196		ug/L		59	37 - 140

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	54		20 - 139
DCB Decachlorobiphenyl (Surr)	57		20 - 154

Lab Sample ID: LCSD 570-314171/3-A
Matrix: Water
Analysis Batch: 314256

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314171

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	0.0333	0.0210		ug/L		63	37 - 140	7	36

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	57		20 - 139
DCB Decachlorobiphenyl (Surr)	68		20 - 154

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-313627/5
Matrix: Water
Analysis Batch: 313627

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			03/22/23 03:56	1
Nitrate as N	ND		0.10	0.020	mg/L			03/22/23 03:56	1

Lab Sample ID: LCS 570-313627/6
Matrix: Water
Analysis Batch: 313627

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.53		mg/L		101	90 - 110
Nitrate as N	5.00	5.01		mg/L		100	90 - 110

Lab Sample ID: LCSD 570-313627/7
Matrix: Water
Analysis Batch: 313627

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.53		mg/L		101	90 - 110	0	15
Nitrate as N	5.00	5.03		mg/L		101	90 - 110	0	15

Lab Sample ID: MB 570-313628/5
Matrix: Water
Analysis Batch: 313628

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/22/23 03:56	1
Sulfate	ND		1.0	0.24	mg/L			03/22/23 03:56	1

Lab Sample ID: LCS 570-313628/6
Matrix: Water
Analysis Batch: 313628

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.2		mg/L		98	90 - 110
Sulfate	50.0	49.3		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-313628/7
Matrix: Water
Analysis Batch: 313628

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.3		mg/L		99	90 - 110	0	15
Sulfate	50.0	49.3		mg/L		99	90 - 110	0	15

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-313743/7
Matrix: Water
Analysis Batch: 313743

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/22/23 13:02	1

Lab Sample ID: LCS 570-313743/8
Matrix: Water
Analysis Batch: 313743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	25.2		ug/L		101	85 - 115

Lab Sample ID: LCSD 570-313743/9
Matrix: Water
Analysis Batch: 313743

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	24.4		ug/L		97	85 - 115	3	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-313657/1-A
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/22/23 06:39	03/22/23 10:40	1
Copper	ND		2.0	0.32	ug/L		03/22/23 06:39	03/22/23 10:40	1
Lead	ND		1.0	0.12	ug/L		03/22/23 06:39	03/22/23 10:40	1
Selenium	ND		2.0	0.52	ug/L		03/22/23 06:39	03/22/23 10:40	1
Zinc	ND		20	2.8	ug/L		03/22/23 06:39	03/22/23 10:40	1

Lab Sample ID: LCS 570-313657/2-A
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	77.4		ug/L		97	85 - 115
Copper	80.0	74.8		ug/L		94	85 - 115
Lead	80.0	72.5		ug/L		91	85 - 115
Selenium	80.0	79.4		ug/L		99	85 - 115
Zinc	80.0	74.3		ug/L		93	85 - 115

Lab Sample ID: LCSD 570-313657/3-A
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	78.4		ug/L		98	85 - 115	1	20
Copper	80.0	76.3		ug/L		95	85 - 115	2	20
Lead	80.0	74.8		ug/L		93	85 - 115	3	20
Selenium	80.0	75.4		ug/L		94	85 - 115	5	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-313657/3-A
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Zinc	80.0	74.4		ug/L		93	85 - 115	0	20

Lab Sample ID: 570-131940-1 MS
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	74.8		ug/L		94	80 - 120
Copper	2.0		80.0	74.4		ug/L		90	80 - 120
Lead	0.48	J,DX	80.0	72.3		ug/L		90	80 - 120
Selenium	0.83	J,DX	80.0	75.7		ug/L		94	80 - 120
Zinc	4.9	J,DX	80.0	75.7		ug/L		88	80 - 120

Lab Sample ID: 570-131940-1 MSD
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	75.7		ug/L		95	80 - 120	1	20
Copper	2.0		80.0	76.2		ug/L		93	80 - 120	2	20
Lead	0.48	J,DX	80.0	74.0		ug/L		92	80 - 120	2	20
Selenium	0.83	J,DX	80.0	77.2		ug/L		95	80 - 120	2	20
Zinc	4.9	J,DX	80.0	76.5		ug/L		90	80 - 120	1	20

Lab Sample ID: MB 570-313762/1-A
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			03/22/23 13:05	1
Copper	ND		2.0	0.32	ug/L			03/22/23 13:05	1
Lead	ND		1.0	0.12	ug/L			03/22/23 13:05	1
Selenium	ND		2.0	0.52	ug/L			03/22/23 13:05	1
Zinc	ND		20	2.8	ug/L			03/22/23 13:05	1

Lab Sample ID: LCS 570-313762/2-A
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	81.1		ug/L		101	85 - 115
Copper	80.0	77.1		ug/L		96	85 - 115
Lead	80.0	77.2		ug/L		96	85 - 115
Selenium	80.0	77.1		ug/L		96	85 - 115
Zinc	80.0	79.2		ug/L		99	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-313762/3-A
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	81.7		ug/L		102	85 - 115	1	20
Copper	80.0	78.9		ug/L		99	85 - 115	2	20
Lead	80.0	77.3		ug/L		97	85 - 115	0	20
Selenium	80.0	76.9		ug/L		96	85 - 115	0	20
Zinc	80.0	78.8		ug/L		98	85 - 115	1	20

Lab Sample ID: 570-131940-3 MS
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Outfall002_20230321_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND	BU	80.0	71.3	BU	ug/L		89	80 - 120
Copper	1.4	J,DX BU	80.0	71.2	BU	ug/L		87	80 - 120
Lead	ND	BU	80.0	67.6	BU	ug/L		85	80 - 120
Selenium	ND	BU	80.0	73.4	BU	ug/L		92	80 - 120
Zinc	ND	BU	80.0	70.4	BU	ug/L		88	80 - 120

Lab Sample ID: 570-131940-3 MSD
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Outfall002_20230321_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND	BU	80.0	71.4	BU	ug/L		89	80 - 120	0	20
Copper	1.4	J,DX BU	80.0	73.0	BU	ug/L		90	80 - 120	3	20
Lead	ND	BU	80.0	68.4	BU	ug/L		85	80 - 120	1	20
Selenium	ND	BU	80.0	72.6	BU	ug/L		91	80 - 120	1	20
Zinc	ND	BU	80.0	69.6	BU	ug/L		87	80 - 120	1	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-314016/1-A
Matrix: Water
Analysis Batch: 314215

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314016

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/22/23 18:00	03/23/23 14:10	1

Lab Sample ID: LCS 570-314016/2-A
Matrix: Water
Analysis Batch: 314215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314016

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	7.98		ug/L		100	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 570-314016/3-A
Matrix: Water
Analysis Batch: 314215

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314016

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.04		ug/L		100	85 - 115	1	10

Lab Sample ID: 570-131940-1 MS
Matrix: Water
Analysis Batch: 314215

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total/NA
Prep Batch: 314016

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.04		ug/L		100	85 - 115

Lab Sample ID: 570-131940-1 MSD
Matrix: Water
Analysis Batch: 314215

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total/NA
Prep Batch: 314016

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	7.83		ug/L		98	85 - 115	3	10

Lab Sample ID: MB 570-314019/1-B
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 314025

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/23/23 06:08	03/23/23 18:27	1

Lab Sample ID: LCS 570-314019/2-B
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 314025

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	7.63		ug/L		95	85 - 115

Lab Sample ID: LCSD 570-314019/3-B
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 314025

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	7.59		ug/L		95	85 - 115	0	10

Lab Sample ID: 570-131940-3 MS
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Outfall002_20230321_Comp_F
Prep Type: Dissolved
Prep Batch: 314025

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	BU	8.00	7.49	BU	ug/L		94	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-131940-3 MSD
 Matrix: Water
 Analysis Batch: 314463

Client Sample ID: Outfall002_20230321_Comp_F
 Prep Type: Dissolved
 Prep Batch: 314025

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND	BU	8.00	7.45	BU	ug/L		93	85 - 115	0	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-315112/5-A
 Matrix: Water
 Analysis Batch: 315123

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 315112

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		03/27/23 14:02	03/27/23 15:47	1

Lab Sample ID: LCS 570-315112/6-A
 Matrix: Water
 Analysis Batch: 315123

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 315112

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.494		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-315112/7-A
 Matrix: Water
 Analysis Batch: 315123

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 315112

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.500		mg/L		100	90 - 110	1	20

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-309190/11
 Matrix: Water
 Analysis Batch: 309190

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/27/23 12:56	1

Lab Sample ID: LCS 570-309190/12
 Matrix: Water
 Analysis Batch: 309190

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	259		ug/L		104	90 - 110

Lab Sample ID: LCSD 570-309190/13
 Matrix: Water
 Analysis Batch: 309190

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	271		ug/L		109	90 - 110	5	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: MRL 570-309190/10
 Matrix: Water
 Analysis Batch: 309190

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	5.38		ug/L		108	50 - 150

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-313839/1
 Matrix: Water
 Analysis Batch: 313839

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		100.6	99.0 - 101.0

Lab Sample ID: LCSSRM 570-313839/2
 Matrix: Water
 Analysis Batch: 313839

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		101.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-313839/3
 Matrix: Water
 Analysis Batch: 313839

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-314263/1
 Matrix: Water
 Analysis Batch: 314263

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/23/23 17:37	1

Lab Sample ID: LCS 570-314263/2
 Matrix: Water
 Analysis Batch: 314263

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	984		mg/L		98	84 - 108

Lab Sample ID: LCSD 570-314263/3
 Matrix: Water
 Analysis Batch: 314263

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108	5	10

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-314596/1
 Matrix: Water
 Analysis Batch: 314596

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/24/23 15:59	1

Lab Sample ID: LCS 570-314596/2
 Matrix: Water
 Analysis Batch: 314596

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	94.0		mg/L		94	77 - 116

Lab Sample ID: LCSD 570-314596/3
 Matrix: Water
 Analysis Batch: 314596

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	96.0		mg/L		96	77 - 116	2	10

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 570-313750/1-A
 Matrix: Water
 Analysis Batch: 315092

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 313750

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L		03/22/23 10:21	03/22/23 10:23	1

Lab Sample ID: LCS 570-313750/2-A
 Matrix: Water
 Analysis Batch: 315092

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 313750

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	202		mg/L		102	84.6 - 115.4

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-313848/5-A
 Matrix: Water
 Analysis Batch: 314090

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 313848

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.20	0.050	mg/L		03/22/23 15:00	03/22/23 17:28	1

Lab Sample ID: LCS 570-313848/6-A
 Matrix: Water
 Analysis Batch: 314090

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 313848

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	0.500	0.522		mg/L		104	83 - 122

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: LCSD 570-313848/7-A
Matrix: Water
Analysis Batch: 314090

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 313848

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	0.500	0.524		mg/L		105	83 - 122	0	10

Lab Sample ID: 570-131940-1 MS
Matrix: Water
Analysis Batch: 314090

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total/NA
Prep Batch: 313848

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	ND		0.500	0.448		mg/L		90	64 - 141

Lab Sample ID: 570-131940-1 MSD
Matrix: Water
Analysis Batch: 314090

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total/NA
Prep Batch: 313848

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	ND		0.500	0.458		mg/L		92	64 - 141	2	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

GC/MS Semi VOA

Prep Batch: 314349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	625	
MB 570-314349/1-A	Method Blank	Total/NA	Water	625	
LCS 570-314349/2-A	Lab Control Sample	Total/NA	Water	625	
LCS 570-314349/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 314965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	625.1 SIM	314349
MB 570-314349/1-A	Method Blank	Total/NA	Water	625.1 SIM	314349
LCS 570-314349/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	314349
LCS 570-314349/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	314349

GC Semi VOA

Prep Batch: 314171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	608	
MB 570-314171/1-A	Method Blank	Total/NA	Water	608	
LCS 570-314171/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 570-314171/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 314256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-314171/2-A	Lab Control Sample	Total/NA	Water	608.3	314171
LCS 570-314171/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	314171

Analysis Batch: 314768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	608.3	314171
MB 570-314171/1-A	Method Blank	Total/NA	Water	608.3	314171

HPLC/IC

Analysis Batch: 313627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	300.0	
MB 570-313627/5	Method Blank	Total/NA	Water	300.0	
LCS 570-313627/6	Lab Control Sample	Total/NA	Water	300.0	
LCS 570-313627/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 313628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	300.0	
570-131940-1 - DL	Outfall002_20230321_Comp	Total/NA	Water	300.0	
MB 570-313628/5	Method Blank	Total/NA	Water	300.0	
LCS 570-313628/6	Lab Control Sample	Total/NA	Water	300.0	
LCS 570-313628/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 313743

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	314.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

HPLC/IC (Continued)

Analysis Batch: 313743 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-313743/7	Method Blank	Total/NA	Water	314.0	
LCS 570-313743/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-313743/9	Lab Control Sample Dup	Total/NA	Water	314.0	

Analysis Batch: 314475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Prep Batch: 313657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total Recoverable	Water	200.8	
MB 570-313657/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-313657/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-313657/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-131940-1 MS	Outfall002_20230321_Comp	Total Recoverable	Water	200.8	
570-131940-1 MSD	Outfall002_20230321_Comp	Total Recoverable	Water	200.8	

Filtration Batch: 313762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-3	Outfall002_20230321_Comp_F	Dissolved	Water	Filtration	
MB 570-313762/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-313762/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-313762/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-131940-3 MS	Outfall002_20230321_Comp_F	Dissolved	Water	Filtration	
570-131940-3 MSD	Outfall002_20230321_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 313776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total Recoverable	Water	200.8	313657
MB 570-313657/1-A	Method Blank	Total Recoverable	Water	200.8	313657
LCS 570-313657/2-A	Lab Control Sample	Total Recoverable	Water	200.8	313657
LCSD 570-313657/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	313657
570-131940-1 MS	Outfall002_20230321_Comp	Total Recoverable	Water	200.8	313657
570-131940-1 MSD	Outfall002_20230321_Comp	Total Recoverable	Water	200.8	313657

Analysis Batch: 313835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-3	Outfall002_20230321_Comp_F	Dissolved	Water	200.8	313762
MB 570-313762/1-A	Method Blank	Dissolved	Water	200.8	313762
LCS 570-313762/2-A	Lab Control Sample	Dissolved	Water	200.8	313762
LCSD 570-313762/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	313762
570-131940-3 MS	Outfall002_20230321_Comp_F	Dissolved	Water	200.8	313762
570-131940-3 MSD	Outfall002_20230321_Comp_F	Dissolved	Water	200.8	313762

Prep Batch: 314016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	245.1	
MB 570-314016/1-A	Method Blank	Total/NA	Water	245.1	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Metals (Continued)

Prep Batch: 314016 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-314016/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-314016/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-131940-1 MS	Outfall002_20230321_Comp	Total/NA	Water	245.1	
570-131940-1 MSD	Outfall002_20230321_Comp	Total/NA	Water	245.1	

Filtration Batch: 314019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-3	Outfall002_20230321_Comp_F	Dissolved	Water	Filtration	
MB 570-314019/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-314019/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-314019/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-131940-3 MS	Outfall002_20230321_Comp_F	Dissolved	Water	Filtration	
570-131940-3 MSD	Outfall002_20230321_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 314025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-3	Outfall002_20230321_Comp_F	Dissolved	Water	245.1	314019
MB 570-314019/1-B	Method Blank	Dissolved	Water	245.1	314019
LCS 570-314019/2-B	Lab Control Sample	Dissolved	Water	245.1	314019
LCSD 570-314019/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	314019
570-131940-3 MS	Outfall002_20230321_Comp_F	Dissolved	Water	245.1	314019
570-131940-3 MSD	Outfall002_20230321_Comp_F	Dissolved	Water	245.1	314019

Analysis Batch: 314215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	245.1	314016
MB 570-314016/1-A	Method Blank	Total/NA	Water	245.1	314016
LCS 570-314016/2-A	Lab Control Sample	Total/NA	Water	245.1	314016
LCSD 570-314016/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	314016
570-131940-1 MS	Outfall002_20230321_Comp	Total/NA	Water	245.1	314016
570-131940-1 MSD	Outfall002_20230321_Comp	Total/NA	Water	245.1	314016

Analysis Batch: 314463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-3	Outfall002_20230321_Comp_F	Dissolved	Water	245.1	314025
MB 570-314019/1-B	Method Blank	Dissolved	Water	245.1	314025
LCS 570-314019/2-B	Lab Control Sample	Dissolved	Water	245.1	314025
LCSD 570-314019/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	314025
570-131940-3 MS	Outfall002_20230321_Comp_F	Dissolved	Water	245.1	314025
570-131940-3 MSD	Outfall002_20230321_Comp_F	Dissolved	Water	245.1	314025

General Chemistry

Analysis Batch: 309190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	Kelada 01	
MB 570-309190/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-309190/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-309190/13	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-309190/10	Lab Control Sample	Total/NA	Water	Kelada 01	

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

General Chemistry

Prep Batch: 313750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	BOD Prep	
USB 570-313750/1-A	Method Blank	Total/NA	Water	BOD Prep	
LCS 570-313750/2-A	Lab Control Sample	Total/NA	Water	BOD Prep	

Analysis Batch: 313839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-313839/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-313839/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-313839/3	Lab Control Sample	Total/NA	Water	SM 2130B	

Prep Batch: 313848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	SM 5540C	
MB 570-313848/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-313848/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-313848/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	
570-131940-1 MS	Outfall002_20230321_Comp	Total/NA	Water	SM 5540C	
570-131940-1 MSD	Outfall002_20230321_Comp	Total/NA	Water	SM 5540C	

Analysis Batch: 314090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	SM 5540C	313848
MB 570-313848/5-A	Method Blank	Total/NA	Water	SM 5540C	313848
LCS 570-313848/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	313848
LCSD 570-313848/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	313848
570-131940-1 MS	Outfall002_20230321_Comp	Total/NA	Water	SM 5540C	313848
570-131940-1 MSD	Outfall002_20230321_Comp	Total/NA	Water	SM 5540C	313848

Analysis Batch: 314263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	SM 2540C	
MB 570-314263/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-314263/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-314263/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 314596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	SM 2540D	
MB 570-314596/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-314596/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-314596/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 315092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	SM 5210B	313750
USB 570-313750/1-A	Method Blank	Total/NA	Water	SM 5210B	313750
LCS 570-313750/2-A	Lab Control Sample	Total/NA	Water	SM 5210B	313750

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

General Chemistry

Prep Batch: 315112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-315112/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-315112/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-315112/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 315123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	350.1	315112
MB 570-315112/5-A	Method Blank	Total/NA	Water	350.1	315112
LCS 570-315112/6-A	Lab Control Sample	Total/NA	Water	350.1	315112
LCSD 570-315112/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	315112

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Date Collected: 03/21/23 09:55

Matrix: Water

Date Received: 03/21/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1056.5 mL	2 mL	314349	03/24/23 05:15	H1SH	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	314965	03/27/23 19:07	ULLI	EET CAL 4
		Instrument ID: GCMSJJJ								
Total/NA	Prep	608			1500 mL	1 mL	314171	03/23/23 12:38	H1SH	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	314768	03/26/23 13:47	N5Y3	EET CAL 4
		Instrument ID: GC52A								
Total/NA	Analysis	300.0		1	4 mL	4 mL	313627	03/22/23 07:35	PS	EET CAL 4
		Instrument ID: IC10								
Total/NA	Analysis	300.0		1	4 mL	4 mL	313628	03/22/23 07:35	PS	EET CAL 4
		Instrument ID: IC10								
Total/NA	Analysis	300.0	DL	10	4 mL	4 mL	313628	03/22/23 10:57	PS	EET CAL 4
		Instrument ID: IC10								
Total/NA	Analysis	314.0		1	4 mL	4 mL	313743	03/22/23 17:33	PS	EET CAL 4
		Instrument ID: IC8								
Total/NA	Analysis	NO2NO3 Calc		1			314475	03/24/23 10:42	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total Recoverable	Prep	200.8			50 mL	50 mL	313657	03/22/23 06:39	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			313776	03/22/23 10:48	Y2WS	EET CAL 4
		Instrument ID: ICPMS09								
Total/NA	Prep	245.1			25 mL	50 mL	314016	03/22/23 18:00	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			314215	03/23/23 14:19	C0YH	EET CAL 4
		Instrument ID: HG8								
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	315112	03/27/23 14:02	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	315123	03/27/23 16:23	UXCH	EET CAL 4
		Instrument ID: ACA2								
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	309190	03/27/23 15:46	GG0B	EET CAL 4
		Instrument ID: LACHAT01								
Total/NA	Analysis	SM 2130B		1			313839	03/22/23 14:38	TXA8	EET CAL 4
		Instrument ID: TUR4								
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	314263	03/23/23 17:37	ZL7L	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	314596	03/24/23 16:00	UWCT	EET CAL 4
		Instrument ID: BAL71								
Total/NA	Prep	BOD Prep					313750	03/22/23 16:12	U7UR	EET CAL 4
Total/NA	Analysis	SM 5210B		1	300 mL	300 mL	315092	03/22/23 17:49	TN8Z	EET CAL 4
		Instrument ID: BOD3								
Total/NA	Prep	SM 5540C			100 mL	100 mL	313848	03/22/23 15:00	TXA8	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	314090	03/22/23 17:33	TXA8	EET CAL 4
		Instrument ID: UV8								

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Client Sample ID: Outfall002_20230321_Comp_F

Lab Sample ID: 570-131940-3

Date Collected: 03/21/23 09:55

Matrix: Water

Date Received: 03/21/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	313762	03/22/23 10:51	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			313835	03/22/23 13:17	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Dissolved	Filtration	Filtration			25 mL	25 mL	314019	03/23/23 05:55	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	314025	03/23/23 06:08	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			314463	03/23/23 18:53	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	EPA	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5210B	BOD, 5-Day	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET CAL 4
625	Liquid-Liquid Extraction	EPA	EET CAL 4
BOD Prep	Preparation, BOD	SM	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131940-1	Outfall002_20230321_Comp	Water	03/21/23 09:55	03/21/23 17:10
570-131940-3	Outfall002_20230321_Comp_F	Water	03/21/23 09:55	03/21/23 17:10

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CHAIN OF CUSTODY FORM

R R R R R C

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp					ANALYSIS REQUIRED													
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)					Total Dissolved Metals: (E200.8): Zn (E200.6): Cu, Pb, Cd, Se Cyanide (SM4500-CN-E / E335.2) Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Total Dissolved Metals: Mercury (E245.1)	Comments											
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																		
Sampler: michelle dallalah																						
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD														
Outfall 002	Outfall002_20230321_Comp_F	3/21/2023 0955	WM	1L Poly	1	None	200	Yes	X													
			WM	borosilicate vials	2	None	320	No			X	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.										
	Outfall002_20230321_Comp	3/21/2023 0955	WM	500 mL Poly	1	NaOH	220	No		X												
			WM	2.5 Gal Cube	1	None	225	No			X	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.										
WM	1 L Glass Amber	1	None	230	No																	
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																						
Relinquished By: <i>Michelle Dallalah</i> Date/Time: 3/21/23 15:00 Company: H&A				Received By: <i>Samy</i> Date/Time: 3/21/23 1300 Company: EC				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____														
Relinquished By: <i>Samy</i> Date/Time: 3/21/23 1710 Company: EC				Received By: <i>R.F.</i> Date/Time: EC 3-21-23 17:10				Sample Integrity: (Check) Intact: _____ On Ice: _____														
Relinquished By: _____ Date/Time: _____ Company: _____				Received By: _____ Date/Time: _____				Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>														

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131940-1

Login Number: 131940

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-131940-2

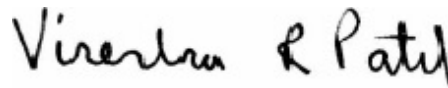
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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4/26/2023 9:14:55 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-131940-2

Job ID: 570-131940-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-131940-2

Comments

No additional comments.

Receipt

The samples were received on 3/21/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.3° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: (CCV 320-669577/2) and (MB 320-668480/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall002_20230321_Comp (570-131940-1) and (CCV 320-669579/17). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: (CCV 320-669599/2) and (LCS 320-668480/2-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: (CCV 320-670020/1) and (LCS 320-668480/3-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-2

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8,9-HxCDF	0.0000066	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				088					
2,3,4,6,7,8-HxCDF	0.0000022	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				084					
1,2,3,4,6,7,8-HpCDD	0.0000066	J,DX	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				28					
1,2,3,4,6,7,8-HpCDF	0.0000026	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				087					
1,2,3,4,7,8,9-HpCDF	0.0000082	J,DX	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				093					
OCDD	0.000070	J,DX MB	0.000095	0.0000001	ug/L	1		1613B	Total/NA
				2					
OCDF	0.0000083	J,DX q	0.000095	0.0000000	ug/L	1		1613B	Total/NA
				12					
Total HxCDD	0.0000013	J,DX	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				46					
Total HxCDF	0.0000087	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				083					
Total HpCDD	0.000013	J,DX	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				28					
Total HpCDF	0.0000059	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				087					

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230321_Comp

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				12					
2,3,7,8-TCDF	ND		0.0000095	0.0000001	ug/L		04/19/23 04:39	04/23/23 02:42	1
				1					
1,2,3,7,8-PeCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				23					
1,2,3,7,8-PeCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				082					
2,3,4,7,8-PeCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				093					
1,2,3,4,7,8-HxCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				51					
1,2,3,6,7,8-HxCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				49					
1,2,3,7,8,9-HxCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				46					
1,2,3,4,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				083					
1,2,3,6,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				088					
1,2,3,7,8,9-HxCDF	0.0000066	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				088					
2,3,4,6,7,8-HxCDF	0.0000022	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				084					
1,2,3,4,6,7,8-HpCDD	0.0000066	J,DX	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				28					
1,2,3,4,6,7,8-HpCDF	0.0000026	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				087					
1,2,3,4,7,8,9-HpCDF	0.0000082	J,DX	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				093					
OCDD	0.000070	J,DX MB	0.000095	0.0000001	ug/L		04/19/23 04:39	04/23/23 02:42	1
				2					
OCDF	0.0000083	J,DX q	0.000095	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				12					
Total TCDD	ND		0.0000095	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				12					
Total TCDF	ND		0.0000095	0.0000001	ug/L		04/19/23 04:39	04/23/23 02:42	1
				1					
Total PeCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				23					
Total PeCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				082					
Total HxCDD	0.0000013	J,DX	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				46					
Total HxCDF	0.0000087	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				083					
Total HpCDD	0.000013	J,DX	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				28					
Total HpCDF	0.0000059	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 02:42	1
				087					
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
13C-2,3,7,8-TCDD	77		25 - 164			04/19/23 04:39	04/23/23 02:42	1	
13C-2,3,7,8-TCDF	71		24 - 169			04/19/23 04:39	04/23/23 02:42	1	
13C-1,2,3,7,8-PeCDD	84		25 - 181			04/19/23 04:39	04/23/23 02:42	1	

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230321_Comp

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,7,8-PeCDF	82		24 - 185	04/19/23 04:39	04/23/23 02:42	1
13C-2,3,4,7,8-PeCDF	81		21 - 178	04/19/23 04:39	04/23/23 02:42	1
13C-1,2,3,4,7,8-HxCDD	78		32 - 141	04/19/23 04:39	04/23/23 02:42	1
13C-1,2,3,6,7,8-HxCDD	80		28 - 130	04/19/23 04:39	04/23/23 02:42	1
13C-1,2,3,4,7,8-HxCDF	73		26 - 152	04/19/23 04:39	04/23/23 02:42	1
13C-1,2,3,6,7,8-HxCDF	73		26 - 123	04/19/23 04:39	04/23/23 02:42	1
13C-1,2,3,7,8,9-HxCDF	70		29 - 147	04/19/23 04:39	04/23/23 02:42	1
13C-2,3,4,6,7,8-HxCDF	71		28 - 136	04/19/23 04:39	04/23/23 02:42	1
13C-1,2,3,4,6,7,8-HpCDD	87		23 - 140	04/19/23 04:39	04/23/23 02:42	1
13C-1,2,3,4,6,7,8-HpCDF	70		28 - 143	04/19/23 04:39	04/23/23 02:42	1
13C-1,2,3,4,7,8,9-HpCDF	73		26 - 138	04/19/23 04:39	04/23/23 02:42	1
13C-OCDD	72		17 - 157	04/19/23 04:39	04/23/23 02:42	1
13C-OCDF	61		17 - 157	04/19/23 04:39	04/23/23 02:42	1
Surrogate						
37Cl4-2,3,7,8-TCDD	96		35 - 197	04/19/23 04:39	04/23/23 02:42	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-131940-1	Outfall002_20230321_Comp	96
MB 320-668480/1-A	Method Blank	97

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-668480/2-A	Lab Control Sample	95
LCSD 320-668480/3-A	Lab Control Sample Dup	100

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-131940-1	Outfall002_20230321_Comp	77	71	84	82	81	78	80	73
MB 320-668480/1-A	Method Blank	73	65	69	70	69	71	72	62

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-131940-1	Outfall002_20230321_Comp	73	70	71	87	70	73	72	61
MB 320-668480/1-A	Method Blank	62	60	65	78	59	64	59	52

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-668480/2-A	Lab Control Sample	70	69	70	70	70	72	75	68
LCSD 320-668480/3-A	Lab Control Sample Dup	73	83	75	77	79	71	70	66

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-668480/2-A	Lab Control Sample	70	66	70	75	61	65	69	61
LCSD 320-668480/3-A	Lab Control Sample Dup	68	74	72	74	63	74	82	75

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

Job ID: 570-131940-2

- 1
- 2
- 3
- 4
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- 14
- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-668480/1-A
Matrix: Water
Analysis Batch: 669577

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 668480

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				26					
2,3,7,8-TCDF	ND		0.000010	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				084					
1,2,3,7,8-PeCDD	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				18					
1,2,3,7,8-PeCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				093					
2,3,4,7,8-PeCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				10					
1,2,3,4,7,8-HxCDD	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				13					
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				12					
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000001	ug/L		04/19/23 04:39	04/22/23 19:59	1
				1					
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				069					
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				068					
1,2,3,7,8,9-HxCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				071					
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				063					
1,2,3,4,6,7,8-HpCDD	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				62					
1,2,3,4,6,7,8-HpCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				13					
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				14					
OCDD	0.0000109	J,DX	0.00010	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				23					
OCDF	ND		0.00010	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				47					
Total TCDD	ND		0.000010	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				26					
Total TCDF	ND		0.000010	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				084					
Total PeCDD	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				18					
Total PeCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				093					
Total HxCDD	ND		0.000050	0.00000001	ug/L		04/19/23 04:39	04/22/23 19:59	1
				1					
Total HxCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				063					
Total HpCDD	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				62					
Total HpCDF	ND		0.000050	0.0000000	ug/L		04/19/23 04:39	04/22/23 19:59	1
				13					
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	73		25 - 164				04/19/23 04:39	04/22/23 19:59	1
13C-2,3,7,8-TCDF	65		24 - 169				04/19/23 04:39	04/22/23 19:59	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-668480/1-A
Matrix: Water
Analysis Batch: 669577

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 668480

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	69		25 - 181	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,7,8-PeCDF	70		24 - 185	04/19/23 04:39	04/22/23 19:59	1
13C-2,3,4,7,8-PeCDF	69		21 - 178	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,7,8-HxCDD	71		32 - 141	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,6,7,8-HxCDD	72		28 - 130	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,7,8-HxCDF	62		26 - 152	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,6,7,8-HxCDF	62		26 - 123	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,7,8,9-HxCDF	60		29 - 147	04/19/23 04:39	04/22/23 19:59	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,6,7,8-HpCDD	78		23 - 140	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,6,7,8-HpCDF	59		28 - 143	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,7,8,9-HpCDF	64		26 - 138	04/19/23 04:39	04/22/23 19:59	1
13C-OCDD	59		17 - 157	04/19/23 04:39	04/22/23 19:59	1
13C-OCDF	52		17 - 157	04/19/23 04:39	04/22/23 19:59	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	97		35 - 197	04/19/23 04:39	04/22/23 19:59	1

Lab Sample ID: LCS 320-668480/2-A
Matrix: Water
Analysis Batch: 669599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 668480

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000193		ug/L		96	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000932		ug/L		93	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000866		ug/L		87	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000878		ug/L		88	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000803		ug/L		80	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000871		ug/L		87	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000838		ug/L		84	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000861		ug/L		86	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000870		ug/L		87	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000877		ug/L		88	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000864		ug/L		86	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000798		ug/L		80	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000908		ug/L		91	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000836		ug/L		84	78 - 138
OCDD	0.00200	0.00171		ug/L		86	78 - 144
OCDF	0.00200	0.00186		ug/L		93	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	70		20 - 175
13C-2,3,7,8-TCDF	69		22 - 152
13C-1,2,3,7,8-PeCDD	70		21 - 227
13C-1,2,3,7,8-PeCDF	70		21 - 192
13C-2,3,4,7,8-PeCDF	70		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-668480/2-A
Matrix: Water
Analysis Batch: 669599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 668480

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	75		25 - 163
13C-1,2,3,4,7,8-HxCDF	68		19 - 202
13C-1,2,3,6,7,8-HxCDF	70		21 - 159
13C-1,2,3,7,8,9-HxCDF	66		17 - 205
13C-2,3,4,6,7,8-HxCDF	70		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	75		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	61		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	65		20 - 186
13C-OCDD	69		13 - 199
13C-OCDF	61		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	95		31 - 191

Lab Sample ID: LCSD 320-668480/3-A
Matrix: Water
Analysis Batch: 670020

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 668480

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000195		ug/L		98	67 - 158	4	50	
2,3,7,8-TCDF	0.000200	0.000192		ug/L		96	75 - 158	0	50	
1,2,3,7,8-PeCDD	0.00100	0.000866		ug/L		87	70 - 142	7	50	
1,2,3,7,8-PeCDF	0.00100	0.000854		ug/L		85	80 - 134	1	50	
2,3,4,7,8-PeCDF	0.00100	0.000871		ug/L		87	68 - 160	1	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000823		ug/L		82	70 - 164	2	50	
1,2,3,6,7,8-HxCDD	0.00100	0.000838		ug/L		84	76 - 134	4	50	
1,2,3,7,8,9-HxCDD	0.00100	0.000817		ug/L		82	64 - 162	3	50	
1,2,3,4,7,8-HxCDF	0.00100	0.000859		ug/L		86	72 - 134	0	50	
1,2,3,6,7,8-HxCDF	0.00100	0.000846		ug/L		85	84 - 130	3	50	
1,2,3,7,8,9-HxCDF	0.00100	0.000820		ug/L		82	78 - 130	7	50	
2,3,4,6,7,8-HxCDF	0.00100	0.000826		ug/L		83	70 - 156	5	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000786		ug/L		79	70 - 140	2	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.000855		ug/L		85	82 - 122	6	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.000789		ug/L		79	78 - 138	6	50	
OCDD	0.00200	0.00156		ug/L		78	78 - 144	9	50	
OCDF	0.00200	0.00163		ug/L		82	63 - 170	13	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	73		20 - 175
13C-2,3,7,8-TCDF	83		22 - 152
13C-1,2,3,7,8-PeCDD	75		21 - 227
13C-1,2,3,7,8-PeCDF	77		21 - 192
13C-2,3,4,7,8-PeCDF	79		13 - 328
13C-1,2,3,4,7,8-HxCDD	71		21 - 193
13C-1,2,3,6,7,8-HxCDD	70		25 - 163
13C-1,2,3,4,7,8-HxCDF	66		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-668480/3-A

Matrix: Water

Analysis Batch: 670020

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 668480

<i>Isotope Dilution</i>	<i>LCS D</i> <i>%Recovery</i>	<i>LCS D</i> <i>Qualifier</i>	<i>Limits</i>
13C-1,2,3,6,7,8-HxCDF	68		21 - 159
13C-1,2,3,7,8,9-HxCDF	74		17 - 205
13C-2,3,4,6,7,8-HxCDF	72		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	74		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	63		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	74		20 - 186
13C-OCDD	82		13 - 199
13C-OCDF	75		13 - 199

<i>Surrogate</i>	<i>LCS D</i> <i>%Recovery</i>	<i>LCS D</i> <i>Qualifier</i>	<i>Limits</i>
37Cl4-2,3,7,8-TCDD	100		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-2

Specialty Organics

Prep Batch: 668480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	1613B	
MB 320-668480/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-668480/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-668480/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 669577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-668480/1-A	Method Blank	Total/NA	Water	1613B	668480

Analysis Batch: 669579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	1613B	668480

Analysis Batch: 669599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-668480/2-A	Lab Control Sample	Total/NA	Water	1613B	668480

Analysis Batch: 670020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 320-668480/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	668480

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-2

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Date Collected: 03/21/23 09:55

Matrix: Water

Date Received: 03/21/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1057.8 mL	20.0 uL	668480	04/19/23 04:39	BLR	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	669579	04/23/23 02:42	GRB	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	06-01-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131940-1	Outfall002_20230321_Comp	Water	03/21/23 09:55	03/21/23 17:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16



570-131940 Chain of Custody

Eurofins Calscience Irvine

CHAIN OF CUSTODY FORM

Client Name/Address:		Project:							ANALYSIS REQUIRED															
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp																						
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)							Comments															
*TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreements 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.									Total Recoverable Metals: (E200.6): Zn (E200.6); Cu, Pb, Cd, Se TCDD (and all congeners) (E1613B) BOD5 (20 degrees C) (E405.1)(SM5210B_BODCalc) Surfactants (MBAS) (SM554OC/E425.1) Cr, SO ₄ , Nitrate-N, Nitrite-N, NO ₃ -NO ₂ -N, Perchlorate (E300) Turbidity, TDS (SM254OC/E180.1) TSS (180.2) (SM2540D) Ammonia-N (360.2) alpha-BHC (E608) 2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625) Total Recoverable Metals: Mercury (E246.1)															
Sampler: michelle dallalah																								
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.6): Zn (E200.6); Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM5210B_BODCalc)	Surfactants (MBAS) (SM554OC/E425.1)	Cr, SO ₄ , Nitrate-N, Nitrite-N, NO ₃ -NO ₂ -N, Perchlorate (E300)	Turbidity, TDS (SM254OC/E180.1)	TSS (180.2) (SM2540D)	Ammonia-N (360.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals: Mercury (E246.1)	Comments				
Outfall 002	Outfall002_20230321_Comp	3/21/2023 0955	WM	500 mL Poly	1	HNO ₃	90	Yes	X															
			WM	1 L Glass Amber	2	None	110	No		X														
			WM	1L Poly	1	None	115	No			X													
			WM	500 mL Poly	2	None	120	No				X												
			WM	500 mL Poly	2	None	130	No						X									48 hours Holding Time NO ₃ & NO ₂	
			WM	500 mL Poly	1	None	150	No							X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X							
			WM	1 L Glass Amber	2	None	170	No										X						
			WM	1 L Glass Amber	2	None	180	No												X				
			WM	1L Poly	1	None	185	No									X							
Outfall002_20230321_Comp_Extra	3/21/2023 0955	WM	1 L Glass Amber	2	None	110	No			H											Hold			
		WM	1 L Glass Amber	2	None	170	No															Hold		
		WM	1 L Glass Amber	2	None	180	No															Hold		
		WM	1 L Glass Amber	2	None	180	No															Hold		

Legend: C=Conditional, R=Routine

Relinquished By: <i>Michelle Dallalah</i> Date/Time: 3/21/23 13:00 Company: H & A	Received By: <i>[Signature]</i> Date/Time: 3/21/23 13:00 Company: EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/21/23 17:10 Company: EC	Received By: <i>[Signature]</i> Date/Time: 3-21-23 17:10 Company: EC	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

1.3/1.3 1.1/1.1 SC11

CHAIN OF CUSTODY FORM

R R R R R C

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp					ANALYSIS REQUIRED																			
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187									Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)					Total Dissolved Metals: (E200.8): Zn (E200.6): Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Total Dissolved Metals: Mercury (E245.1)											Comments
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreements# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.									Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																			
Sampler: michelle dallalah																												
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.8): Zn (E200.6): Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Total Dissolved Metals: Mercury (E245.1)											Comments					
Outfall 002	Outfall002_20230321_Comp_F	3/21/2023 0955	WM	1L Poly	1	None	200	Yes	X																			
			WM	borosilicate vials	2	None	320	No					X													Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
	Outfall002_20230321_Comp	3/21/2023 0955	WM	500 mL Poly	1	NaOH	220	No		X																		
			WM	2.5 Gal Cube	1	None	225	No				X															Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.	
WM	1 L Glass Amber	1	None	230	No																							
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																												
Relinquished By: <i>Michelle Dallalah</i> Date/Time: 3/21/23 15:00 Company: H&A				Received By: <i>Samy</i> Date/Time: 3/21/23 1300 Company: EC				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u> X </u> 48 Hour: _____ 5 Day: _____ Normal: _____																				
Relinquished By: <i>Samy</i> Date/Time: 3/21/23 1710 Company: EC				Received By: <i>R</i> Date/Time: EC 3-21-23 17:10 Company: EC				Sample Integrity: (Check) Intact: _____ On Ice: _____																				
Relinquished By: _____ Date/Time: _____ Company: _____				Received By: _____ Date/Time: _____ Company: _____				Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u> X </u>																				

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131940-2

Login Number: 131940

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131940-2

Login Number: 131940

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/23/23 02:09 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2c 1.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/26/2023 7:45:11 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-131940-3

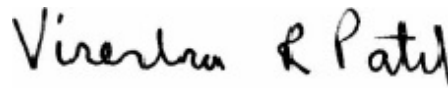
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-3

Qualifiers

Rad

Qualifier	Qualifier Description
F	Duplicate RPD exceeds the control limit
F1	MS and/or MSD recovery exceeds control limits.
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-131940-3

Job ID: 570-131940-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-131940-3

Comments

No additional comments.

Receipt

The samples were received on 3/21/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.3° C.

RAD

Method 900.0: Gross Alpha and Gross Beta batch 607422

The matrix spike (MS) recoveries for Gross Alpha and Gross Beta were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (570-131940-R-1-H MS) and (570-131940-R-1-I MSBT)

Method 900.0: Gross Alpha and Gross Beta batch 607422

The detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass: Outfall002_20230321_Comp (570-131940-1) and (570-131940-R-1-J DU). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha and Gross Beta batch 607422

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230321_Comp (570-131940-1), (LCS 160-607422/2-A), (LCSB 160-607422/3-A), (MB 160-607422/1-A), (570-131940-R-1-J DU), (570-131940-R-1-H MS) and (570-131940-R-1-I MSBT)

Method 900.0: Gross Alpha and Gross Beta batch 607422

The sample duplicate (DUP) precision for Gross Beta was outside control limits. Sample matrix interference is suspected. Sample was prepped at a dilution due to high residual mass (570-131940-R-1-J DU)

Method 901.1: Gamma Prep Batch 160-605283

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-131940-3

Job ID: 570-131940-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230321_Comp (570-131940-1), (570-131073-AT-1-B) and (570-131073-AT-1-C DU)

Methods 903.0, 9315: Radium-226 prep batch 160-605610:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall002_20230321_Comp (570-131940-1), (LCS 160-605610/2-A), (LCSD 160-605610/3-A) and (MB 160-605610/1-A)

Methods 904.0, 9320: Radium-228 batch 605613

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230321_Comp (570-131940-1), (LCS 160-605613/2-A), (LCSD 160-605613/3-A) and (MB 160-605613/1-A)

Method 905: Strontium 90 batch 606565

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230321_Comp (570-131940-1), (LCS 160-606565/2-A), (LCSD 160-606565/3-A) and (MB 160-606565/1-A)

Method 906.0: Tritium 607890

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are decay corrected to sample date and time as the Activity Reference Date. Outfall002_20230321_Comp (570-131940-1), (LCS 160-607890/2-A), (MB 160-607890/1-A), (570-131938-I-1-A), (570-131938-I-1-B DU), (570-132136-Q-1-A) and (570-132136-Q-1-B MS)

Method A-01-R: Isotopic Uranium batch 606930

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230321_Comp (570-131940-1), (LCS 160-606930/2-A), (MB 160-606930/1-A) and (570-131940-R-1-F DU)

Method ExtChrom: Uranium Prep Batch 160-606930:

The following samples were prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall002_20230321_Comp (570-131940-1) and (570-131940-R-1 DU).

Method PrecSep_0: Radium 228 Prep Batch 160-605613

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230321_Comp (570-131940-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-131940-3

Job ID: 570-131940-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method PrecSep-21: Radium 226 Prep Batch 160-605610

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230321_Comp (570-131940-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 606565

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230321_Comp (570-131940-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 160-606565

The carrier recovery is outside the lower control limit (40%) for the following samples: Outfall002_20230321_Comp (570-131940-1). There was physical evidence of matrix interference apparent during the initial preparation of the sample. The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-3

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230321_Comp

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.81	U G	1.95	1.96	3.00	3.14	pCi/L	04/14/23 10:37	04/21/23 18:25	1
Gross Beta	6.21		1.55	1.67	4.00	1.86	pCi/L	04/14/23 10:37	04/21/23 18:25	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230321_Comp

Date Collected: 03/21/23 09:55

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	3.60	U	6.33	6.34	20.0	7.05	pCi/L	03/28/23 16:33	04/12/23 14:25	1
Potassium-40	-10.6	U	90.3	90.3		113	pCi/L	03/28/23 16:33	04/12/23 14:25	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230321_Comp
Date Collected: 03/21/23 09:55
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.125	U	0.114	0.114	1.00	0.169	pCi/L	03/30/23 08:51	04/25/23 14:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.2		30 - 110					03/30/23 08:51	04/25/23 14:06	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230321_Comp
Date Collected: 03/21/23 09:55
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.267	U	0.443	0.444	1.00	0.762	pCi/L	03/30/23 09:10	04/20/23 15:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.2		30 - 110					03/30/23 09:10	04/20/23 15:04	1
Y Carrier	83.0		30 - 110					03/30/23 09:10	04/20/23 15:04	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230321_Comp
Date Collected: 03/21/23 09:55
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.344	U	0.777	0.778	3.00	1.48	pCi/L	04/07/23 11:12	04/17/23 19:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	87.2		30 - 110					04/07/23 11:12	04/17/23 19:09	1
Y Carrier	34.4		30 - 110					04/07/23 11:12	04/17/23 19:09	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230321_Comp
 Date Collected: 03/21/23 09:55
 Date Received: 03/21/23 17:10

Lab Sample ID: 570-131940-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-276	U	196	197	500	416	pCi/L	04/18/23 11:12	04/19/23 07:49	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Date Collected: 03/21/23 09:55

Matrix: Water

Date Received: 03/21/23 17:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	1.34		0.460	0.467	1.00	0.271	pCi/L	04/11/23 15:09	04/13/23 16:21	1
Tracer	%Yield	Qualifier	Limits							
Uranium-232	84.3		30 - 110	Prepared	Analyzed	Dil Fac				
				04/11/23 15:09	04/13/23 16:21	1				

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
570-131940-1	Outfall002_20230321_Comp	77.2
LCS 160-605610/2-A	Lab Control Sample	95.4
LCSD 160-605610/3-A	Lab Control Sample Dup	92.7
MB 160-605610/1-A	Method Blank	84.6

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
570-131940-1	Outfall002_20230321_Comp	77.2	83.0
LCS 160-605613/2-A	Lab Control Sample	95.4	86.0
LCSD 160-605613/3-A	Lab Control Sample Dup	92.7	84.9
MB 160-605613/1-A	Method Blank	84.6	84.5

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)
570-131940-1	Outfall002_20230321_Comp	87.2	34.4
LCS 160-606565/2-A	Lab Control Sample	86.3	77.0
LCSD 160-606565/3-A	Lab Control Sample Dup	85.1	69.9
MB 160-606565/1-A	Method Blank	86.6	81.9

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)
570-131940-1	Outfall002_20230321_Comp	84.3
570-131940-1 DU	Outfall002_20230321_Comp	93.0
LCS 160-606930/2-A	Lab Control Sample	90.3
MB 160-606930/1-A	Method Blank	83.9

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-607422/1-A
Matrix: Water
Analysis Batch: 608478

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 607422

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)				10:37	10:02			
Gross Alpha	-0.2952	U	0.323	0.325	3.00	0.811	pCi/L	04/14/23	10:37	04/21/23	10:02	1
Gross Beta	-0.7584	U	0.415	0.422	4.00	0.896	pCi/L	04/14/23	10:37	04/21/23	10:02	1

Lab Sample ID: LCS 160-607422/2-A
Matrix: Water
Analysis Batch: 608478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607422

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual	Uncert. (2σ+/-)					
Gross Alpha	50.5	60.65		8.70	3.00	2.71	pCi/L	120	75 - 125

Lab Sample ID: LCSB 160-607422/3-A
Matrix: Water
Analysis Batch: 608478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607422

Analyte	Spike Added	LCSB	LCSB	Total	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual	Uncert. (2σ+/-)					
Gross Beta	73.4	74.69		8.01	4.00	1.10	pCi/L	102	75 - 125

Lab Sample ID: 570-131940-1 MS
Matrix: Water
Analysis Batch: 608478

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total/NA
Prep Batch: 607422

Analyte	Sample		Spike Added	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual	Uncert. (2σ+/-)					
Gross Alpha	1.81	U G	101	33.97	F1	7.06	3.00	4.70	pCi/L	32	60 - 140

Lab Sample ID: 570-131940-1 MSBT
Matrix: Water
Analysis Batch: 608478

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total/NA
Prep Batch: 607422

Analyte	Sample		Spike Added	MSBT	MSBT	Total	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual	Uncert. (2σ+/-)					
Gross Beta	6.21		147	65.80	F1	7.62	4.00	1.63	pCi/L	41	60 - 140

Lab Sample ID: 570-131940-1 DU
Matrix: Water
Analysis Batch: 608478

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total/NA
Prep Batch: 607422

Analyte	Sample		DU	DU	Total	RL	MDC	Unit	RER	Limit
	Result	Qual		Result	Qual					
Gross Alpha	1.81	U G	1.538	U G	2.12	3.00	3.56	pCi/L	0.07	1
Gross Beta	6.21		2.051	F	1.23	4.00	1.79	pCi/L	1.44	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-605283/1-A
Matrix: Water
Analysis Batch: 607160

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605283

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	2.793	U	6.67	6.68	20.0	7.49	pCi/L	03/28/23 16:33	04/12/23 04:01	1
Potassium-40	27.15	U	82.6	82.7		106	pCi/L	03/28/23 16:33	04/12/23 04:01	1

Lab Sample ID: LCS 160-605283/2-A
Matrix: Water
Analysis Batch: 607188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605283

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	135000	139700		16600		562	pCi/L	103	75 - 125
Cesium-137	40800	39690		4740	20.0	156	pCi/L	97	75 - 125
Cobalt-60	17700	17220		2060		78.1	pCi/L	97	75 - 125

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-605610/1-A
Matrix: Water
Analysis Batch: 608688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605610

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.02691	U	0.0825	0.0825	1.00	0.154	pCi/L	03/30/23 08:51	04/25/23 12:13	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		30 - 110					03/30/23 08:51	04/25/23 12:13	1

Lab Sample ID: LCS 160-605610/2-A
Matrix: Water
Analysis Batch: 608688

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605610

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	9.296		1.01	1.00	0.105	pCi/L	82	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	95.4		30 - 110						

Lab Sample ID: LCSD 160-605610/3-A
Matrix: Water
Analysis Batch: 608691

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605610

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec	RER	RER Limit
				Uncert. (2σ+/-)					Limits		
Radium-226	11.3	8.720		0.965	1.00	0.125	pCi/L	77	75 - 125	0.29	1

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-605610/3-A
Matrix: Water
Analysis Batch: 608691

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605610

	<i>LCS</i>	<i>D</i>	
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>
Ba Carrier	92.7		30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-605613/1-A
Matrix: Water
Analysis Batch: 608230

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605613

Analyte	MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	0.8792		0.419	0.427	1.00	0.564	pCi/L	03/30/23 09:10	04/20/23 15:03	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>			<i>Prepared</i>	<i>Analyzed</i>		<i>Dil Fac</i>	
Ba Carrier	84.6		30 - 110			03/30/23 09:10	04/20/23 15:03		1	
Y Carrier	84.5		30 - 110			03/30/23 09:10	04/20/23 15:03		1	

Lab Sample ID: LCS 160-605613/2-A
Matrix: Water
Analysis Batch: 608230

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605613

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.02	8.720		1.20	1.00	0.484	pCi/L	109	75 - 125	
<i>Carrier</i>		<i>LCS</i>	<i>LCS</i>			<i>%Rec</i>	<i>Limits</i>			
Ba Carrier		95.4					30 - 110			
Y Carrier		86.0					30 - 110			

Lab Sample ID: LCSD 160-605613/3-A
Matrix: Water
Analysis Batch: 608230

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605613

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
Radium-228	8.02	7.700		1.12	1.00	0.537	pCi/L	96	75 - 125	0.44	1	
<i>Carrier</i>		<i>LCSD</i>	<i>LCSD</i>			<i>%Rec</i>	<i>Limits</i>		<i>RER</i>	<i>Limit</i>		
Ba Carrier		92.7					30 - 110					
Y Carrier		84.9					30 - 110					

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-606565/1-A
Matrix: Water
Analysis Batch: 607841

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606565

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.1675	U	0.204	0.204	3.00	0.337	pCi/L	04/07/23 11:12	04/17/23 19:03	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Sr Carrier	86.6		30 - 110		04/07/23 11:12	04/17/23 19:03	1			
Y Carrier	81.9		30 - 110		04/07/23 11:12	04/17/23 19:03	1			

Lab Sample ID: LCS 160-606565/2-A
Matrix: Water
Analysis Batch: 607841

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606565

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Strontium-90	7.34	7.570		0.853	3.00	0.305	pCi/L	103	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Sr Carrier	86.3		30 - 110						
Y Carrier	77.0		30 - 110						

Lab Sample ID: LCSD 160-606565/3-A
Matrix: Water
Analysis Batch: 607841

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 606565

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER
				Uncert. (2σ+/-)							Limit
Strontium-90	7.34	7.501		0.887	3.00	0.401	pCi/L	102	75 - 125	0.04	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Sr Carrier	85.1		30 - 110								
Y Carrier	69.9		30 - 110								

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-607890/1-A
Matrix: Water
Analysis Batch: 608161

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 607890

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-102.7	U	224	224	500	433	pCi/L	04/18/23 11:12	04/19/23 06:41	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: LCS 160-607890/2-A
Matrix: Water
Analysis Batch: 608161

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607890

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Tritium	2090	1604		396	500	420	pCi/L	77	75 - 125

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-606930/1-A
Matrix: Water
Analysis Batch: 607234

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606930

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.09977	U	0.1021	0.1023	1.00	0.128	pCi/L	04/11/23 15:09	04/13/23 16:11	1
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	83.9		30 - 110					04/11/23 15:09	04/13/23 16:11	1

Lab Sample ID: LCS 160-606930/2-A
Matrix: Water
Analysis Batch: 607236

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606930

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Uranium-234	12.7	12.83		1.51	1.00	0.123	pCi/L	101	75 - 125
Uranium-238	13.0	14.23		1.63	1.00	0.0649	pCi/L	109	75 - 125
Tracer	LCS %Yield	LCS Qualifier	Limits						
Uranium-232	90.3		30 - 110						

Lab Sample ID: 570-131940-1 DU
Matrix: Water
Analysis Batch: 607385

Client Sample ID: Outfall002_20230321_Comp
Prep Type: Total/NA
Prep Batch: 606930

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit
Total Uranium	1.34		0.9086		0.368	1.00	0.227	pCi/L	0.52	1
Tracer	DU %Yield	DU Qualifier	Limits							
Uranium-232	93.0		30 - 110							

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Rad

Prep Batch: 605283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-605283/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-605283/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 605610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	PrecSep-21	
MB 160-605610/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-605610/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-605610/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 605613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	PrecSep_0	
MB 160-605613/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-605613/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-605613/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 606565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	PrecSep-7	
MB 160-606565/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-606565/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-606565/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 606930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	ExtChrom	
MB 160-606930/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-606930/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-131940-1 DU	Outfall002_20230321_Comp	Total/NA	Water	ExtChrom	

Prep Batch: 607422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	Evaporation	
MB 160-607422/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-607422/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-607422/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-131940-1 MS	Outfall002_20230321_Comp	Total/NA	Water	Evaporation	
570-131940-1 MSBT	Outfall002_20230321_Comp	Total/NA	Water	Evaporation	
570-131940-1 DU	Outfall002_20230321_Comp	Total/NA	Water	Evaporation	

Prep Batch: 607890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131940-1	Outfall002_20230321_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-607890/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-607890/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Client Sample ID: Outfall002_20230321_Comp

Lab Sample ID: 570-131940-1

Date Collected: 03/21/23 09:55

Matrix: Water

Date Received: 03/21/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			99.99 mL	1.0 g	607422	04/14/23 10:37	MST	EET SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	608478	04/21/23 18:25	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	605283	03/28/23 16:33	SAC	EET SL
Total/NA	Analysis	901.1		1			607160	04/12/23 14:25	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			746.65 mL	1.0 g	605610	03/30/23 08:51	DJP	EET SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	608688	04/25/23 14:06	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			746.65 mL	1.0 g	605613	03/30/23 09:10	DJP	EET SL
Total/NA	Analysis	904.0		1			608230	04/20/23 15:04	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			499.78 mL	1.0 g	606565	04/07/23 11:12	DJP	EET SL
Total/NA	Analysis	905		1			607842	04/17/23 19:09	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			99.57 mL	1.0 g	607890	04/18/23 11:12	ZR	EET SL
Total/NA	Analysis	906.0		1			608161	04/19/23 07:49	REV	EET SL
Instrument ID: LSC3180										
Total/NA	Prep	ExtChrom			306.99 mL	1.0 mL	606930	04/11/23 15:09	MAL	EET SL
Total/NA	Analysis	A-01-R		1			607304	04/13/23 16:21	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-131940-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-131940-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Comp

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-131940-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131940-1	Outfall002_20230321_Comp	Water	03/21/23 09:55	03/21/23 17:10

1

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570-131940 Chain of Custody

Eurofins Calscience Irvine

CHAIN OF CUSTODY FORM

Client Name/Address:									ANALYSIS REQUIRED															
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 *Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187* <small>TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreements 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</small>									Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp															
									Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)															
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.6): Zn (E200.6): Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM5210B_BODCalc)	Surfactants (MBAS) (SM554OC/E425.1)	Cr, SO ₄ , Nitrate-N, Nitrite-N, NO ₃ -NO ₂ -N, Perchlorate (E300)	Turbidity, TDS (SM254OC/E180.1)	TSS (180.2) (SM2540D)	Ammonia-N (360.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals: Mercury (E245.1)	Comments				
Outfall 002	Outfall002_20230321_Comp	3/21/2023 0955	WM	500 mL Poly	1	HNO ₃	90	Yes	X											X				
			WM	1 L Glass Amber	2	None	110	No			X													
			WM	1L Poly	1	None	115	No				X												
			WM	500 mL Poly	2	None	120	No					X											
			WM	500 mL Poly	2	None	130	No						X									48 hours Holding Time NO ₃ & NO ₂	
			WM	500 mL Poly	1	None	150	No							X									48 hour holding time for turbidity
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X							
			WM	1 L Glass Amber	2	None	170	No										X						
			WM	1 L Glass Amber	2	None	180	No												X				
			WM	1L Poly	1	None	185	No									X							
Outfall 002_20230321_Comp_Extra	3/21/2023 0955	WM	1 L Glass Amber	2	None	110	No			H											Hold			
		WM	1 L Glass Amber	2	None	170	No											H				Hold		
		WM	1 L Glass Amber	2	None	180	No												H			Hold		
		WM	1 L Glass Amber	2	None	180	No													H		Hold		

Legend: C=Conditional, R=Routine

Relinquished By: <i>Michelle Dallalah</i> Date/Time: 3/21/23 13:00 Company: H & A	Received By: <i>[Signature]</i> Date/Time: 3/21/23 13:00 Company: EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/21/23 17:10 Company: EC	Received By: <i>[Signature]</i> Date/Time: 3-21-23 17:10	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

1.3/1.3 1.1/1.1 SC11

CHAIN OF CUSTODY FORM

R R R R R C

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp					ANALYSIS REQUIRED													
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)					Total Dissolved Metals: (E200.8): Zn (E200.6): Cu, Pb, Cd, Se Cyanide (SM4500-CN-E / E335.2) Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Total Dissolved Metals: Mercury (E245.1)	Comments											
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																		
Sampler: michelle dallalah																						
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD														
Outfall 002	Outfall002_20230321_Comp_F	3/21/2023 0955	WM	1L Poly	1	None	200	Yes	X													
			WM	borosilicate vials	2	None	320	No			X	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.										
	Outfall002_20230321_Comp	3/21/2023 0955	WM	500 mL Poly	1	NaOH	220	No		X												
			WM	2.5 Gal Cube	1	None	225	No			X	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.										
WM	1 L Glass Amber	1	None	230	No																	
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																						
Relinquished By: <i>Michelle Dallalah</i> Date/Time: 3/21/23 15:00 Company: H&A				Received By: <i>Samy</i> Date/Time: 3/21/23 1300 Company: EC				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____														
Relinquished By: <i>Samy</i> Date/Time: 3/21/23 1710 Company: EC				Received By: <i>R.F.</i> Date/Time: EC 3-21-23 17:10				Sample Integrity: (Check) Intact: _____ On Ice: _____														
Relinquished By: _____ Date/Time: _____ Company: _____				Received By: _____ Date/Time: _____				Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>														

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact:		Patel, Virendra	Patel, Virendra	570-211866.1	570-211866.1
Shipping/Receiving:		E-Mail:	Virendra.Patel@et.eurofinsus.com	State of Origin:	Page:
Company:		TestAmerica Laboratories, Inc.		California	Page 1 of 1
Address:		13715 Rider Trail North,		Job #:	570-131940-3
City:	Earth City	Due Date Requested:	4/21/2023	Preservation Codes:	
State, Zip:	MO, 63045	TAT Requested (days):		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Phone:	314-298-8566(Tel) 314-298-8757(Fax)	PO #:		A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Email:		WO #:		Total Number of containers	
Project Name:	Boeing NPDES SSFL - Routine Outfall - 002 Comp	Project #:	57013187	Boeing SSFL: DO NOT FILTER, use prep date from preservation. Ok to Preserve	
Site:		SSOW#:		Special Instructions/Note:	
Sample Identification - Client ID (Lab ID)	Outfall002_20230321_Comp (570-131940-1)	Sample Date:	3/21/23	Field Filtered Sample (Yes or No)	X
Sample Type (C=Comp, G=grab)		Sample Time:	09:55 Pacific	Perform MS/MSD (Yes or No)	X
Matrix (W=water, S=solid, O=water/Oil, BT=BIOTISSUE, AA=AI)	Water	Preservation Code:		900.0/Evaporation Gross Alpha/Beta	X
Sample Date	3/21/23	Sample Time	09:55 Pacific	906.0/SLC_Dist_Susp Tritium	X
Sample Time	09:55 Pacific	Preservation Code		905.59/PrecSep_7 Strontium-90	X
Sample Date	3/21/23	Sample Time	09:55 Pacific	903.0/PrecSep_21 Radium-226	X
Sample Time	09:55 Pacific	Preservation Code		904.0/PrecSep_0 Radium-228	X
Sample Date	3/21/23	Sample Time	09:55 Pacific	A01R_U/EXchrom_Actin Total Uranium	X
Sample Time	09:55 Pacific	Preservation Code		901.1_Ca/Fill_Geo_0 K-40 and Cesium-137	X

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 3/22/23 9:24
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____

Custody Seals Intact: Yes No
 Cooler Temperature(s) °C and Other Remarks:



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131940-3

Login Number: 131940

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131940-3

Login Number: 131940

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/23/23 12:20 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/12/2023 8:31:02 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 002 Grab

JOB NUMBER

570-132956-1

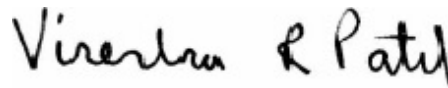
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Job ID: 570-132956-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-132956-1

Comments

No additional comments.

Receipt

The samples were received on 3/29/2023 6:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-316247. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Method SM 2540F: Insufficient sample volume was available to perform a sample duplicate (DUP) associated with analytical batch 570-316086.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-316994.
Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Client Sample ID: Outfall002_20230329_Grab

Lab Sample ID: 570-132956-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.83		0.50	0.17	ug/L	1		624.1	Total/NA
HEM (Oil & Grease)	0.68	J,DX	0.97	0.50	mg/L	1		1664A	Total/NA
Specific Conductance	550		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Settleable Solids	0.10		0.10	0.10	mL/L	1		SM 2540F	Total/NA

Client Sample ID: TB-20230329

Lab Sample ID: 570-132956-2

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall002_20230329_Grab
Date Collected: 03/29/23 08:50
Date Received: 03/29/23 18:15

Lab Sample ID: 570-132956-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/31/23 06:25	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/31/23 06:25	1
Trichloroethene	0.83		0.50	0.17	ug/L			03/31/23 06:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		60 - 140					03/31/23 06:25	1
4-Bromofluorobenzene (Surr)	102		60 - 140					03/31/23 06:25	1
Dibromofluoromethane (Surr)	96		60 - 140					03/31/23 06:25	1
Toluene-d8 (Surr)	105		60 - 140					03/31/23 06:25	1

Client Sample ID: TB-20230329
Date Collected: 03/29/23 08:50
Date Received: 03/29/23 18:15

Lab Sample ID: 570-132956-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/31/23 04:58	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/31/23 04:58	1
Trichloroethene	ND		0.50	0.17	ug/L			03/31/23 04:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		60 - 140					03/31/23 04:58	1
4-Bromofluorobenzene (Surr)	105		60 - 140					03/31/23 04:58	1
Dibromofluoromethane (Surr)	93		60 - 140					03/31/23 04:58	1
Toluene-d8 (Surr)	108		60 - 140					03/31/23 04:58	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

General Chemistry

Client Sample ID: Outfall002_20230329_Grab

Date Collected: 03/29/23 08:50

Date Received: 03/29/23 18:15

Lab Sample ID: 570-132956-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	0.68	J,DX	0.97	0.50	mg/L		04/04/23 07:00	04/04/23 11:55	1
Specific Conductance (SM 2510B)	550		1.0	1.0	umhos/cm			04/11/23 18:13	1
Settleable Solids (SM 2540F)	0.10		0.10	0.10	mL/L			03/30/23 10:55	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	DBFM	TOL
		(60-140)	(60-140)	(60-140)	(60-140)
570-132956-1	Outfall002_20230329_Grab	100	102	96	105
570-132956-2	TB-20230329	107	105	93	108
LCS 570-316247/1003	Lab Control Sample	112	102	99	105
LCSD 570-316247/4	Lab Control Sample Dup	114	103	98	103
MB 570-316247/6	Method Blank	98	98	92	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-316247/6
Matrix: Water
Analysis Batch: 316247

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.50	0.33	ug/L			03/30/23 21:22	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			03/30/23 21:22	1
Trichloroethene	ND		0.50	0.17	ug/L			03/30/23 21:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		60 - 140		03/30/23 21:22	1
4-Bromofluorobenzene (Surr)	98		60 - 140		03/30/23 21:22	1
Dibromofluoromethane (Surr)	92		60 - 140		03/30/23 21:22	1
Toluene-d8 (Surr)	101		60 - 140		03/30/23 21:22	1

Lab Sample ID: LCS 570-316247/1003
Matrix: Water
Analysis Batch: 316247

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	10.0	9.72		ug/L		97	50 - 150
1,2-Dichloroethane	10.0	11.2		ug/L		112	70 - 130
Trichloroethene	10.0	10.4		ug/L		104	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	112		60 - 140
4-Bromofluorobenzene (Surr)	102		60 - 140
Dibromofluoromethane (Surr)	99		60 - 140
Toluene-d8 (Surr)	105		60 - 140

Lab Sample ID: LCSD 570-316247/4
Matrix: Water
Analysis Batch: 316247

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	10.0	10.2		ug/L		102	50 - 150	5	32
1,2-Dichloroethane	10.0	11.5		ug/L		115	70 - 130	2	49
Trichloroethene	10.0	11.1		ug/L		111	65 - 135	7	48

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	114		60 - 140
4-Bromofluorobenzene (Surr)	103		60 - 140
Dibromofluoromethane (Surr)	98		60 - 140
Toluene-d8 (Surr)	103		60 - 140

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-316994/1-A
Matrix: Water
Analysis Batch: 317298

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316994

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		04/04/23 07:00	04/04/23 11:55	1

Euromins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: LCS 570-316994/2-A
Matrix: Water
Analysis Batch: 317298

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316994

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	35.1		mg/L		88	78 - 114

Lab Sample ID: LCSD 570-316994/3-A
Matrix: Water
Analysis Batch: 317298

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316994

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	33.5		mg/L		84	78 - 114	5	18

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 570-319451/35
Matrix: Water
Analysis Batch: 319451

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			04/11/23 17:13	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

GC/MS VOA

Analysis Batch: 316247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-132956-1	Outfall002_20230329_Grab	Total/NA	Water	624.1	
570-132956-2	TB-20230329	Total/NA	Water	624.1	
MB 570-316247/6	Method Blank	Total/NA	Water	624.1	
LCS 570-316247/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-316247/4	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 316086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-132956-1	Outfall002_20230329_Grab	Total/NA	Water	SM 2540F	

Prep Batch: 316994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-132956-1	Outfall002_20230329_Grab	Total/NA	Water	1664A	
MB 570-316994/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-316994/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-316994/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 317298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-132956-1	Outfall002_20230329_Grab	Total/NA	Water	1664A	316994
MB 570-316994/1-A	Method Blank	Total/NA	Water	1664A	316994
LCS 570-316994/2-A	Lab Control Sample	Total/NA	Water	1664A	316994
LCSD 570-316994/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	316994

Analysis Batch: 319451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-132956-1	Outfall002_20230329_Grab	Total/NA	Water	SM 2510B	
MB 570-319451/35	Method Blank	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Client Sample ID: Outfall002_20230329_Grab

Lab Sample ID: 570-132956-1

Date Collected: 03/29/23 08:50

Matrix: Water

Date Received: 03/29/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	316247	03/31/23 06:25	N1A	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			1026 mL	1000 mL	316994	04/04/23 07:00	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			317298	04/04/23 11:55	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										
Total/NA	Analysis	SM 2510B		1			319451	04/11/23 18:13	BDH9	EET CAL 4
Instrument ID: ManSciMantech										
Total/NA	Analysis	SM 2540F		1	1000 mL	1 L	316086	03/30/23 10:55	ZVB7	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: TB-20230329

Lab Sample ID: 570-132956-2

Date Collected: 03/29/23 08:50

Matrix: Water

Date Received: 03/29/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	316247	03/31/23 04:58	N1A	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
SM 2510B	Conductivity, Specific Conductance	SM	EET CAL 4
SM 2540F	Solids, Settleable	SM	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

- 1664A = EPA-821-98-002
- EPA = US Environmental Protection Agency
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 002 Grab

Job ID: 570-132956-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-132956-1	Outfall002_20230329_Grab	Water	03/29/23 08:50	03/29/23 18:15
570-132956-2	TB-20230329	Water	03/29/23 08:50	03/29/23 18:15

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-132956-1

Login Number: 132956

List Number: 1

Creator: Patel, Jayesh

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-133036-1

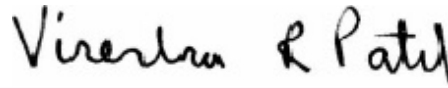
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-133036-1

Job ID: 570-133036-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-133036-1

Comments

No additional comments.

Receipt

The samples were received on 3/30/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.5° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall002_20230330_Comp_F (570-133036-3), Outfall002_20230330_Comp_F (570-133036-3[MS]) and Outfall002_20230330_Comp_F (570-133036-3[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method Kelada 01: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 570-317039 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-318053. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Method 8081A LL

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-317265. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Method 625.1 Sim

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.19		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate	120		5.0	1.2	mg/L	5		300.0	Total/NA
Nitrate Nitrite as N	0.19		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	1.6	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.22	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Selenium	0.72	J,DX	2.0	0.52	ug/L	1		200.8	Total Recoverable
Zinc	3.5	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Turbidity	5.1		0.05	0.05	NTU	1		SM 2130B	Total/NA
Total Dissolved Solids	380		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.3		1.1	0.87	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall002_20230330_Comp_F

Lab Sample ID: 570-133036-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.4	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.13	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Selenium	0.81	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		0.94	0.13	ug/L		04/05/23 04:55	04/11/23 20:19	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		04/05/23 04:55	04/11/23 20:19	1
Bis(2-ethylhexyl) phthalate	ND		4.7	3.4	ug/L		04/05/23 04:55	04/11/23 20:19	1
N-Nitrosodimethylamine	ND		0.19	0.17	ug/L		04/05/23 04:55	04/11/23 20:19	1
Pentachlorophenol	ND		0.94	0.79	ug/L		04/05/23 04:55	04/11/23 20:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	58		31 - 120	04/05/23 04:55	04/11/23 20:19	1
Phenol-d6 (Surr)	23		10 - 120	04/05/23 04:55	04/11/23 20:19	1
p-Terphenyl-d14 (Surr)	108		45 - 120	04/05/23 04:55	04/11/23 20:19	1
2,4,6-Tribromophenol	92		28 - 127	04/05/23 04:55	04/11/23 20:19	1
2-Fluorophenol	33		17 - 120	04/05/23 04:55	04/11/23 20:19	1
Nitrobenzene-d5	55		27 - 120	04/05/23 04:55	04/11/23 20:19	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: EPA 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall002_20230330_Comp

Date Collected: 03/30/23 08:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		04/06/23 12:20	04/11/23 03:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	54		20 - 139				04/06/23 12:20	04/11/23 03:29	1
DCB Decachlorobiphenyl (Surr)	45		20 - 154				04/06/23 12:20	04/11/23 03:29	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall002_20230330_Comp

Date Collected: 03/30/23 08:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13		1.0	0.36	mg/L			03/31/23 00:37	1
Nitrite as N	ND		0.10	0.043	mg/L			03/31/23 00:37	1
Nitrate as N	0.19		0.10	0.020	mg/L			03/31/23 00:37	1
Sulfate	120		5.0	1.2	mg/L			04/04/23 13:25	5

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/31/23 23:24	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.19		0.10	0.020	mg/L			04/11/23 12:02	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-133036-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/31/23 09:08	03/31/23 13:24	1
Copper	1.6	J,DX	2.0	0.32	ug/L		03/31/23 09:08	03/31/23 13:24	1
Lead	0.22	J,DX	1.0	0.12	ug/L		03/31/23 09:08	03/31/23 13:24	1
Selenium	0.72	J,DX	2.0	0.52	ug/L		03/31/23 09:08	03/31/23 13:24	1
Zinc	3.5	J,DX	20	2.8	ug/L		03/31/23 09:08	03/31/23 13:24	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall002_20230330_Comp_F

Date Collected: 03/30/23 08:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND	BU	1.0	0.13	ug/L			03/31/23 09:31	1
Copper	1.4	J,DX BU	2.0	0.32	ug/L			03/31/23 09:31	1
Lead	0.13	J,DX BU	1.0	0.12	ug/L			03/31/23 09:31	1
Selenium	0.81	J,DX BU	2.0	0.52	ug/L			03/31/23 09:31	1
Zinc	ND	BU	20	2.8	ug/L			03/31/23 09:31	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall002_20230330_Comp

Date Collected: 03/30/23 08:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/31/23 15:48	04/03/23 18:07	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall002_20230330_Comp_F

Date Collected: 03/30/23 08:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		03/30/23 23:34	04/03/23 16:40	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

General Chemistry

Client Sample ID: Outfall002_20230330_Comp

Date Collected: 03/30/23 08:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		04/05/23 11:55	04/05/23 13:57	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			04/03/23 13:44	1
Turbidity (SM 2130B)	5.1		0.05	0.05	NTU			03/30/23 20:43	1
Total Dissolved Solids (SM 2540C)	380		10	8.7	mg/L			03/30/23 21:00	1
Total Suspended Solids (SM 2540D)	4.3		1.1	0.87	mg/L			04/04/23 13:15	1
Biochemical Oxygen Demand (SM 5210B)	ND	BU	2.0	1.0	mg/L		03/31/23 12:23	03/31/23 13:18	1
MBAS (SM 5540C)	ND		0.20	0.050	mg/L		03/31/23 15:25	03/31/23 15:55	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	FBP (31-120)	PHL6 (10-120)	TPHd14 (45-120)	TBP (28-127)	2FP (17-120)	NBZ (27-120)
570-133036-1	Outfall002_20230330_Comp	58	23	108	92	33	55
LCS 570-317265/2-A	Lab Control Sample	101	42	117	113	59	79
LCSD 570-317265/3-A	Lab Control Sample Dup	100	45	114	109	63	86
MB 570-317265/1-A	Method Blank	85	36	107	83	53	84

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
 PHL6 = Phenol-d6 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 TBP = 2,4,6-Tribromophenol
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX2 (20-139)	DCB1 (20-154)
570-133036-1	Outfall002_20230330_Comp	54	45
LCS 570-318053/2-A	Lab Control Sample	63	67
LCSD 570-318053/3-A	Lab Control Sample Dup	64	77
MB 570-318053/1-A	Method Blank	62	65

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-317265/1-A
Matrix: Water
Analysis Batch: 319424

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317265

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		04/04/23 10:47	04/11/23 19:17	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		04/04/23 10:47	04/11/23 19:17	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		04/04/23 10:47	04/11/23 19:17	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		04/04/23 10:47	04/11/23 19:17	1
Pentachlorophenol	ND		1.0	0.84	ug/L		04/04/23 10:47	04/11/23 19:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	85		31 - 120	04/04/23 10:47	04/11/23 19:17	1
Phenol-d6 (Surr)	36		10 - 120	04/04/23 10:47	04/11/23 19:17	1
p-Terphenyl-d14 (Surr)	107		45 - 120	04/04/23 10:47	04/11/23 19:17	1
2,4,6-Tribromophenol	83		28 - 127	04/04/23 10:47	04/11/23 19:17	1
2-Fluorophenol	53		17 - 120	04/04/23 10:47	04/11/23 19:17	1
Nitrobenzene-d5	84		27 - 120	04/04/23 10:47	04/11/23 19:17	1

Lab Sample ID: LCS 570-317265/2-A
Matrix: Water
Analysis Batch: 319424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317265

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,6-Trichlorophenol	20.0	20.2		ug/L		101	52 - 129
2,4-Dinitrotoluene	20.0	22.1		ug/L		111	48 - 127
Bis(2-ethylhexyl) phthalate	20.0	22.5		ug/L		113	29 - 137
N-Nitrosodimethylamine	20.0	11.9		ug/L		60	20 - 120
Pentachlorophenol	20.0	19.1		ug/L		96	38 - 152

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	101		31 - 120
Phenol-d6 (Surr)	42		10 - 120
p-Terphenyl-d14 (Surr)	117		45 - 120
2,4,6-Tribromophenol	113		28 - 127
2-Fluorophenol	59		17 - 120
Nitrobenzene-d5	79		27 - 120

Lab Sample ID: LCSD 570-317265/3-A
Matrix: Water
Analysis Batch: 319424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 317265

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	20.0	20.3		ug/L		101	52 - 129	0	35
2,4-Dinitrotoluene	20.0	23.0		ug/L		115	48 - 127	4	25
Bis(2-ethylhexyl) phthalate	20.0	22.8		ug/L		114	29 - 137	1	50
N-Nitrosodimethylamine	20.0	12.8		ug/L		64	20 - 120	7	21
Pentachlorophenol	20.0	18.7		ug/L		93	38 - 152	2	52

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	100		31 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-317265/3-A
Matrix: Water
Analysis Batch: 319424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 317265

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Phenol-d6 (Surr)	45		10 - 120
p-Terphenyl-d14 (Surr)	114		45 - 120
2,4,6-Tribromophenol	109		28 - 127
2-Fluorophenol	63		17 - 120
Nitrobenzene-d5	86		27 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-318053/1-A
Matrix: Water
Analysis Batch: 318881

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 318053

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.0012	ug/L		04/06/23 12:20	04/11/23 01:27	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	62		20 - 139	04/06/23 12:20	04/11/23 01:27	1
DCB Decachlorobiphenyl (Surr)	65		20 - 154	04/06/23 12:20	04/11/23 01:27	1

Lab Sample ID: LCS 570-318053/2-A
Matrix: Water
Analysis Batch: 318881

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 318053

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0333	0.0187		ug/L		56	37 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	63		20 - 139
DCB Decachlorobiphenyl (Surr)	67		20 - 154

Lab Sample ID: LCSD 570-318053/3-A
Matrix: Water
Analysis Batch: 318881

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 318053

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	0.0333	0.0210		ug/L		63	37 - 140	11	36

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	64		20 - 139
DCB Decachlorobiphenyl (Surr)	77		20 - 154

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-315976/5
Matrix: Water
Analysis Batch: 315976

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.10	0.043	mg/L			03/30/23 07:02	1
Nitrate as N	ND		0.10	0.020	mg/L			03/30/23 07:02	1

Lab Sample ID: LCS 570-315976/6
Matrix: Water
Analysis Batch: 315976

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrite as N	2.50	2.48		mg/L		99	90 - 110
Nitrate as N	5.00	4.86		mg/L		97	90 - 110

Lab Sample ID: LCSD 570-315976/7
Matrix: Water
Analysis Batch: 315976

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrite as N	2.50	2.47		mg/L		99	90 - 110	0	15
Nitrate as N	5.00	4.85		mg/L		97	90 - 110	0	15

Lab Sample ID: MB 570-315977/5
Matrix: Water
Analysis Batch: 315977

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/30/23 07:02	1
Sulfate	ND		1.0	0.24	mg/L			03/30/23 07:02	1

Lab Sample ID: LCS 570-315977/6
Matrix: Water
Analysis Batch: 315977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.2		mg/L		96	90 - 110
Sulfate	50.0	48.3		mg/L		97	90 - 110

Lab Sample ID: LCSD 570-315977/7
Matrix: Water
Analysis Batch: 315977

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	48.2		mg/L		96	90 - 110	0	15
Sulfate	50.0	48.2		mg/L		96	90 - 110	0	15

Lab Sample ID: MB 570-317157/5
Matrix: Water
Analysis Batch: 317157

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.24	mg/L			04/04/23 06:35	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCS 570-317157/6
 Matrix: Water
 Analysis Batch: 317157

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	50.0	48.7		mg/L		97	90 - 110

Lab Sample ID: LCSD 570-317157/7
 Matrix: Water
 Analysis Batch: 317157

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	50.0	48.7		mg/L		97	90 - 110	0	15

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-316506/7
 Matrix: Water
 Analysis Batch: 316506

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/31/23 16:05	1

Lab Sample ID: LCS 570-316506/8
 Matrix: Water
 Analysis Batch: 316506

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	24.3		ug/L		97	85 - 115

Lab Sample ID: LCSD 570-316506/9
 Matrix: Water
 Analysis Batch: 316506

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	24.3		ug/L		97	85 - 115	0	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-316445/1-A
 Matrix: Water
 Analysis Batch: 316554

Client Sample ID: Method Blank
 Prep Type: Total Recoverable
 Prep Batch: 316445

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L		03/31/23 09:08	03/31/23 13:18	1
Copper	ND		2.0	0.32	ug/L		03/31/23 09:08	03/31/23 13:18	1
Lead	ND		1.0	0.12	ug/L		03/31/23 09:08	03/31/23 13:18	1
Selenium	ND		2.0	0.52	ug/L		03/31/23 09:08	03/31/23 13:18	1
Zinc	ND		20	2.8	ug/L		03/31/23 09:08	03/31/23 13:18	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-316445/2-A
Matrix: Water
Analysis Batch: 316554

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 316445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	84.8		ug/L		106	85 - 115
Copper	80.0	82.5		ug/L		103	85 - 115
Lead	80.0	82.6		ug/L		103	85 - 115
Selenium	80.0	85.7		ug/L		107	85 - 115
Zinc	80.0	85.0		ug/L		106	85 - 115

Lab Sample ID: LCSD 570-316445/3-A
Matrix: Water
Analysis Batch: 316554

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 316445

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	85.1		ug/L		106	85 - 115	0	20
Copper	80.0	83.4		ug/L		104	85 - 115	1	20
Lead	80.0	83.6		ug/L		105	85 - 115	1	20
Selenium	80.0	87.7		ug/L		110	85 - 115	2	20
Zinc	80.0	86.4		ug/L		108	85 - 115	2	20

Lab Sample ID: 570-133036-1 MS
Matrix: Water
Analysis Batch: 316554

Client Sample ID: Outfall002_20230330_Comp
Prep Type: Total Recoverable
Prep Batch: 316445

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		80.0	83.7		ug/L		105	80 - 120
Copper	1.6	J,DX	80.0	83.9		ug/L		103	80 - 120
Lead	0.22	J,DX	80.0	80.7		ug/L		101	80 - 120
Selenium	0.72	J,DX	80.0	82.8		ug/L		103	80 - 120
Zinc	3.5	J,DX	80.0	86.0		ug/L		103	80 - 120

Lab Sample ID: 570-133036-1 MSD
Matrix: Water
Analysis Batch: 316554

Client Sample ID: Outfall002_20230330_Comp
Prep Type: Total Recoverable
Prep Batch: 316445

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		80.0	84.6		ug/L		106	80 - 120	1	20
Copper	1.6	J,DX	80.0	86.0		ug/L		105	80 - 120	3	20
Lead	0.22	J,DX	80.0	83.4		ug/L		104	80 - 120	3	20
Selenium	0.72	J,DX	80.0	84.6		ug/L		105	80 - 120	2	20
Zinc	3.5	J,DX	80.0	87.2		ug/L		105	80 - 120	1	20

Lab Sample ID: MB 570-316389/1-A
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.13	ug/L			03/31/23 09:17	1
Copper	ND		2.0	0.32	ug/L			03/31/23 09:17	1
Lead	ND		1.0	0.12	ug/L			03/31/23 09:17	1
Selenium	ND		2.0	0.52	ug/L			03/31/23 09:17	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-316389/1-A
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	2.8	ug/L			03/31/23 09:17	1

Lab Sample ID: LCS 570-316389/2-A
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	80.0	80.0		ug/L		100	85 - 115
Copper	80.0	78.8		ug/L		98	85 - 115
Lead	80.0	80.8		ug/L		101	85 - 115
Selenium	80.0	77.9		ug/L		97	85 - 115
Zinc	80.0	78.8		ug/L		98	85 - 115

Lab Sample ID: LCSD 570-316389/3-A
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	80.0	80.7		ug/L		101	85 - 115	1	20
Copper	80.0	79.5		ug/L		99	85 - 115	1	20
Lead	80.0	81.9		ug/L		102	85 - 115	1	20
Selenium	80.0	79.2		ug/L		99	85 - 115	2	20
Zinc	80.0	78.2		ug/L		98	85 - 115	1	20

Lab Sample ID: 570-133036-3 MS
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Outfall002_20230330_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND	BU	80.0	75.5	BU	ug/L		94	80 - 120
Copper	1.4	J,DX BU	80.0	74.7	BU	ug/L		92	80 - 120
Lead	0.13	J,DX BU	80.0	75.1	BU	ug/L		94	80 - 120
Selenium	0.81	J,DX BU	80.0	80.4	BU	ug/L		99	80 - 120
Zinc	ND	BU	80.0	73.9	BU	ug/L		92	80 - 120

Lab Sample ID: 570-133036-3 MSD
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Outfall002_20230330_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND	BU	80.0	74.2	BU	ug/L		93	80 - 120	2	20
Copper	1.4	J,DX BU	80.0	73.8	BU	ug/L		91	80 - 120	1	20
Lead	0.13	J,DX BU	80.0	73.1	BU	ug/L		91	80 - 120	3	20
Selenium	0.81	J,DX BU	80.0	79.9	BU	ug/L		99	80 - 120	1	20
Zinc	ND	BU	80.0	73.5	BU	ug/L		92	80 - 120	1	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-316587/1-A
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316587

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/31/23 15:48	04/03/23 18:02	1

Lab Sample ID: LCS 570-316587/2-A
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316587

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.18		ug/L		102	85 - 115

Lab Sample ID: LCSD 570-316587/3-A
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316587

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.43		ug/L		105	85 - 115	3	10

Lab Sample ID: 570-133036-1 MS
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Outfall002_20230330_Comp
Prep Type: Total/NA
Prep Batch: 316587

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.20		ug/L		102	85 - 115

Lab Sample ID: 570-133036-1 MSD
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Outfall002_20230330_Comp
Prep Type: Total/NA
Prep Batch: 316587

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.19		ug/L		102	85 - 115	0	10

Lab Sample ID: MB 570-316343/1-B
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 316344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/30/23 23:34	04/03/23 16:29	1

Lab Sample ID: LCS 570-316343/2-B
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 316344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.36		ug/L		104	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 570-316343/3-B
 Matrix: Water
 Analysis Batch: 317032

Client Sample ID: Lab Control Sample Dup
 Prep Type: Dissolved
 Prep Batch: 316344

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.27		ug/L		103	85 - 115	1	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-317753/5-A
 Matrix: Water
 Analysis Batch: 317754

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 317753

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		04/05/23 11:55	04/05/23 13:28	1

Lab Sample ID: LCS 570-317753/6-A
 Matrix: Water
 Analysis Batch: 317754

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 317753

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.483		mg/L		97	90 - 110

Lab Sample ID: LCSD 570-317753/7-A
 Matrix: Water
 Analysis Batch: 317754

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 317753

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.486		mg/L		97	90 - 110	1	20

Lab Sample ID: 570-133036-1 MS
 Matrix: Water
 Analysis Batch: 317754

Client Sample ID: Outfall002_20230330_Comp
 Prep Type: Total/NA
 Prep Batch: 317753

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	ND		0.500	0.514		mg/L		103	90 - 110

Lab Sample ID: 570-133036-1 MSD
 Matrix: Water
 Analysis Batch: 317754

Client Sample ID: Outfall002_20230330_Comp
 Prep Type: Total/NA
 Prep Batch: 317753

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	ND		0.500	0.503		mg/L		101	90 - 110	2	25

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-317039/11
 Matrix: Water
 Analysis Batch: 317039

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			04/03/23 12:53	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: LCS 570-317039/12
Matrix: Water
Analysis Batch: 317039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	260		ug/L		104	90 - 110

Lab Sample ID: LCSD 570-317039/13
Matrix: Water
Analysis Batch: 317039

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	247		ug/L		99	90 - 110	5	20

Lab Sample ID: MRL 570-317039/10
Matrix: Water
Analysis Batch: 317039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	5.08		ug/L		102	50 - 150

Method: SM 2130B - Turbidity

Lab Sample ID: LCSSRM 570-316315/1
Matrix: Water
Analysis Batch: 316315

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1000	1000		NTU		100.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-316315/2
Matrix: Water
Analysis Batch: 316315

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	10.0	10		NTU		100.0	99.0 - 101.0

Lab Sample ID: LCSSRM 570-316315/3
Matrix: Water
Analysis Batch: 316315

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	0.0200	ND		NTU		100.0	0.0 - 200.0

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-316212/1
Matrix: Water
Analysis Batch: 316212

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/30/23 16:46	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 570-316212/2
 Matrix: Water
 Analysis Batch: 316212

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108

Lab Sample ID: LCSD 570-316212/3
 Matrix: Water
 Analysis Batch: 316212

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1030		mg/L		103	84 - 108	1	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-317330/1
 Matrix: Water
 Analysis Batch: 317330

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			04/04/23 13:15	1
Total Suspended Solids	ND		1.0	0.83	mg/L			04/04/23 13:15	1

Lab Sample ID: LCS 570-317330/2
 Matrix: Water
 Analysis Batch: 317330

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.0		mg/L		95	77 - 116
Total Suspended Solids	100	95.0		mg/L		95	77 - 116

Lab Sample ID: LCSD 570-317330/3
 Matrix: Water
 Analysis Batch: 317330

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	95.0		mg/L		95	77 - 116	0	10
Total Suspended Solids	100	95.0		mg/L		95	77 - 116	0	10

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: LCS 570-316520/2-A
 Matrix: Water
 Analysis Batch: 317793

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 316520

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biochemical Oxygen Demand	199	188		mg/L		95	84.6 - 115.4

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method: SM 5210B - BOD, 5-Day (Continued)

Lab Sample ID: USB 570-317793/2
Matrix: Water
Analysis Batch: 317793

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	1.0	mg/L			03/31/23 12:19	1

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 570-316601/5-A
Matrix: Water
Analysis Batch: 316600

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316601

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MBAS	ND		0.20	0.050	mg/L		03/31/23 15:25	03/31/23 15:50	1

Lab Sample ID: LCS 570-316601/6-A
Matrix: Water
Analysis Batch: 316600

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316601

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
MBAS	0.500	0.518		mg/L		104	83 - 122

Lab Sample ID: LCSD 570-316601/7-A
Matrix: Water
Analysis Batch: 316600

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316601

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
MBAS	0.500	0.531		mg/L		106	83 - 122	3	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

GC/MS Semi VOA

Prep Batch: 317265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	625	
MB 570-317265/1-A	Method Blank	Total/NA	Water	625	
LCS 570-317265/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-317265/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 319424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	625.1 SIM	317265
MB 570-317265/1-A	Method Blank	Total/NA	Water	625.1 SIM	317265
LCS 570-317265/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	317265
LCSD 570-317265/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	317265

GC Semi VOA

Prep Batch: 318053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	608	
MB 570-318053/1-A	Method Blank	Total/NA	Water	608	
LCS 570-318053/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-318053/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 318881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	608.3	318053
MB 570-318053/1-A	Method Blank	Total/NA	Water	608.3	318053
LCS 570-318053/2-A	Lab Control Sample	Total/NA	Water	608.3	318053
LCSD 570-318053/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	318053

HPLC/IC

Analysis Batch: 315976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	300.0	
MB 570-315976/5	Method Blank	Total/NA	Water	300.0	
LCS 570-315976/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-315976/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 315977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	300.0	
MB 570-315977/5	Method Blank	Total/NA	Water	300.0	
LCS 570-315977/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-315977/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 316506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	314.0	
MB 570-316506/7	Method Blank	Total/NA	Water	314.0	
LCS 570-316506/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-316506/9	Lab Control Sample Dup	Total/NA	Water	314.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

HPLC/IC

Analysis Batch: 317157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	300.0	
MB 570-317157/5	Method Blank	Total/NA	Water	300.0	
LCS 570-317157/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-317157/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 319249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 316343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-3	Outfall002_20230330_Comp_F	Dissolved	Water	Filtration	
MB 570-316343/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-316343/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-316343/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	

Prep Batch: 316344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-3	Outfall002_20230330_Comp_F	Dissolved	Water	245.1	316343
MB 570-316343/1-B	Method Blank	Dissolved	Water	245.1	316343
LCS 570-316343/2-B	Lab Control Sample	Dissolved	Water	245.1	316343
LCSD 570-316343/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	316343

Filtration Batch: 316389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-3	Outfall002_20230330_Comp_F	Dissolved	Water	Filtration	
MB 570-316389/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-316389/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-316389/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-133036-3 MS	Outfall002_20230330_Comp_F	Dissolved	Water	Filtration	
570-133036-3 MSD	Outfall002_20230330_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 316445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total Recoverable	Water	200.8	
MB 570-316445/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-316445/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-316445/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-133036-1 MS	Outfall002_20230330_Comp	Total Recoverable	Water	200.8	
570-133036-1 MSD	Outfall002_20230330_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 316490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-3	Outfall002_20230330_Comp_F	Dissolved	Water	200.8	316389
MB 570-316389/1-A	Method Blank	Dissolved	Water	200.8	316389
LCS 570-316389/2-A	Lab Control Sample	Dissolved	Water	200.8	316389
LCSD 570-316389/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	316389
570-133036-3 MS	Outfall002_20230330_Comp_F	Dissolved	Water	200.8	316389

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Metals (Continued)

Analysis Batch: 316490 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-3 MSD	Outfall002_20230330_Comp_F	Dissolved	Water	200.8	316389

Analysis Batch: 316554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total Recoverable	Water	200.8	316445
MB 570-316445/1-A	Method Blank	Total Recoverable	Water	200.8	316445
LCS 570-316445/2-A	Lab Control Sample	Total Recoverable	Water	200.8	316445
LCSD 570-316445/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	316445
570-133036-1 MS	Outfall002_20230330_Comp	Total Recoverable	Water	200.8	316445
570-133036-1 MSD	Outfall002_20230330_Comp	Total Recoverable	Water	200.8	316445

Prep Batch: 316587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	245.1	
MB 570-316587/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-316587/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-316587/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-133036-1 MS	Outfall002_20230330_Comp	Total/NA	Water	245.1	
570-133036-1 MSD	Outfall002_20230330_Comp	Total/NA	Water	245.1	

Analysis Batch: 317032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	245.1	316587
570-133036-3	Outfall002_20230330_Comp_F	Dissolved	Water	245.1	316344
MB 570-316343/1-B	Method Blank	Dissolved	Water	245.1	316344
MB 570-316587/1-A	Method Blank	Total/NA	Water	245.1	316587
LCS 570-316343/2-B	Lab Control Sample	Dissolved	Water	245.1	316344
LCS 570-316587/2-A	Lab Control Sample	Total/NA	Water	245.1	316587
LCSD 570-316343/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	316344
LCSD 570-316587/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	316587
570-133036-1 MS	Outfall002_20230330_Comp	Total/NA	Water	245.1	316587
570-133036-1 MSD	Outfall002_20230330_Comp	Total/NA	Water	245.1	316587

General Chemistry

Analysis Batch: 316212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	SM 2540C	
MB 570-316212/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-316212/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-316212/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 316315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	SM 2130B	
LCSSRM 570-316315/1	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-316315/2	Lab Control Sample	Total/NA	Water	SM 2130B	
LCSSRM 570-316315/3	Lab Control Sample	Total/NA	Water	SM 2130B	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

General Chemistry

Prep Batch: 316520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	BOD Prep	
LCS 570-316520/2-A	Lab Control Sample	Total/NA	Water	BOD Prep	

Analysis Batch: 316600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	SM 5540C	316601
MB 570-316601/5-A	Method Blank	Total/NA	Water	SM 5540C	316601
LCS 570-316601/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	316601
LCSD 570-316601/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	316601

Prep Batch: 316601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	SM 5540C	
MB 570-316601/5-A	Method Blank	Total/NA	Water	SM 5540C	
LCS 570-316601/6-A	Lab Control Sample	Total/NA	Water	SM 5540C	
LCSD 570-316601/7-A	Lab Control Sample Dup	Total/NA	Water	SM 5540C	

Analysis Batch: 317039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	Kelada 01	
MB 570-317039/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-317039/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-317039/13	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-317039/10	Lab Control Sample	Total/NA	Water	Kelada 01	

Analysis Batch: 317330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	SM 2540D	
MB 570-317330/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-317330/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-317330/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Prep Batch: 317753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-317753/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-317753/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-317753/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
570-133036-1 MS	Outfall002_20230330_Comp	Total/NA	Water	Distill/Ammonia	
570-133036-1 MSD	Outfall002_20230330_Comp	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 317754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	350.1	317753
MB 570-317753/5-A	Method Blank	Total/NA	Water	350.1	317753
LCS 570-317753/6-A	Lab Control Sample	Total/NA	Water	350.1	317753
LCSD 570-317753/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	317753
570-133036-1 MS	Outfall002_20230330_Comp	Total/NA	Water	350.1	317753
570-133036-1 MSD	Outfall002_20230330_Comp	Total/NA	Water	350.1	317753

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

General Chemistry

Analysis Batch: 317793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	SM 5210B	316520
USB 570-317793/2	Method Blank	Total/NA	Water	SM 5210B	
LCS 570-316520/2-A	Lab Control Sample	Total/NA	Water	SM 5210B	316520

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			1063.5 mL	2 mL	317265	04/05/23 04:55	H1SH	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	319424	04/11/23 20:19	ULLI	EET CAL 4
		Instrument ID: GCMSJJJ								
Total/NA	Prep	608			1500 mL	1 mL	318053	04/06/23 12:20	H1SH	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	318881	04/11/23 03:29	N5Y3	EET CAL 4
		Instrument ID: GC54A								
Total/NA	Analysis	300.0		5	4 mL	4 mL	317157	04/04/23 13:25	PS	EET CAL 4
		Instrument ID: IC15								
Total/NA	Analysis	300.0		1	4 mL	4 mL	315976	03/31/23 00:37	UIP1	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	300.0		1	4 mL	4 mL	315977	03/31/23 00:37	UIP1	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	314.0		1	4 mL	4 mL	316506	03/31/23 23:24	PS	EET CAL 4
		Instrument ID: IC8								
Total/NA	Analysis	NO2NO3 Calc		1			319249	04/11/23 12:02	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total Recoverable	Prep	200.8			50 mL	50 mL	316445	03/31/23 09:08	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			316554	03/31/23 13:24	Y2WS	EET CAL 4
		Instrument ID: ICPMS10								
Total/NA	Prep	245.1			25 mL	50 mL	316587	03/31/23 15:48	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			317032	04/03/23 18:07	C0YH	EET CAL 4
		Instrument ID: HG8								
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	317753	04/05/23 11:55	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	317754	04/05/23 13:57	UXCH	EET CAL 4
		Instrument ID: ACA2								
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	317039	04/03/23 13:44	GG0B	EET CAL 4
		Instrument ID: LACHAT01								
Total/NA	Analysis	SM 2130B		1			316315	03/30/23 20:43	TXA8	EET CAL 4
		Instrument ID: TUR4								
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	316212	03/30/23 21:00	ZL7L	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540D		1	950 mL	1000 mL	317330	04/04/23 13:15	U7UR	EET CAL 4
		Instrument ID: BAL71								
Total/NA	Prep	BOD Prep					316520	03/31/23 12:23	U7UR	EET CAL 4
Total/NA	Analysis	SM 5210B		1	300 mL	300 mL	317793	03/31/23 13:18	U7UR	EET CAL 4
		Instrument ID: BOD3								
Total/NA	Prep	SM 5540C			100 mL	100 mL	316601	03/31/23 15:25	TXA8	EET CAL 4
Total/NA	Analysis	SM 5540C		1	100 mL	100 mL	316600	03/31/23 15:55	TXA8	EET CAL 4
		Instrument ID: UV8								

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Client Sample ID: Outfall002_20230330_Comp_F

Lab Sample ID: 570-133036-3

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	316389	03/31/23 06:32	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			316490	03/31/23 09:31	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Dissolved	Filtration	Filtration			25 mL	25 mL	316343	03/30/23 23:00	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	316344	03/30/23 23:34	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			317032	04/03/23 16:40	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	EPA	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
350.1	Nitrogen, Ammonia	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2130B	Turbidity	SM	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
SM 5210B	BOD, 5-Day	SM	EET CAL 4
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET CAL 4
625	Liquid-Liquid Extraction	EPA	EET CAL 4
BOD Prep	Preparation, BOD	SM	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4
SM 5540C	Preparation, Methylene Blue Active Substances (MBAS)	SM	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133036-1	Outfall002_20230330_Comp	Water	03/30/23 08:35	03/30/23 17:10
570-133036-3	Outfall002_20230330_Comp_F	Water	03/30/23 08:35	03/30/23 17:10

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CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp				R R R R R C ANALYSIS REQUIRED															
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 67013187						Total Dissolved Metals: (E200.6): Zn (E200.6): Cu, Pb, Cd, Se Cyanide (SM4500-CN-E / E335.2) Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, Cs-137 (E901.0 or E901.1) Total Dissolved Metals: Mercury (E245.1)															
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																			
Sampler: michelle dallalah		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																			
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD													
3 Outfall 002	Outfall002_20230330_Comp_F	3/30/2023 0835	WM	1L Poly	1	None	200	Yes	X												
			WM	borosilicate vials	2	None	320	No			X	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.									
1	Outfall002_20230330_Comp	3/30/2023 0835	WM	500 mL Poly	1	NaOH	220	No		X											
			WM	2.5 Gal Cube	1	None	225	No			X	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.									
			WM	1 L Glass Amber	1	None	230	No													
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																					
Relinquished By: <i>Mark Dominick</i> Date/Time: 3-30-2023/12:10 Company: H: A			Received By: <i>Michelle</i> Date/Time: 3/30/23 12:10 EC			Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X _____ 48 Hour: _____ 5 Day: _____ Normal: _____															
Relinquished By: <i>Michelle</i> Date/Time: 3/30/23 12:10 EC			Received By: <i>Michelle</i> Date/Time: 3/30/23 17:10 EC			Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X _____															

Eurofins Calscience

2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895-5494

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)				Sampler:		Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-214399.1			
Client Contact: Shipping/Receiving				Phone:		E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1			
Company: TestAmerica Laboratories, Inc.				Accreditations Required (See note): State Program - California				Job #: 570-133036-3					
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:				Due Date Requested: 5/2/2023		TAT Requested (days):		Analysis Requested				Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)	
Project Name: Boeing NPDES SSFL - Routine Outfall - 002 Comp				Project #: 57013187		PO #:							
Site:				SSOW#:		WO #:		WO #:		WO #:			
Sample Identification - Client ID (Lab ID)				Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)			
Outfall002_20230330_Comp (570-133036-1)				3/30/23		08:35 Pacific		Water		Preservation Code:			
										Field Filtered Sample (Yes or No)			
										Perform MS/MSD (Yes or No)			
										900.0/Evaporation Gross Alpha/Beta			
										906.0/LSC_Dist_Susp Tritium			
										905_Sr90/PrecSep_7 Strontium-90			
										903.0/PrecSep_21 Radium-226			
										904.0/PrecSep_0 Radium-228			
										A01R_UExtChrom_Actin Total Uranium			
										901.1_CaFill_Geo_0 K-40 and Cesium-137			
										Total Number of containers			
										Special Instructions/Note:			
										2 Boeing SSFL; DO NOT FILTER; use prep date from preservation. Ok to Preserve			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Unconfirmed				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: <i>[Signature]</i>		Date/Time: 4/3/23 1417		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133036-1

Login Number: 133036

List Number: 1

Creator: Patel, Jayesh

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 5/2/2023 2:50:26 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-133036-2

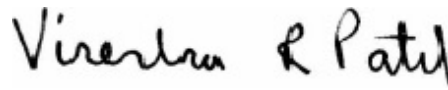
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

 Generated
5/2/2023 2:50:26 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
BA	Relative percent difference out of control
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LR	LCS/LCSD recovery below method control limits
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-133036-2

Job ID: 570-133036-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-133036-2

Comments

No additional comments.

Receipt

The samples were received on 3/30/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.5° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall002_20230330_Comp (570-133036-1), (CCV 320-667684/1), (LCS 320-666843/2-A), (LCSD 320-666843/3-A) and (MB 320-666843/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall002_20230330_Comp (570-133036-1), (CCV 320-670442/7) and (LCS 320-669114/2-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: (CCV 320-670677/1) and (MB 320-669114/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall002_20230330_Comp (570-133036-1), (LCS 320-669114/2-A) and (LCSD 320-669114/3-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: The laboratory control sample duplicate (LCSD) for preparation batch 320-669114 and analytical batch 320-670442 recovered outside control limits for several target analytes while the LCS was within limits for all analytes. The data from this analysis is from a re-extraction due to contamination in the Method Blank in the original extraction so there was insufficient sample to perform another re-extraction. The client was notified of the failing LCSD recovery and approved reporting of samples with narration.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-133036-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Comp

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.0000024	J,DX q LR	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				19					
1,2,3,4,6,7,8-HpCDD	0.0000043	J,DX q MB LR BA	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				66					
1,2,3,4,6,7,8-HpCDF	0.0000032	J,DX q MB LR	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				45					
1,2,3,4,7,8,9-HpCDF	0.0000050	J,DX q MB LR BA	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				38					
OCDD	0.000043	J,DX q MB LR BA	0.000095	0.0000000	ug/L	1		1613B	Total/NA
				73					
OCDF	0.0000073	J,DX q MB LR BA	0.000095	0.0000002	ug/L	1		1613B	Total/NA
				0					
Total PeCDF	0.0000024	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				19					
Total HpCDD	0.0000093	J,DX q MB	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				66					
Total HpCDF	0.0000044	J,DX q MB	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				38					

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall002_20230330_Comp

Date Collected: 03/30/23 08:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				62					
2,3,7,8-TCDF	ND	LR	0.0000095	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				13					
1,2,3,7,8-PeCDD	ND	LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				57					
1,2,3,7,8-PeCDF	0.0000024	J,DX q LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				19					
2,3,4,7,8-PeCDF	ND	LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				24					
1,2,3,4,7,8-HxCDD	ND	LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				14					
1,2,3,6,7,8-HxCDD	ND	LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				13					
1,2,3,7,8,9-HxCDD	ND	LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				12					
1,2,3,4,7,8-HxCDF	ND	LR BA	0.000047	0.0000006	ug/L		04/21/23 06:35	04/27/23 06:25	1
				5					
1,2,3,6,7,8-HxCDF	ND	LR BA	0.000047	0.0000006	ug/L		04/21/23 06:35	04/27/23 06:25	1
				7					
1,2,3,7,8,9-HxCDF	ND	LR	0.000047	0.0000006	ug/L		04/21/23 06:35	04/27/23 06:25	1
				7					
2,3,4,6,7,8-HxCDF	ND	LR	0.000047	0.0000006	ug/L		04/21/23 06:35	04/27/23 06:25	1
				4					
1,2,3,4,6,7,8-HpCDD	0.0000043	J,DX q MB LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				66					
1,2,3,4,6,7,8-HpCDF	0.0000032	J,DX q MB LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				45					
1,2,3,4,7,8,9-HpCDF	0.0000050	J,DX q MB LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				38					
OCDD	0.000043	J,DX q MB LR BA	0.000095	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				73					
OCDF	0.0000073	J,DX q MB LR BA	0.000095	0.0000002	ug/L		04/21/23 06:35	04/27/23 06:25	1
				0					
Total TCDD	ND		0.0000095	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				62					
Total TCDF	ND		0.0000095	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				13					
Total PeCDD	ND		0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				57					
Total PeCDF	0.0000024	J,DX q	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				19					
Total HxCDD	ND		0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				12					
Total HxCDF	ND		0.000047	0.0000006	ug/L		04/21/23 06:35	04/27/23 06:25	1
				4					
Total HpCDD	0.0000093	J,DX q MB	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				66					
Total HpCDF	0.0000044	J,DX q MB	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 06:25	1
				38					
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
13C-2,3,7,8-TCDD	61		25 - 164			04/21/23 06:35	04/27/23 06:25	1	
13C-2,3,7,8-TCDF	81		24 - 169			04/21/23 06:35	04/27/23 06:25	1	
13C-1,2,3,7,8-PeCDD	53		25 - 181			04/21/23 06:35	04/27/23 06:25	1	

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall002_20230330_Comp

Date Collected: 03/30/23 08:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,7,8-PeCDF	59		24 - 185	04/21/23 06:35	04/27/23 06:25	1
13C-2,3,4,7,8-PeCDF	55		21 - 178	04/21/23 06:35	04/27/23 06:25	1
13C-1,2,3,4,7,8-HxCDD	59		32 - 141	04/21/23 06:35	04/27/23 06:25	1
13C-1,2,3,6,7,8-HxCDD	62		28 - 130	04/21/23 06:35	04/27/23 06:25	1
13C-1,2,3,4,7,8-HxCDF	73		26 - 152	04/21/23 06:35	04/27/23 06:25	1
13C-1,2,3,6,7,8-HxCDF	73		26 - 123	04/21/23 06:35	04/27/23 06:25	1
13C-1,2,3,7,8,9-HxCDF	80		29 - 147	04/21/23 06:35	04/27/23 06:25	1
13C-2,3,4,6,7,8-HxCDF	79		28 - 136	04/21/23 06:35	04/27/23 06:25	1
13C-1,2,3,4,6,7,8-HpCDD	70		23 - 140	04/21/23 06:35	04/27/23 06:25	1
13C-1,2,3,4,6,7,8-HpCDF	125		28 - 143	04/21/23 06:35	04/27/23 06:25	1
13C-1,2,3,4,7,8,9-HpCDF	152		26 - 138	04/21/23 06:35	04/27/23 06:25	1
13C-OCDD	70		17 - 157	04/21/23 06:35	04/27/23 06:25	1
13C-OCDF	79		17 - 157	04/21/23 06:35	04/27/23 06:25	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	91		35 - 197	04/21/23 06:35	04/27/23 06:25	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-133036-1	Outfall002_20230330_Comp	91
MB 320-669114/1-A	Method Blank	87

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-669114/2-A	Lab Control Sample	85
LCSD 320-669114/3-A	Lab Control Sample Dup	78

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-133036-1	Outfall002_20230330_Comp	61	81	53	59	55	59	62	73
MB 320-669114/1-A	Method Blank	63	54	50	55	52	54	54	57

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-133036-1	Outfall002_20230330_Comp	73	80	79	70	125	152	70	79
MB 320-669114/1-A	Method Blank	56	56	55	61	52	53	68	59

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCF = 13C-2,3,4,7,8-PeCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 OCDD = 13C-OCDD
 OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-669114/2-A	Lab Control Sample	71	74	81	77	78	67	66	70
LCSD 320-669114/3-A	Lab Control Sample Dup	50	65	47	47	56	45	50	41

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-669114/2-A	Lab Control Sample	68	78	77	84	66	77	85	83
LCSD 320-669114/3-A	Lab Control Sample Dup	52	50	53	51	41	47	49	48

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCF = 13C-2,3,4,7,8-PeCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

Job ID: 570-133036-2

- 1
- 2
- 3
- 4
- 5
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- 9
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- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-669114/1-A
Matrix: Water
Analysis Batch: 670677

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 669114

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				28					
2,3,7,8-TCDF	ND		0.000010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				093					
1,2,3,7,8-PeCDD	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				35					
1,2,3,7,8-PeCDF	ND		0.000050	0.00000001	ug/L		04/21/23 06:35	04/27/23 16:27	1
				1					
2,3,4,7,8-PeCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				13					
1,2,3,4,7,8-HxCDD	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				12					
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				12					
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000001	ug/L		04/21/23 06:35	04/27/23 16:27	1
				1					
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				073					
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				078					
1,2,3,7,8,9-HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				084					
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				077					
1,2,3,4,6,7,8-HpCDD	0.00000230	J,DX	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				19					
1,2,3,4,6,7,8-HpCDF	0.00000127	J,DX q	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				14					
1,2,3,4,7,8,9-HpCDF	0.00000127	J,DX	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				16					
OCDD	0.00000319	J,DX q	0.00010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				13					
OCDF	0.00000137	J,DX q	0.00010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				30					
Total TCDD	ND		0.000010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				28					
Total TCDF	ND		0.000010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				093					
Total PeCDD	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				35					
Total PeCDF	ND		0.000050	0.00000001	ug/L		04/21/23 06:35	04/27/23 16:27	1
				1					
Total HxCDD	ND		0.000050	0.00000001	ug/L		04/21/23 06:35	04/27/23 16:27	1
				1					
Total HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				073					
Total HpCDD	0.00000350	J,DX q	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				19					
Total HpCDF	0.00000255	J,DX q	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				14					
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	63		25 - 164				04/21/23 06:35	04/27/23 16:27	1
13C-2,3,7,8-TCDF	54		24 - 169				04/21/23 06:35	04/27/23 16:27	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-669114/1-A
Matrix: Water
Analysis Batch: 670677

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 669114

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	50		25 - 181	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,7,8-PeCDF	55		24 - 185	04/21/23 06:35	04/27/23 16:27	1
13C-2,3,4,7,8-PeCDF	52		21 - 178	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,7,8-HxCDD	54		32 - 141	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,6,7,8-HxCDD	54		28 - 130	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,7,8-HxCDF	57		26 - 152	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,6,7,8-HxCDF	56		26 - 123	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,7,8,9-HxCDF	56		29 - 147	04/21/23 06:35	04/27/23 16:27	1
13C-2,3,4,6,7,8-HxCDF	55		28 - 136	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,6,7,8-HpCDD	61		23 - 140	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,6,7,8-HpCDF	52		28 - 143	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,7,8,9-HpCDF	53		26 - 138	04/21/23 06:35	04/27/23 16:27	1
13C-OCDD	68		17 - 157	04/21/23 06:35	04/27/23 16:27	1
13C-OCDF	59		17 - 157	04/21/23 06:35	04/27/23 16:27	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	87		35 - 197	04/21/23 06:35	04/27/23 16:27	1

Lab Sample ID: LCS 320-669114/2-A
Matrix: Water
Analysis Batch: 670442

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 669114

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000198		ug/L		99	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000855		ug/L		85	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000846		ug/L		85	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000851		ug/L		85	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000863		ug/L		86	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000925		ug/L		93	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000877		ug/L		88	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000901		ug/L		90	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000909		ug/L		91	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000863		ug/L		86	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000870		ug/L		87	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000755		ug/L		76	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000845		ug/L		85	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000798		ug/L		80	78 - 138
OCDD	0.00200	0.00167		ug/L		83	78 - 144
OCDF	0.00200	0.00165		ug/L		82	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	71		20 - 175
13C-2,3,7,8-TCDF	74		22 - 152
13C-1,2,3,7,8-PeCDD	81		21 - 227
13C-1,2,3,7,8-PeCDF	77		21 - 192
13C-2,3,4,7,8-PeCDF	78		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-669114/2-A
Matrix: Water
Analysis Batch: 670442

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 669114

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-1,2,3,4,7,8-HxCDD	67		21 - 193
13C-1,2,3,6,7,8-HxCDD	66		25 - 163
13C-1,2,3,4,7,8-HxCDF	70		19 - 202
13C-1,2,3,6,7,8-HxCDF	68		21 - 159
13C-1,2,3,7,8,9-HxCDF	78		17 - 205
13C-2,3,4,6,7,8-HxCDF	77		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	84		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	66		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	77		20 - 186
13C-OCDD	85		13 - 199
13C-OCDF	83		13 - 199

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
37Cl4-2,3,7,8-TCDD	85		31 - 191

Lab Sample ID: LCSD 320-669114/3-A
Matrix: Water
Analysis Batch: 670442

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 669114

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
2,3,7,8-TCDD	0.000200	0.000133	q	ug/L		67	67 - 158	35	50
2,3,7,8-TCDF	0.000200	0.000145	LR	ug/L		73	75 - 158	30	50
1,2,3,7,8-PeCDD	0.00100	0.000655	LR	ug/L		65	70 - 142	27	50
1,2,3,7,8-PeCDF	0.00100	0.000628	LR	ug/L		63	80 - 134	30	50
2,3,4,7,8-PeCDF	0.00100	0.000630	LR	ug/L		63	68 - 160	30	50
1,2,3,4,7,8-HxCDD	0.00100	0.000447	LR BA	ug/L		45	70 - 164	63	50
1,2,3,6,7,8-HxCDD	0.00100	0.000538	LR BA	ug/L		54	76 - 134	53	50
1,2,3,7,8,9-HxCDD	0.00100	0.000487	LR BA	ug/L		49	64 - 162	57	50
1,2,3,4,7,8-HxCDF	0.00100	0.000521	LR BA	ug/L		52	72 - 134	54	50
1,2,3,6,7,8-HxCDF	0.00100	0.000509	LR BA	ug/L		51	84 - 130	56	50
1,2,3,7,8,9-HxCDF	0.00100	0.000536	LR	ug/L		54	78 - 130	47	50
2,3,4,6,7,8-HxCDF	0.00100	0.000552	LR	ug/L		55	70 - 156	45	50
1,2,3,4,6,7,8-HpCDD	0.00100	0.000450	LR BA	ug/L		45	70 - 140	51	50
1,2,3,4,6,7,8-HpCDF	0.00100	0.000528	LR	ug/L		53	82 - 122	46	50
1,2,3,4,7,8,9-HpCDF	0.00100	0.000460	LR BA	ug/L		46	78 - 138	54	50
OCDD	0.00200	0.000980	LR BA	ug/L		49	78 - 144	52	50
OCDF	0.00200	0.000963	LR BA	ug/L		48	63 - 170	53	50

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-2,3,7,8-TCDD	50		20 - 175
13C-2,3,7,8-TCDF	65		22 - 152
13C-1,2,3,7,8-PeCDD	47		21 - 227
13C-1,2,3,7,8-PeCDF	47		21 - 192
13C-2,3,4,7,8-PeCDF	56		13 - 328
13C-1,2,3,4,7,8-HxCDD	45		21 - 193
13C-1,2,3,6,7,8-HxCDD	50		25 - 163
13C-1,2,3,4,7,8-HxCDF	41		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-669114/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 670442

Prep Batch: 669114

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,6,7,8-HxCDF	52		21 - 159
13C-1,2,3,7,8,9-HxCDF	50		17 - 205
13C-2,3,4,6,7,8-HxCDF	53		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	51		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	41		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	47		20 - 186
13C-OCDD	49		13 - 199
13C-OCDF	48		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	78		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-2

Specialty Organics

Prep Batch: 669114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	1613B	
MB 320-669114/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-669114/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-669114/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 670442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	1613B	669114
LCS 320-669114/2-A	Lab Control Sample	Total/NA	Water	1613B	669114
LCSD 320-669114/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	669114

Analysis Batch: 670677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-669114/1-A	Method Blank	Total/NA	Water	1613B	669114

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-2

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1058 mL	20.0 uL	669114	04/21/23 06:35	BLR	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	670442	04/27/23 06:25	GRB	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	06-01-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133036-1	Outfall002_20230330_Comp	Water	03/30/23 08:35	03/30/23 17:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

CHAIN OF CUSTODY FORM



570-133036 Chain of Custody

Client Name/Address:		Project:		ANALYSIS REQUIRED																					
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp																							
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.8944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																							
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Standard Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																									
Sampler: michelle dallalah																									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.6): Zn (E200.6): Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM6210B_BODCalc)	Surfactants (MBAS) (SM5540C/E25.1)	Cr, SO ₄ , Nitrate-N, Nitrite-N, NO ₃ +NO ₂ -N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals: Mercury (E245.1)	Comments					
1 Outfall 002	Outfall002_20230330_Comp	3/30/2023 6:35	WM	500 mL Poly	1	HNO ₃	90	Yes	X											X					
			WM	1 L Glass Amber	2	None	110	No		X															
			WM	1L Poly	1	None	115	No			X														
			WM	500 mL Poly	2	None	120	No				X													
			WM	500 mL Poly	2	None	130	No					X											48 hours Holding Time NO ₃ & NO ₂	
			WM	500 mL Poly	1	None	150	No							X									48 hour holding time for turbidity	
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X								
			WM	1 L Glass Amber	2	None	170	No											X						
			WM	1 L Glass Amber	2	None	180	No													X				
			WM	1L Poly	1	None	185	No									X								
2	Outfall002_20230330_Comp_Extra	3/30/2023 6:35	WM	1 L Glass Amber	2	None	110	No		H												Hold			
			WM	1 L Glass Amber	2	None	170	No											H				Hold		
			WM	1 L Glass Amber	2	None	180	No												H				Hold	

Legend: C=Conditional, R=Routine

Relinquished By: <i>Mark Dominick</i> Date/Time: 3-30-2023/1210 Company: H:A	Received By: <i>[Signature]</i> Date/Time: 3/30/23 1210 Company: EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X _____ 48 Hour: _____ 5 Day: _____ Normal: _____ Sample Integrity: (Check) Intact: _____ On ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/30/23 1210 Company: EC	Received By: <i>[Signature]</i> Date/Time: 3/30/23 17:10 Company: EC	
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	

2.5/2.5 2.1/2.1 Soil

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133036-2

Login Number: 133036

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Jayesh

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133036-2

Login Number: 133036

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 04/04/23 04:13 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4c 2.9c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 5/2/2023 3:32:04 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 002 Comp

JOB NUMBER

570-133036-3

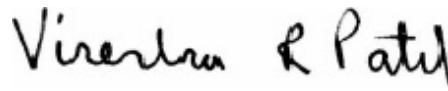
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

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5/2/2023 3:32:04 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-3

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-133036-3

Job ID: 570-133036-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-133036-3

Comments

No additional comments.

Receipt

The samples were received on 3/30/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.5° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: Outfall002_20230330_Comp. The samples were adjusted to the appropriate pH in the laboratory.

RAD

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 608682

The matrix spike (MS) recoveries for Gross Alpha were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (570-133047-R-1-H MS)

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 608682

The detection goal was not met for the following sample due to a reduction of the sample size attributed to high residual mass: Outfall002_20230330_Comp (570-133036-1). Analytical results are reported with the detection limit achieved.

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 608682

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230330_Comp (570-133036-1), (LCS 160-608682/2-A), (LCSB 160-608682/3-A), (MB 160-608682/1-A), (570-133047-R-1-G), (570-133047-R-1-J DU), (570-133047-R-1-H MS) and (570-133047-R-1-I MSBT)

Method 901.1: Gamma Prep Batch 160-607146

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-133036-3

Job ID: 570-133036-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Th-227 Pb-211
Bi-214 Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230330_Comp (570-133036-1) and (570-133036-R-1-F DU)

Methods 903.0, 9315: Radium-226 batch 606560

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230330_Comp (570-133036-1), (LCS 160-606560/2-A), (LCSD 160-606560/3-A) and (MB 160-606560/1-A)

Methods 904.0, 9320: Radium-228 batch 606561

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230330_Comp (570-133036-1), (LCS 160-606561/2-A), (LCSD 160-606561/3-A) and (MB 160-606561/1-A)

Method 905: Strontium-90 batch 606565

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230330_Comp (570-133036-1), (LCS 160-606565/2-A), (LCSD 160-606565/3-A) and (MB 160-606565/1-A)

Method 906.0: Tritium 607890

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are decay corrected to sample date and time as the Activity Reference Date. Outfall002_20230330_Comp (570-133036-1), (LCS 160-607890/2-A), (MB 160-607890/1-A), (570-131938-I-1-A), (570-131938-I-1-B DU), (570-132136-Q-1-A) and (570-132136-Q-1-B MS)

Method A-01-R: Isotopic Uranium batch 608325

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall002_20230330_Comp (570-133036-1), (LCS 160-608325/2-A), (MB 160-608325/1-A) and (570-133036-R-1-I DU)

Method ExtChrom:

Method ExtChrom: Uranium Prep Batch 160-608325:

The following samples were prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall002_20230330_Comp (570-133036-1) and (570-133036-R-1 DU).

Method PrecSep_0: Radium-226 Prep Batch 160-606561

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230330_Comp (570-133036-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002 Comp

Job ID: 570-133036-3

Job ID: 570-133036-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method PrecSep-21: Radium-226 Prep Batch 160-606560

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230330_Comp (570-133036-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-7:

Method PrecSep-7: Strontium-90 Prep Batch 606565

The following sample was prepared at a reduced aliquot due to Matrix: Outfall002_20230330_Comp (570-133036-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-3

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.0363	U G	2.58	2.58	3.00	4.78	pCi/L	04/25/23 10:49	05/01/23 21:39	1
Gross Beta	2.67		1.05	1.08	4.00	1.47	pCi/L	04/25/23 10:49	05/01/23 21:39	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall002_20230330_Comp

Date Collected: 03/30/23 08:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-1.60	U	8.05	8.05	20.0	9.39	pCi/L	04/12/23 12:53	04/18/23 20:18	1
Potassium-40	76.1		68.3	68.9		65.8	pCi/L	04/12/23 12:53	04/18/23 20:18	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall002_20230330_Comp
 Date Collected: 03/30/23 08:35
 Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.103	U	0.160	0.161	1.00	0.275	pCi/L	04/07/23 09:22	05/01/23 16:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.1		30 - 110					04/07/23 09:22	05/01/23 16:03	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall002_20230330_Comp
Date Collected: 03/30/23 08:35
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.177	U	0.387	0.388	1.00	0.677	pCi/L	04/07/23 09:43	04/28/23 12:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.1		30 - 110					04/07/23 09:43	04/28/23 12:28	1
Y Carrier	86.0		30 - 110					04/07/23 09:43	04/28/23 12:28	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall002_20230330_Comp
Date Collected: 03/30/23 08:35
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0742	U	0.478	0.478	3.00	0.843	pCi/L	04/07/23 11:12	04/17/23 19:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	91.0		30 - 110					04/07/23 11:12	04/17/23 19:22	1
Y Carrier	65.4		30 - 110					04/07/23 11:12	04/17/23 19:22	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall002_20230330_Comp
Date Collected: 03/30/23 08:35
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133036-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-146	U	213	213	500	418	pCi/L	04/18/23 11:12	04/19/23 11:43	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	2.02		0.622	0.633	1.00	0.266	pCi/L	04/20/23 16:08	04/24/23 23:27	1
Tracer	%Yield	Qualifier	Limits							
Uranium-232	79.8		30 - 110	Prepared	Analyzed	Dil Fac				
				04/20/23 16:08	04/24/23 23:27	1				



Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
570-133036-1	Outfall002_20230330_Comp	91.1
LCS 160-606560/2-A	Lab Control Sample	87.6
LCSD 160-606560/3-A	Lab Control Sample Dup	87.8
MB 160-606560/1-A	Method Blank	86.6

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
570-133036-1	Outfall002_20230330_Comp	91.1	86.0
LCS 160-606561/2-A	Lab Control Sample	87.6	87.5
LCSD 160-606561/3-A	Lab Control Sample Dup	87.8	86.4
MB 160-606561/1-A	Method Blank	86.6	82.2

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)
570-133036-1	Outfall002_20230330_Comp	91.0	65.4
LCS 160-606565/2-A	Lab Control Sample	86.3	77.0
LCSD 160-606565/3-A	Lab Control Sample Dup	85.1	69.9
MB 160-606565/1-A	Method Blank	86.6	81.9

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)
570-133036-1	Outfall002_20230330_Comp	79.8
570-133036-1 DU	Outfall002_20230330_Comp	77.9
LCS 160-608325/2-A	Lab Control Sample	87.6
MB 160-608325/1-A	Method Blank	81.8

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-608682/1-A
Matrix: Water
Analysis Batch: 609530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 608682

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.1778	U	0.384	0.385	3.00	0.851	pCi/L	04/25/23 10:49	05/01/23 18:12	1
Gross Beta	-0.3115	U	0.480	0.481	4.00	0.917	pCi/L	04/25/23 10:49	05/01/23 18:12	1

Lab Sample ID: LCS 160-608682/2-A
Matrix: Water
Analysis Batch: 609530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608682

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	59.06		8.54	3.00	2.81	pCi/L	117	75 - 125

Lab Sample ID: LCSB 160-608682/3-A
Matrix: Water
Analysis Batch: 609530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608682

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.3	74.52		7.98	4.00	0.820	pCi/L	102	75 - 125

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-607146/1-A
Matrix: Water
Analysis Batch: 608050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 607146

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	-0.2554	U	8.12	8.12	20.0	9.60	pCi/L	04/12/23 12:53	04/19/23 03:12	1
Potassium-40	71.54		67.9	68.4		67.4	pCi/L	04/12/23 12:53	04/19/23 03:12	1

Lab Sample ID: LCS 160-607146/2-A
Matrix: Water
Analysis Batch: 608053

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607146

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Americium-241	135000	135500		16100		447	pCi/L	100	79 - 121
Cesium-137	40800	41770		4980	20.0	110	pCi/L	102	87 - 115
Cobalt-60	17700	18530		2210		54.0	pCi/L	105	88 - 116

Lab Sample ID: 570-133036-1 DU
Matrix: Water
Analysis Batch: 608052

Client Sample ID: Outfall002_20230330_Comp
Prep Type: Total/NA
Prep Batch: 607146

Analyte	Sample Sample		DU DU		Total	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Cesium-137	-1.60	U	-2.073	U	7.75	20.0	9.44	pCi/L	0.03	1
Potassium-40	76.1		-30.37	U	91.9		120	pCi/L	0.66	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-606560/1-A
Matrix: Water
Analysis Batch: 609523

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606560

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.04520	U	0.0998	0.0999	1.00	0.180	pCi/L	04/07/23 09:22	05/01/23 14:44	1
Carrier	MB	MB	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	30 - 110							
	86.6				04/07/23 09:22	05/01/23 14:44	1			

Lab Sample ID: LCS 160-606560/2-A
Matrix: Water
Analysis Batch: 609523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606560

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.45		1.16	1.00	0.190	pCi/L	92	70 - 113
Carrier	LCS	LCS	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier	30 - 110						
	87.6				04/07/23 09:22	05/01/23 14:44	1		

Lab Sample ID: LCSD 160-606560/3-A
Matrix: Water
Analysis Batch: 609523

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 606560

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	11.23		1.23	1.00	0.171	pCi/L	99	70 - 113	0.32	1
Carrier	LCSD	LCSD	Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	%Yield	Qualifier	30 - 110								
	87.8				04/07/23 09:43	04/28/23 12:22	1				

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-606561/1-A
Matrix: Water
Analysis Batch: 609232

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606561

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.2288	U	0.314	0.315	1.00	0.527	pCi/L	04/07/23 09:43	04/28/23 12:22	1
Carrier	MB	MB	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	30 - 110							
	86.6				04/07/23 09:43	04/28/23 12:22	1			
Y Carrier	%Yield	Qualifier	Limits		Prepared	Analyzed	Dil Fac			
	82.2		30 - 110					04/07/23 09:43	04/28/23 12:22	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-606561/2-A
Matrix: Water
Analysis Batch: 609232

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606561

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Radium-228	8.00	9.377		1.27	1.00	0.519	pCi/L	117	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	87.6		30 - 110							
Y Carrier	87.5		30 - 110							

Lab Sample ID: LCSD 160-606561/3-A
Matrix: Water
Analysis Batch: 609232

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 606561

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
									75	125	0.07	1
Radium-228	8.00	9.203		1.28	1.00	0.627	pCi/L	115	75 - 125	0.07	1	
LCSD LCSD												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	87.8		30 - 110									
Y Carrier	86.4		30 - 110									

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-606565/1-A
Matrix: Water
Analysis Batch: 607841

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606565

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier						04/07/23 11:12	04/17/23 19:03	04/17/23 19:03	19:03	
Strontium-90	0.1675	U	0.204	0.204	3.00	0.337	pCi/L	04/07/23 11:12	04/17/23 19:03	04/17/23 19:03	19:03	1
MB MB												
Carrier	%Yield	Qualifier	Limits		Prepared		Analyzed		Dil Fac			
Sr Carrier	86.6		30 - 110		04/07/23 11:12		04/17/23 19:03		1			
Y Carrier	81.9		30 - 110		04/07/23 11:12		04/17/23 19:03		1			

Lab Sample ID: LCS 160-606565/2-A
Matrix: Water
Analysis Batch: 607841

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606565

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									77	125
Strontium-90	7.34	7.570		0.853	3.00	0.305	pCi/L	103	77 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Sr Carrier	86.3		30 - 110							
Y Carrier	77.0		30 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: LCSD 160-606565/3-A
 Matrix: Water
 Analysis Batch: 607841

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 606565

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Strontium-90	7.34	7.501		0.887	3.00	0.401	pCi/L	102	77 - 125	0.04	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Sr Carrier	85.1		30 - 110								
Y Carrier	69.9		30 - 110								

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-607890/1-A
 Matrix: Water
 Analysis Batch: 608161

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 607890

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-102.7	U	224	224	500	433	pCi/L	04/18/23 11:12	04/19/23 06:41	1

Lab Sample ID: LCS 160-607890/2-A
 Matrix: Water
 Analysis Batch: 608161

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 607890

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Tritium	2090	1604		396	500	420	pCi/L	77	75 - 125

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-608325/1-A
 Matrix: Water
 Analysis Batch: 608551

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 608325

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac		
Total Uranium	0.07277	U	0.1152	0.1153	1.00	0.184	pCi/L	04/20/23 16:08	04/24/23 23:27	1		
Tracer	MB %Yield	MB Qualifier	Limits							Prepared	Analyzed	Dil Fac
Uranium-232	81.8		30 - 110							04/20/23 16:08	04/24/23 23:27	1

Lab Sample ID: LCS 160-608325/2-A
 Matrix: Water
 Analysis Batch: 608555

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 608325

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Uranium-234	12.7	13.86		1.59	1.00	0.144	pCi/L	109	75 - 125
Uranium-238	13.0	14.93		1.68	1.00	0.150	pCi/L	115	75 - 125

Eurolins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-608325/2-A
Matrix: Water
Analysis Batch: 608555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608325

	LCS	LCS	
Tracer	%Yield	Qualifier	Limits
Uranium-232	87.6		30 - 110

Lab Sample ID: 570-133036-1 DU
Matrix: Water
Analysis Batch: 608535

Client Sample ID: Outfall002_20230330_Comp
Prep Type: Total/NA
Prep Batch: 608325

Analyte	Sample		DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit
	Result	Qual	Result	Qual						
Total Uranium	2.02		1.300		0.516	1.00	0.291	pCi/L	0.62	1

	DU	DU	
Tracer	%Yield	Qualifier	Limits
Uranium-232	77.9		30 - 110

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Rad

Prep Batch: 606560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	PrecSep-21	
MB 160-606560/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-606560/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-606560/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 606561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	PrecSep_0	
MB 160-606561/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-606561/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-606561/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 606565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	PrecSep-7	
MB 160-606565/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-606565/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-606565/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 607146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-607146/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-607146/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-133036-1 DU	Outfall002_20230330_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 607890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-607890/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-607890/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 608325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	ExtChrom	
MB 160-608325/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-608325/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-133036-1 DU	Outfall002_20230330_Comp	Total/NA	Water	ExtChrom	

Prep Batch: 608682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133036-1	Outfall002_20230330_Comp	Total/NA	Water	Evaporation	
MB 160-608682/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-608682/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSE 160-608682/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Client Sample ID: Outfall002_20230330_Comp

Lab Sample ID: 570-133036-1

Date Collected: 03/30/23 08:35

Matrix: Water

Date Received: 03/30/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			136.34 mL	1.0 g	608682	04/25/23 10:49	MST	EET SL
Total/NA	Analysis	900.0		1			609530	05/01/23 21:39	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	607146	04/12/23 12:53	AJP	EET SL
Total/NA	Analysis	901.1		1			607894	04/18/23 20:18	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			751.34 mL	1.0 g	606560	04/07/23 09:22	DJP	EET SL
Total/NA	Analysis	903.0		1			609533	05/01/23 16:03	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			751.34 mL	1.0 g	606561	04/07/23 09:43	DJP	EET SL
Total/NA	Analysis	904.0		1			609233	04/28/23 12:28	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			492.32 mL	1.0 g	606565	04/07/23 11:12	DJP	EET SL
Total/NA	Analysis	905		1			607834	04/17/23 19:22	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	LSC_Dist_Susp			100.31 mL	1.0 g	607890	04/18/23 11:12	ZR	EET SL
Total/NA	Analysis	906.0		1			608161	04/19/23 11:43	REV	EET SL
Instrument ID: LSC3180										
Total/NA	Prep	ExtChrom			252.2 mL	1.0 mL	608325	04/20/23 16:08	SEH	EET SL
Total/NA	Analysis	A-01-R		1			608534	04/24/23 23:27	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
 Comp

Job ID: 570-133036-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-133036-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 002

Comp

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 002
Comp

Job ID: 570-133036-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133036-1	Outfall002_20230330_Comp	Water	03/30/23 08:35	03/30/23 17:10

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CHAIN OF CUSTODY FORM



570-133036 Chain of Custody

Client Name/Address:		Project:		ANALYSIS REQUIRED																				
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp																						
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.8944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																						
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Standard Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																								
Sampler: michelle dallalah																								
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.6): Zn (E200.6): Cu, Pb, Cd, Se	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM4210B_BODCalc)	Surfactants (MBAS) (SM5540C/E25.1)	Cr, SO ₄ , Nitrate-N, Nitrite-N, NO ₃ +NO ₂ -N, Perchlorate (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	alpha-BHC (E608)	2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP (SVOCs E625)	Total Recoverable Metals: Mercury (E245.1)	Comments				
1 Outfall 002	Outfall002_20230330_Comp	3/30/2023 6:35	WM	500 mL Poly	1	HNO ₃	90	Yes	X											X				
			WM	1 L Glass Amber	2	None	110	No		X														
			WM	1L Poly	1	None	115	No			X													
			WM	500 mL Poly	2	None	120	No				X												
			WM	500 mL Poly	2	None	130	No					X										48 hours Holding Time NO ₃ & NO ₂	
			WM	500 mL Poly	1	None	150	No						X										48 hour holding time for turbidity
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X							
			WM	1 L Glass Amber	2	None	170	No										X						
			WM	1 L Glass Amber	2	None	180	No												X				
			WM	1L Poly	1	None	185	No									X							
2	Outfall002_20230330_Comp_Extra	3/30/2023 6:35	WM	1 L Glass Amber	2	None	110	No		H											Hold			
			WM	1 L Glass Amber	2	None	170	No										H				Hold		
			WM	1 L Glass Amber	2	None	180	No											H				Hold	

Legend: C=Conditional, R=Routine

Relinquished By: <i>Mark Dominick</i> Date/Time: 3-30-2023/1210 Company: H:A	Received By: <i>[Signature]</i> Date/Time: 3/30/23 1210 Company: EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/30/23 1210 Company: EC	Received By: <i>[Signature]</i> Date/Time: 3/30/23 17:10 Company: EC	Sample Integrity: (Check) Intact: _____ On ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

2.5/2.5 2.1/2.1 Soil

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 67013187									Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [001, 002, 011, 018] Outfall 002 Comp									R R R R R C ANALYSIS REQUIRED											
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.									Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)									Total Dissolved Metals: (E200.6): Zn (E200.6): Cu, Pb, Cd, Se Cyanide (SM4500-CN-E / E335.2) Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, Cs-137 (E901.0 or E901.1) Total Dissolved Metals: Mercury (E245.1)											
Sampler: michelle dallalah									Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)									Comments											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD																					
3 Outfall 002	Outfall002_20230330_Comp_F	3/30/2023 0835	WM	1L Poly	1	None	200	Yes	X																				
			WM	borosilicate vials	2	None	320	No			X	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.																	
1	Outfall002_20230330_Comp	3/30/2023 0835	WM	500 mL Poly	1	NaOH	220	No		X																			
			WM	2.5 Gal Cube	1	None	225	No			X	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.																	
WM	1 L Glass Amber	1	None	230	No																								
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																													
Relinquished By			Date/Time:			Company:			Received By			Date/Time:			Company:			Turn-around time: (Check)											
<i>Mark Dominick</i>			3-30-2023/12:10			H: A			<i>Michelle Dallalah</i>			3/30/23 12:10 EC			1210 EC			24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X _____ 48 Hour: _____ 5 Day: _____ Normal: _____											
Relinquished By			Date/Time:			Company:			Received By			Date/Time:			Company:			Sample Integrity: (Check)											
<i>Michelle Dallalah</i>			3/30/23 12:10			EC			<i>Michelle Dallalah</i>			3/30/23 17:10			EC			Intact: _____ On Ice: _____											
Relinquished By			Date/Time:			Company:			Received By			Date/Time:			Company:			Store samples for 6 months.											
																		Data Requirements: (Check)											
																		No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X _____											

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Phone:	Patel, Virendra	State of Origin: California	570-214399.1
Company: TestAmerica Laboratories, Inc.		E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	Job #: 570-133036-3
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Accreditations Required (See note): State Program - California		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Due Date Requested: 5/2/2023		Analysis Requested			
TAT Requested (days):		Total Number of containers			
PO #:		901.1 Cs/Fill_Geo_0 K-40 and Cesium-137			
WO #:		A01R_U/ExtChrom_Actin Total Uranium			
Project #: 57013187		904.0/PreSep_0 Radium-228			
SSOW#:		903.0/PreSep_21 Radium-226			
		905.590/PreSep_7 Strontium-90			
		906.0/LSC_Dist_Susp Tritium			
		900.0/Evaporation Gross AlphaBeta			
		Perform MS/MSD (Yes or No)			
		Field Filtered Sample (Yes or No)			
		Preservation Code:			
Sample Date		Sample Time		Sample Type (C=comp, G=grab)	
3/30/23		08:35 Pacific		Water	
Sample Identification - Client ID (Lab ID)		Matrix (Water, Solid, Overstabil, BT=Trace, AA=Al)			
Outfall002_20230330_Comp (570-133036-1)					
		Special Instructions/Note: Boeing SSFL: DO NOT FILTER; use prep date from preservation. OK to Preserve			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 4/13/23 1417
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____
 Custody Seals Intact: _____ Custody Seal No.: _____
 Δ Yes Δ No

Special Instructions/QC Requirements:
 Return To Client Disposal By Lab Archive For _____ Months
 Method of Shipment: _____
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: 4/4/23 0920
 Received by: _____ Date/Time: _____
 Cooler Temperature(s) °C and Other Remarks: _____

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133036-3

Login Number: 133036

List Number: 1

Creator: Patel, Jayesh

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133036-3

Login Number: 133036

List Number: 2

Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis

List Creation: 04/04/23 05:58 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

