

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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Number	Outfall/Location	Eurofins Calscience Laboratory Report Number	Sampling Date
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.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 008 GRAB

JOB NUMBER

570-122678-1

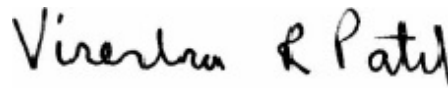
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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted 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 008 GRAB

Job ID: 570-122678-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
BU	Analyzed out of holding time

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 008 GRAB

Job ID: 570-122678-1

Job ID: 570-122678-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122678-1

Comments

No additional comments.

Receipt

The samples were received on 1/5/2023 4:00 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 1.8° C, 1.9° C, 2.8° C and 2.9° 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 570-294198. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 624.1: The preservative used in the sample containers provided is not compatible with the Method 624 analytes requested. The following sample was received preserved with hydrochloric acid: TB-20230105 (570-122678-3). The requested target analyte list contains 2-Chloroethyl vinyl ether and/or Acrolein, which are acid-labile compounds that degrade in an acidic medium.

Method 624.1: Reanalysis of the following sample was performed outside of the analytical holding time due to over dilution in initial analysis : Outfall008_20230105_Grab (570-122678-1).

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.

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 570-294537.1664A

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 008 GRAB

Job ID: 570-122678-1

Client Sample ID: Outfall008_20230105_Grab

Lab Sample ID: 570-122678-1

No Detections.

Client Sample ID: TB-20230105

Lab Sample ID: 570-122678-3

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 008 GRAB

Job ID: 570-122678-1

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

Client Sample ID: Outfall008_20230105_Grab

Date Collected: 01/05/23 08:50

Date Received: 01/05/23 16:00

Lab Sample ID: 570-122678-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	BU	0.50	0.25	ug/L			01/09/23 17:47	1
1,1,1,2-Tetrachloroethane	ND	BU	0.50	0.20	ug/L			01/09/23 17:47	1
1,1,2-Trichloroethane	ND	BU	0.50	0.17	ug/L			01/09/23 17:47	1
1,1-Dichloroethane	ND	BU	0.50	0.39	ug/L			01/09/23 17:47	1
1,1-Dichloroethene	ND	BU	0.50	0.33	ug/L			01/09/23 17:47	1
1,2-Dichlorobenzene	ND	BU	0.50	0.16	ug/L			01/09/23 17:47	1
1,2-Dichloroethane	ND	BU	0.50	0.15	ug/L			01/09/23 17:47	1
1,2-Dichloropropane	ND	BU	0.50	0.17	ug/L			01/09/23 17:47	1
1,3-Dichlorobenzene	ND	BU	0.50	0.16	ug/L			01/09/23 17:47	1
1,4-Dichlorobenzene	ND	BU	0.50	0.11	ug/L			01/09/23 17:47	1
2-Chloroethyl vinyl ether	ND	BU	2.0	1.1	ug/L			01/09/23 17:47	1
Acrolein	ND	BU	5.0	4.6	ug/L			01/09/23 17:47	1
Acrylonitrile	ND	BU	2.0	1.4	ug/L			01/09/23 17:47	1
Benzene	ND	BU	0.50	0.28	ug/L			01/09/23 17:47	1
Bromoform	ND	BU	1.0	0.25	ug/L			01/09/23 17:47	1
Bromomethane	ND	BU	0.50	0.22	ug/L			01/09/23 17:47	1
Carbon tetrachloride	ND	BU	0.50	0.28	ug/L			01/09/23 17:47	1
Chlorobenzene	ND	BU	0.50	0.19	ug/L			01/09/23 17:47	1
Dibromochloromethane	ND	BU	0.50	0.15	ug/L			01/09/23 17:47	1
Chloroethane	ND	BU	1.0	0.29	ug/L			01/09/23 17:47	1
Chloroform	ND	BU	0.50	0.19	ug/L			01/09/23 17:47	1
Chloromethane	ND	BU	0.50	0.30	ug/L			01/09/23 17:47	1
cis-1,2-Dichloroethene	ND	BU	0.50	0.21	ug/L			01/09/23 17:47	1
cis-1,3-Dichloropropene	ND	BU	0.50	0.30	ug/L			01/09/23 17:47	1
Bromodichloromethane	ND	BU	0.50	0.19	ug/L			01/09/23 17:47	1
Ethylbenzene	ND	BU	0.50	0.25	ug/L			01/09/23 17:47	1
Methylene Chloride	ND	BU	2.0	0.57	ug/L			01/09/23 17:47	1
m,p-Xylene	ND	BU	1.0	0.17	ug/L			01/09/23 17:47	1
Naphthalene	ND	BU	1.0	0.33	ug/L			01/09/23 17:47	1
o-Xylene	ND	BU	0.50	0.15	ug/L			01/09/23 17:47	1
Tetrachloroethene	ND	BU	0.50	0.21	ug/L			01/09/23 17:47	1
Toluene	ND	BU	0.50	0.23	ug/L			01/09/23 17:47	1
trans-1,2-Dichloroethene	ND	BU	0.50	0.24	ug/L			01/09/23 17:47	1
trans-1,3-Dichloropropene	ND	BU	0.50	0.18	ug/L			01/09/23 17:47	1
Trichloroethene	ND	BU	0.50	0.17	ug/L			01/09/23 17:47	1
Trichlorofluoromethane	ND	BU	0.50	0.29	ug/L			01/09/23 17:47	1
Vinyl chloride	ND	BU	0.50	0.47	ug/L			01/09/23 17:47	1
Xylenes, Total	ND	BU	1.0	0.17	ug/L			01/09/23 17:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		60 - 140		01/09/23 17:47	1
Toluene-d8 (Surr)	98		60 - 140		01/09/23 17:47	1
Dibromofluoromethane (Surr)	97		60 - 140		01/09/23 17:47	1

Client Sample ID: TB-20230105

Date Collected: 01/05/23 08:50

Date Received: 01/05/23 16:00

Lab Sample ID: 570-122678-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/06/23 15:29	1
1,1,1,2-Tetrachloroethane	ND		0.50	0.20	ug/L			01/06/23 15:29	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

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

Client Sample ID: TB-20230105

Date Collected: 01/05/23 08:50

Date Received: 01/05/23 16:00

Lab Sample ID: 570-122678-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		0.50	0.17	ug/L			01/06/23 15:29	1
1,1-Dichloroethane	ND		0.50	0.39	ug/L			01/06/23 15:29	1
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/06/23 15:29	1
1,2-Dichlorobenzene	ND		0.50	0.16	ug/L			01/06/23 15:29	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/06/23 15:29	1
1,2-Dichloropropane	ND		0.50	0.17	ug/L			01/06/23 15:29	1
1,3-Dichlorobenzene	ND		0.50	0.16	ug/L			01/06/23 15:29	1
1,4-Dichlorobenzene	ND		0.50	0.11	ug/L			01/06/23 15:29	1
2-Chloroethyl vinyl ether	ND		2.0	1.1	ug/L			01/06/23 15:29	1
Acrolein	ND		5.0	4.6	ug/L			01/06/23 15:29	1
Acrylonitrile	ND		2.0	1.4	ug/L			01/06/23 15:29	1
Benzene	ND		0.50	0.28	ug/L			01/06/23 15:29	1
Bromoform	ND		1.0	0.25	ug/L			01/06/23 15:29	1
Bromomethane	ND		0.50	0.22	ug/L			01/06/23 15:29	1
Carbon tetrachloride	ND		0.50	0.28	ug/L			01/06/23 15:29	1
Chlorobenzene	ND		0.50	0.19	ug/L			01/06/23 15:29	1
Dibromochloromethane	ND		0.50	0.15	ug/L			01/06/23 15:29	1
Chloroethane	ND		1.0	0.29	ug/L			01/06/23 15:29	1
Chloroform	ND		0.50	0.19	ug/L			01/06/23 15:29	1
Chloromethane	ND		0.50	0.30	ug/L			01/06/23 15:29	1
cis-1,2-Dichloroethene	ND		0.50	0.21	ug/L			01/06/23 15:29	1
cis-1,3-Dichloropropene	ND		0.50	0.30	ug/L			01/06/23 15:29	1
Bromodichloromethane	ND		0.50	0.19	ug/L			01/06/23 15:29	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/06/23 15:29	1
Methylene Chloride	ND		2.0	0.57	ug/L			01/06/23 15:29	1
m,p-Xylene	ND		1.0	0.17	ug/L			01/06/23 15:29	1
Naphthalene	ND		1.0	0.33	ug/L			01/06/23 15:29	1
o-Xylene	ND		0.50	0.15	ug/L			01/06/23 15:29	1
Tetrachloroethene	ND		0.50	0.21	ug/L			01/06/23 15:29	1
Toluene	ND		0.50	0.23	ug/L			01/06/23 15:29	1
trans-1,2-Dichloroethene	ND		0.50	0.24	ug/L			01/06/23 15:29	1
trans-1,3-Dichloropropene	ND		0.50	0.18	ug/L			01/06/23 15:29	1
Trichloroethene	ND		0.50	0.17	ug/L			01/06/23 15:29	1
Trichlorofluoromethane	ND		0.50	0.29	ug/L			01/06/23 15:29	1
Vinyl chloride	ND		0.50	0.47	ug/L			01/06/23 15:29	1
Xylenes, Total	ND		1.0	0.17	ug/L			01/06/23 15:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		60 - 140					01/06/23 15:29	1
Toluene-d8 (Surr)	99		60 - 140					01/06/23 15:29	1
Dibromofluoromethane (Surr)	93		60 - 140					01/06/23 15:29	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

General Chemistry

Client Sample ID: Outfall008_20230105_Grab

Date Collected: 01/05/23 08:50

Date Received: 01/05/23 16:00

Lab Sample ID: 570-122678-1

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		01/09/23 13:42	01/09/23 13:42	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

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)
570-122678-1	Outfall008_20230105_Grab	97	98	97
570-122678-3	TB-20230105	100	99	93
LCS 570-294198/1003	Lab Control Sample	101	98	97
LCS 570-294547/1003	Lab Control Sample	100	99	100
LCSD 570-294198/4	Lab Control Sample Dup	99	104	97
LCSD 570-294547/4	Lab Control Sample Dup	101	103	99
MB 570-294198/6	Method Blank	101	99	94
MB 570-294547/6	Method Blank	97	99	96

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

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

Lab Sample ID: MB 570-294198/6
Matrix: Water
Analysis Batch: 294198

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/06/23 15:06	1
1,1,1,2-Tetrachloroethane	ND		0.50	0.20	ug/L			01/06/23 15:06	1
1,1,2-Trichloroethane	ND		0.50	0.17	ug/L			01/06/23 15:06	1
1,1-Dichloroethane	ND		0.50	0.39	ug/L			01/06/23 15:06	1
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/06/23 15:06	1
1,2-Dichlorobenzene	ND		0.50	0.16	ug/L			01/06/23 15:06	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/06/23 15:06	1
1,2-Dichloropropane	ND		0.50	0.17	ug/L			01/06/23 15:06	1
1,3-Dichlorobenzene	ND		0.50	0.16	ug/L			01/06/23 15:06	1
1,4-Dichlorobenzene	ND		0.50	0.11	ug/L			01/06/23 15:06	1
2-Chloroethyl vinyl ether	ND		2.0	1.1	ug/L			01/06/23 15:06	1
Acrolein	ND		5.0	4.6	ug/L			01/06/23 15:06	1
Acrylonitrile	ND		2.0	1.4	ug/L			01/06/23 15:06	1
Benzene	ND		0.50	0.28	ug/L			01/06/23 15:06	1
Bromoform	ND		1.0	0.25	ug/L			01/06/23 15:06	1
Bromomethane	ND		0.50	0.22	ug/L			01/06/23 15:06	1
Carbon tetrachloride	ND		0.50	0.28	ug/L			01/06/23 15:06	1
Chlorobenzene	ND		0.50	0.19	ug/L			01/06/23 15:06	1
Dibromochloromethane	ND		0.50	0.15	ug/L			01/06/23 15:06	1
Chloroethane	ND		1.0	0.29	ug/L			01/06/23 15:06	1
Chloroform	ND		0.50	0.19	ug/L			01/06/23 15:06	1
Chloromethane	ND		0.50	0.30	ug/L			01/06/23 15:06	1
cis-1,2-Dichloroethene	ND		0.50	0.21	ug/L			01/06/23 15:06	1
cis-1,3-Dichloropropene	ND		0.50	0.30	ug/L			01/06/23 15:06	1
Bromodichloromethane	ND		0.50	0.19	ug/L			01/06/23 15:06	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/06/23 15:06	1
Methylene Chloride	ND		2.0	0.57	ug/L			01/06/23 15:06	1
m,p-Xylene	ND		1.0	0.17	ug/L			01/06/23 15:06	1
Naphthalene	ND		1.0	0.33	ug/L			01/06/23 15:06	1
o-Xylene	ND		0.50	0.15	ug/L			01/06/23 15:06	1
Tetrachloroethene	ND		0.50	0.21	ug/L			01/06/23 15:06	1
Toluene	ND		0.50	0.23	ug/L			01/06/23 15:06	1
trans-1,2-Dichloroethene	ND		0.50	0.24	ug/L			01/06/23 15:06	1
trans-1,3-Dichloropropene	ND		0.50	0.18	ug/L			01/06/23 15:06	1
Trichloroethene	ND		0.50	0.17	ug/L			01/06/23 15:06	1
Trichlorofluoromethane	ND		0.50	0.29	ug/L			01/06/23 15:06	1
Vinyl chloride	ND		0.50	0.47	ug/L			01/06/23 15:06	1
Xylenes, Total	ND		1.0	0.17	ug/L			01/06/23 15:06	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	101		60 - 140		01/06/23 15:06	1
Toluene-d8 (Surr)	99		60 - 140		01/06/23 15:06	1
Dibromofluoromethane (Surr)	94		60 - 140		01/06/23 15:06	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

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

Lab Sample ID: LCS 570-294198/1003
Matrix: Water
Analysis Batch: 294198

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	9.35		ug/L		93	70 - 130
1,1,2,2-Tetrachloroethane	10.0	9.45		ug/L		95	60 - 140
1,1,2-Trichloroethane	10.0	10.1		ug/L		101	70 - 130
1,1-Dichloroethane	10.0	9.71		ug/L		97	70 - 130
1,1-Dichloroethene	10.0	9.13		ug/L		91	50 - 150
1,2-Dichlorobenzene	10.0	9.41		ug/L		94	65 - 135
1,2-Dichloroethane	10.0	9.57		ug/L		96	70 - 130
1,2-Dichloropropane	10.0	9.32		ug/L		93	35 - 165
1,3-Dichlorobenzene	10.0	9.66		ug/L		97	70 - 130
1,4-Dichlorobenzene	10.0	9.01		ug/L		90	65 - 135
2-Chloroethyl vinyl ether	10.0	9.18		ug/L		92	1 - 225
Acrolein	20.0	17.2		ug/L		86	60 - 140
Acrylonitrile	100	99.6		ug/L		100	60 - 140
Benzene	10.0	9.50		ug/L		95	65 - 135
Bromoform	10.0	9.53		ug/L		95	70 - 130
Bromomethane	10.0	10.3		ug/L		103	15 - 185
Carbon tetrachloride	10.0	9.43		ug/L		94	70 - 130
Chlorobenzene	10.0	9.54		ug/L		95	65 - 135
Dibromochloromethane	10.0	9.62		ug/L		96	70 - 135
Chloroethane	10.0	9.48		ug/L		95	40 - 160
Chloroform	10.0	9.08		ug/L		91	70 - 135
Chloromethane	10.0	9.37		ug/L		94	1 - 205
cis-1,2-Dichloroethene	10.0	9.52		ug/L		95	60 - 140
cis-1,3-Dichloropropene	10.0	9.83		ug/L		98	25 - 175
Bromodichloromethane	10.0	9.73		ug/L		97	65 - 135
Ethylbenzene	10.0	9.81		ug/L		98	60 - 140
Methylene Chloride	10.0	8.61		ug/L		86	60 - 140
m,p-Xylene	10.0	9.85		ug/L		99	60 - 140
Naphthalene	10.0	10.2		ug/L		102	60 - 140
o-Xylene	10.0	9.70		ug/L		97	60 - 140
Tetrachloroethene	10.0	9.68		ug/L		97	70 - 130
Toluene	10.0	9.55		ug/L		95	70 - 130
trans-1,2-Dichloroethene	10.0	9.29		ug/L		93	70 - 130
trans-1,3-Dichloropropene	10.0	9.81		ug/L		98	50 - 150
Trichloroethene	10.0	9.34		ug/L		93	65 - 135
Trichlorofluoromethane	10.0	10.3		ug/L		103	50 - 150
Vinyl chloride	10.0	9.57		ug/L		96	5 - 195
Xylenes, Total	20.0	19.6		ug/L		98	60 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	101		60 - 140
Toluene-d8 (Surr)	98		60 - 140
Dibromofluoromethane (Surr)	97		60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

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

Lab Sample ID: LCSD 570-294198/4
 Matrix: Water
 Analysis Batch: 294198

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	9.71		ug/L		97	70 - 130	4	36
1,1,2,2-Tetrachloroethane	10.0	9.27		ug/L		93	60 - 140	2	61
1,1,2-Trichloroethane	10.0	9.65		ug/L		97	70 - 130	5	45
1,1-Dichloroethane	10.0	9.73		ug/L		97	70 - 130	0	40
1,1-Dichloroethene	10.0	9.28		ug/L		93	50 - 150	2	32
1,2-Dichlorobenzene	10.0	9.76		ug/L		98	65 - 135	4	57
1,2-Dichloroethane	10.0	9.85		ug/L		99	70 - 130	3	49
1,2-Dichloropropane	10.0	9.86		ug/L		99	35 - 165	6	55
1,3-Dichlorobenzene	10.0	9.82		ug/L		98	70 - 130	2	43
1,4-Dichlorobenzene	10.0	9.44		ug/L		94	65 - 135	5	57
2-Chloroethyl vinyl ether	10.0	10.5		ug/L		105	1 - 225	14	71
Acrolein	20.0	15.7		ug/L		79	60 - 140	9	60
Acrylonitrile	100	98.9		ug/L		99	60 - 140	1	60
Benzene	10.0	10.2		ug/L		102	65 - 135	7	61
Bromoform	10.0	9.55		ug/L		96	70 - 130	0	42
Bromomethane	10.0	10.4		ug/L		104	15 - 185	1	61
Carbon tetrachloride	10.0	9.41		ug/L		94	70 - 130	0	41
Chlorobenzene	10.0	9.71		ug/L		97	65 - 135	2	53
Dibromochloromethane	10.0	9.42		ug/L		94	70 - 135	2	50
Chloroethane	10.0	9.75		ug/L		97	40 - 160	3	78
Chloroform	10.0	9.24		ug/L		92	70 - 135	2	30
Chloromethane	10.0	10.0		ug/L		100	1 - 205	7	60
cis-1,2-Dichloroethene	10.0	9.57		ug/L		96	60 - 140	1	30
cis-1,3-Dichloropropene	10.0	10.0		ug/L		100	25 - 175	2	58
Bromodichloromethane	10.0	10.2		ug/L		102	65 - 135	4	56
Ethylbenzene	10.0	10.0		ug/L		100	60 - 140	2	63
Methylene Chloride	10.0	8.70		ug/L		87	60 - 140	1	28
m,p-Xylene	10.0	9.83		ug/L		98	60 - 140	0	30
Naphthalene	10.0	10.4		ug/L		104	60 - 140	1	30
o-Xylene	10.0	9.91		ug/L		99	60 - 140	2	30
Tetrachloroethene	10.0	9.88		ug/L		99	70 - 130	2	39
Toluene	10.0	10.1		ug/L		101	70 - 130	5	41
trans-1,2-Dichloroethene	10.0	9.43		ug/L		94	70 - 130	2	45
trans-1,3-Dichloropropene	10.0	9.95		ug/L		100	50 - 150	1	86
Trichloroethene	10.0	10.1		ug/L		101	65 - 135	8	48
Trichlorofluoromethane	10.0	10.4		ug/L		104	50 - 150	1	84
Vinyl chloride	10.0	10.2		ug/L		102	5 - 195	6	66
Xylenes, Total	20.0	19.7		ug/L		99	60 - 140	1	30

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	99		60 - 140
Toluene-d8 (Surr)	104		60 - 140
Dibromofluoromethane (Surr)	97		60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

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

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							
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/09/23 16:40	1
1,1,1,2-Tetrachloroethane	ND		0.50	0.20	ug/L			01/09/23 16:40	1
1,1,2-Trichloroethane	ND		0.50	0.17	ug/L			01/09/23 16:40	1
1,1-Dichloroethane	ND		0.50	0.39	ug/L			01/09/23 16:40	1
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/09/23 16:40	1
1,2-Dichlorobenzene	ND		0.50	0.16	ug/L			01/09/23 16:40	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/09/23 16:40	1
1,2-Dichloropropane	ND		0.50	0.17	ug/L			01/09/23 16:40	1
1,3-Dichlorobenzene	ND		0.50	0.16	ug/L			01/09/23 16:40	1
1,4-Dichlorobenzene	ND		0.50	0.11	ug/L			01/09/23 16:40	1
2-Chloroethyl vinyl ether	ND		2.0	1.1	ug/L			01/09/23 16:40	1
Acrolein	ND		5.0	4.6	ug/L			01/09/23 16:40	1
Acrylonitrile	ND		2.0	1.4	ug/L			01/09/23 16:40	1
Benzene	ND		0.50	0.28	ug/L			01/09/23 16:40	1
Bromoform	ND		1.0	0.25	ug/L			01/09/23 16:40	1
Bromomethane	ND		0.50	0.22	ug/L			01/09/23 16:40	1
Carbon tetrachloride	ND		0.50	0.28	ug/L			01/09/23 16:40	1
Chlorobenzene	ND		0.50	0.19	ug/L			01/09/23 16:40	1
Dibromochloromethane	ND		0.50	0.15	ug/L			01/09/23 16:40	1
Chloroethane	ND		1.0	0.29	ug/L			01/09/23 16:40	1
Chloroform	ND		0.50	0.19	ug/L			01/09/23 16:40	1
Chloromethane	ND		0.50	0.30	ug/L			01/09/23 16:40	1
cis-1,2-Dichloroethene	ND		0.50	0.21	ug/L			01/09/23 16:40	1
cis-1,3-Dichloropropene	ND		0.50	0.30	ug/L			01/09/23 16:40	1
Bromodichloromethane	ND		0.50	0.19	ug/L			01/09/23 16:40	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/09/23 16:40	1
Methylene Chloride	ND		2.0	0.57	ug/L			01/09/23 16:40	1
m,p-Xylene	ND		1.0	0.17	ug/L			01/09/23 16:40	1
Naphthalene	ND		1.0	0.33	ug/L			01/09/23 16:40	1
o-Xylene	ND		0.50	0.15	ug/L			01/09/23 16:40	1
Tetrachloroethene	ND		0.50	0.21	ug/L			01/09/23 16:40	1
Toluene	ND		0.50	0.23	ug/L			01/09/23 16:40	1
trans-1,2-Dichloroethene	ND		0.50	0.24	ug/L			01/09/23 16:40	1
trans-1,3-Dichloropropene	ND		0.50	0.18	ug/L			01/09/23 16:40	1
Trichloroethene	ND		0.50	0.17	ug/L			01/09/23 16:40	1
Trichlorofluoromethane	ND		0.50	0.29	ug/L			01/09/23 16:40	1
Vinyl chloride	ND		0.50	0.47	ug/L			01/09/23 16:40	1
Xylenes, Total	ND		1.0	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
Dibromofluoromethane (Surr)	96		60 - 140		01/09/23 16:40	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

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

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
1,1,1-Trichloroethane	10.0	9.18		ug/L		92	70 - 130
1,1,2,2-Tetrachloroethane	10.0	9.49		ug/L		95	60 - 140
1,1,2-Trichloroethane	10.0	9.43		ug/L		94	70 - 130
1,1-Dichloroethane	10.0	9.46		ug/L		95	70 - 130
1,1-Dichloroethene	10.0	9.10		ug/L		91	50 - 150
1,2-Dichlorobenzene	10.0	9.44		ug/L		94	65 - 135
1,2-Dichloroethane	10.0	9.48		ug/L		95	70 - 130
1,2-Dichloropropane	10.0	9.47		ug/L		95	35 - 165
1,3-Dichlorobenzene	10.0	9.76		ug/L		98	70 - 130
1,4-Dichlorobenzene	10.0	9.04		ug/L		90	65 - 135
2-Chloroethyl vinyl ether	10.0	8.98		ug/L		90	1 - 225
Acrolein	20.0	15.8		ug/L		79	60 - 140
Acrylonitrile	100	99.9		ug/L		100	60 - 140
Benzene	10.0	9.23		ug/L		92	65 - 135
Bromoform	10.0	9.10		ug/L		91	70 - 130
Bromomethane	10.0	6.41		ug/L		64	15 - 185
Carbon tetrachloride	10.0	9.49		ug/L		95	70 - 130
Chlorobenzene	10.0	9.37		ug/L		94	65 - 135
Dibromochloromethane	10.0	9.42		ug/L		94	70 - 135
Chloroethane	10.0	10.1		ug/L		101	40 - 160
Chloroform	10.0	9.02		ug/L		90	70 - 135
Chloromethane	10.0	10.7		ug/L		107	1 - 205
cis-1,2-Dichloroethene	10.0	9.24		ug/L		92	60 - 140
cis-1,3-Dichloropropene	10.0	9.19		ug/L		92	25 - 175
Bromodichloromethane	10.0	9.39		ug/L		94	65 - 135
Ethylbenzene	10.0	9.41		ug/L		94	60 - 140
Methylene Chloride	10.0	8.67		ug/L		87	60 - 140
m,p-Xylene	10.0	9.22		ug/L		92	60 - 140
Naphthalene	10.0	10.1		ug/L		101	60 - 140
o-Xylene	10.0	9.31		ug/L		93	60 - 140
Tetrachloroethene	10.0	9.23		ug/L		92	70 - 130
Toluene	10.0	9.33		ug/L		93	70 - 130
trans-1,2-Dichloroethene	10.0	9.09		ug/L		91	70 - 130
trans-1,3-Dichloropropene	10.0	9.62		ug/L		96	50 - 150
Trichloroethene	10.0	9.38		ug/L		94	65 - 135
Trichlorofluoromethane	10.0	11.4		ug/L		114	50 - 150
Vinyl chloride	10.0	11.0		ug/L		110	5 - 195
Xylenes, Total	20.0	18.5		ug/L		93	60 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		60 - 140
Toluene-d8 (Surr)	99		60 - 140
Dibromofluoromethane (Surr)	100		60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

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

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
1,1,1-Trichloroethane	10.0	9.43		ug/L		94	70 - 130	3	36
1,1,2,2-Tetrachloroethane	10.0	9.20		ug/L		92	60 - 140	3	61
1,1,2-Trichloroethane	10.0	9.42		ug/L		94	70 - 130	0	45
1,1-Dichloroethane	10.0	9.56		ug/L		96	70 - 130	1	40
1,1-Dichloroethene	10.0	9.16		ug/L		92	50 - 150	1	32
1,2-Dichlorobenzene	10.0	9.59		ug/L		96	65 - 135	2	57
1,2-Dichloroethane	10.0	9.74		ug/L		97	70 - 130	3	49
1,2-Dichloropropane	10.0	9.67		ug/L		97	35 - 165	2	55
1,3-Dichlorobenzene	10.0	9.80		ug/L		98	70 - 130	0	43
1,4-Dichlorobenzene	10.0	9.32		ug/L		93	65 - 135	3	57
2-Chloroethyl vinyl ether	10.0	9.65		ug/L		96	1 - 225	7	71
Acrolein	20.0	15.1		ug/L		76	60 - 140	4	60
Acrylonitrile	100	97.2		ug/L		97	60 - 140	3	60
Benzene	10.0	9.69		ug/L		97	65 - 135	5	61
Bromoform	10.0	9.43		ug/L		94	70 - 130	4	42
Bromomethane	10.0	8.83		ug/L		88	15 - 185	32	61
Carbon tetrachloride	10.0	9.50		ug/L		95	70 - 130	0	41
Chlorobenzene	10.0	9.40		ug/L		94	65 - 135	0	53
Dibromochloromethane	10.0	9.29		ug/L		93	70 - 135	1	50
Chloroethane	10.0	10.7		ug/L		107	40 - 160	5	78
Chloroform	10.0	9.05		ug/L		91	70 - 135	0	30
Chloromethane	10.0	10.9		ug/L		109	1 - 205	2	60
cis-1,2-Dichloroethene	10.0	9.22		ug/L		92	60 - 140	0	30
cis-1,3-Dichloropropene	10.0	10.1		ug/L		101	25 - 175	9	58
Bromodichloromethane	10.0	9.91		ug/L		99	65 - 135	5	56
Ethylbenzene	10.0	9.84		ug/L		98	60 - 140	4	63
Methylene Chloride	10.0	8.49		ug/L		85	60 - 140	2	28
m,p-Xylene	10.0	9.56		ug/L		96	60 - 140	4	30
Naphthalene	10.0	10.2		ug/L		102	60 - 140	1	30
o-Xylene	10.0	9.58		ug/L		96	60 - 140	3	30
Tetrachloroethene	10.0	9.48		ug/L		95	70 - 130	3	39
Toluene	10.0	9.91		ug/L		99	70 - 130	6	41
trans-1,2-Dichloroethene	10.0	8.97		ug/L		90	70 - 130	1	45
trans-1,3-Dichloropropene	10.0	9.74		ug/L		97	50 - 150	1	86
Trichloroethene	10.0	9.90		ug/L		99	65 - 135	5	48
Trichlorofluoromethane	10.0	11.5		ug/L		115	50 - 150	1	84
Vinyl chloride	10.0	11.2		ug/L		112	5 - 195	2	66
Xylenes, Total	20.0	19.1		ug/L		96	60 - 140	3	30

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	101		60 - 140
Toluene-d8 (Surr)	103		60 - 140
Dibromofluoromethane (Surr)	99		60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-294537/1-A
Matrix: Water
Analysis Batch: 294838

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294537

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		1.0	0.51	mg/L		01/09/23 13:42	01/09/23 13:42	1

Lab Sample ID: LCS 570-294537/2-A
Matrix: Water
Analysis Batch: 294838

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294537

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	38.9		mg/L		97	78 - 114

Lab Sample ID: LCSD 570-294537/3-A
Matrix: Water
Analysis Batch: 294838

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294537

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	39.2		mg/L		98	78 - 114	1	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

GC/MS VOA

Analysis Batch: 294198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122678-3	TB-20230105	Total/NA	Water	624.1	
MB 570-294198/6	Method Blank	Total/NA	Water	624.1	
LCS 570-294198/1003	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-294198/4	Lab Control Sample Dup	Total/NA	Water	624.1	

Analysis Batch: 294547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122678-1	Outfall008_20230105_Grab	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

Prep Batch: 294537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122678-1	Outfall008_20230105_Grab	Total/NA	Water	1664A	
MB 570-294537/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-294537/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-294537/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 294838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122678-1	Outfall008_20230105_Grab	Total/NA	Water	1664A	294537
MB 570-294537/1-A	Method Blank	Total/NA	Water	1664A	294537
LCS 570-294537/2-A	Lab Control Sample	Total/NA	Water	1664A	294537
LCSD 570-294537/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	294537

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-1

Client Sample ID: Outfall008_20230105_Grab

Lab Sample ID: 570-122678-1

Date Collected: 01/05/23 08:50

Matrix: Water

Date Received: 01/05/23 16:00

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	294547	01/09/23 17:47	A1W	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			971 mL	1000 mL	294537	01/09/23 13:42	UWEZ	EET CAL 4
Total/NA	Analysis	1664A		1			294838	01/09/23 13:42	USUL	EET CAL 4
Instrument ID: NO EQUIQ										

Client Sample ID: TB-20230105

Lab Sample ID: 570-122678-3

Date Collected: 01/05/23 08:50

Matrix: Water

Date Received: 01/05/23 16:00

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	294198	01/06/23 15:29	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 008 GRAB

Job ID: 570-122678-1

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 008 GRAB

Job ID: 570-122678-1

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
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

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 008 GRAB

Job ID: 570-122678-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122678-1	Outfall008_20230105_Grab	Water	01/05/23 08:50	01/05/23 16:00
570-122678-3	TB-20230105	Water	01/05/23 08:50	01/05/23 16:00

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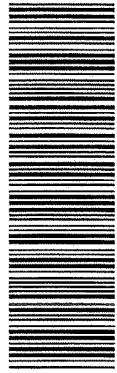
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Eurofins Calscience Irvine

570-122678 Chain of Custody

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 Annual Outfall [008] Grab

Eurofins Calscience Irvine Contact: Christian Bondoc, 17461 Derian Ave Suite #100, Irvine CA 92614, Tel: 949-260-3218

Field Readings: (Include units) Time of Readings: 0850, pH 7.85, Temp 52.1 °C

Field readings QC, Checked by: [Signature], Date/Time: 1-5-2023/0850

Field Readings (Include units), Meter serial # 12587700X

Table with columns: Sample Description, Sample I.D., Sampling Date/Time, Sample Matrix, Container Type, # of Cont, Preservative, Bottle #, MSMSD, and ANALYSIS REQUIRED (VOCs, Oil & Grease, etc.)

Project Manager: Katharine Miller, 520.289.8606, 520.904.6944 (cell). Field Manager: Mark Dominick, 978.234.5033, 818.599.0702 (cell)

Legend: R = Routine, A = Annual

Relinquished By, Date/Time, Company, Received By, Date/Time, Turn-around time, Sample Integrity, Data Requirements, All Level IV

* Sample shipped separately via FedEx to Luni, Ultra. 1.9/1-9 2.8/2.8 2.9/2.9 1.8/1.8 sc11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122678-1

Login Number: 122678

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 008 GRAB

JOB NUMBER

570-122678-2

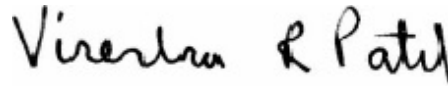
Job Notes

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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 008 GRAB

Job ID: 570-122678-2

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 008 GRAB

Job ID: 570-122678-2



Job ID: 570-122678-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122678-2

Comments

No additional comments.

Receipt

The samples were received on 1/5/2023 4:00 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 1.8° C, 1.9° C, 2.8° C and 2.9° 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.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 GRAB

Job ID: 570-122678-2

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 008 GRAB

Job ID: 570-122678-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122678-1	Outfall008_20230105_Grab	Water	01/05/23 08:50	01/05/23 16:00

1

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

enthalpy.com

Lab Job Number: 476659
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 008 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 #:	476659
Eurofins Calscience	Project No:	BOEING NPDES SSFL
Tustin	Location:	Boeing SSFL NPDES - Outfall 008 GRAB
2841 Dow Avenue, Suite	Date Received:	01/05/23
100		
Tustin, CA 92780		

Sample ID	Lab ID	Collected	Matrix
OUTFALL008_20230105_GRAB (570-122678-1)	476659-001	01/05/23 08:50	Water

Case Narrative

MICROBIOLOGY TESTS (SM 9223BB)

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

Lab Job Number: 476659
Project No: BOEING NPDES SSFL
Location: Boeing SSFL NPDES - Outfall 008 GRAB
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.

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Chain of Custody

2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895-5494

Chain of Custody Record 476659



Environment Testing

Client Information (Sub Contract Lab)		Lab PM: Virendra Patel, Virendra Patel		Carrier Tracking Note(s):	
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@et-eurofins.com		State of Origin: California	
Company: Enthalpy Analytical LLC		Accreditations Required (See note): State Program - California		COG No: 570-203292.1	
Address: 931 W. Berkley Ave, Orange, CA, 92668		Due Date Requested: 1/19/2023		Page: Page 1 of 1	
City: Orange		TAT Requested (days):		Job #: 570-122678-2	
State, Zip: CA, 92668		PO #:		Preservation Codes:	
Phone:		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:	
Email:		Project #: 44024446		M - Hexana 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)	
Project Name: Boeing SSFL NPDES - Outfall 008 GRAB		SSOW#:		Analysis Requested	
Site:		Sample Date: 1/5/23		Total Number of Containers: 3	
Sample Identification - Client ID (Lab ID)		Sample Time: 08:50 Pacific		Special Instructions/Note:	
Outfall008_20230105_Grab (570-122678-1)		Sample Type (C=Comp, G=grab)		See Attached Instructions	
		Preservation Code: Water			
		Matrix (W=water, S=solid, O=volatile, BT=Trace, A=AT)			
		SUB (Quant-Tray - E, Coll - level 4 required)			
		Level 4 required			
		Trucks (See Note)			
		E, Coll - level 4 required			

Note: Since laboratory accreditations are subject to change, Eurofins Caldecens 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, this sample must be shipped back to the Eurofins Caldecens laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Caldecens attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Caldecens.

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: 1/5/23 1509 Company: EC
Relinquished by: _____ Date/Time: _____ Company: _____
Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No.: _____
Cooler Temperature(s) To 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:
570-203292

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 008-Grab
 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



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Results & QC Summary

Total Coliform / E. coli by Quanti-Tray

Lab #: 476659	Project#: BOEING NPDES SSFL	
Client: Eurofins Calscience Tustin	Location: Boeing SSFL NPDES - Outfall 008 GRAB	
Field ID: OUTFALL008_20230105_GRAB (570-122678-1)	Batch#: 304722	Analyzed: 01/06/23 11:58
Lab ID: 476659-001	Sampled: 01/05/23 08:50	Prep:
Matrix: Water	Received: 01/05/23	Analysis: SM 9223Bb
Diln Fac: 1.000	Prepared: 01/05/23 15:30	Analyst: PAS

476659-001 Analyte	Result	RL	Units
Coliform, E. Coli	100	1.0	MPN/100ml

Legend
 RL: Reporting Limit



COMPYNDATOR lot#: H0240

SM 9223 B-b, Quanti-Tray

QC Batch ID: 304722

Prep Date/Time: 1/5/23 1530

Batch Page 1 of 1

Read Date/Time: 1/6/23 1150

Media Used (check one): Coliure Colilert 24

Media Lot #: EV394

Pipette Lot #: A10417/A03047

Monthly Quanti-tray Sealer Check: Did it Pass? Yes No

Date of last check: 01/03/23

Batch bottle lot#: BUC09N

Total and E. coli: Incubator ID: M3

Incubator In, Temp/Time: 34.8 1545

Incubator Out, Temp/Time: 1156 35.0

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			
		476659-001	1X	49	40	2419.4	2400	42	7	101.7	100					VU-01 1
		↓	10X	49	43	1413.6	14000	13	1	16.0	160					10X
			100X	43	0	111.2	11000	5	0	5.2	520					100X
		476660-001	1X	49	40	2249.4	22400	49	31	648.8	650					EE-01 6x
		↓	10X	49	45	1752.9	17000	31	4	52.9	530					10X
			100X	45	9	131.4	13000	5	4	9.4	940					100X
		476658-001	1X	49	40	2249.6	22400	49	27	517.2	520					TU-01 10x
		↓	10X	49	40	2249.6	22400	17	3	24.1	240					10X
			100X	47	15	191.8	19000	3	0	3.1	310					100X
						NA 0/100/03										
<p>Quality Control</p> <p>Positive +/- (E. Coli) Culture ID: P121/22</p> <p>Positive +/- (K. Pneumoniae) ↓</p> <p>Negative +/- (P. Aeruginosa)</p>																

Data Entered By: JA 01/09/23

Data Reviewed By:

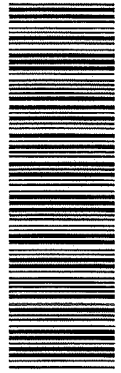
Enthalpy Analytical, Orange, Logbook # BK955

73 of 100

SM 9223B-b, Quanti-Tray, Rev 3, 1/15/2019



126678



Eurofins Calscience Irvine

570-122678 Chain of Custody

CHAIN OF CUSTODY FORM

Field Readings (Include units) Meter serial # 1250700X

Time of Readings: 0850 pH 7.85 pH unit Temp 52.1 °C

Field readings QC Checked by: [Signature] Date/Time: 1-5-2023/0850

Table with columns: Sample Description, Sample I.D., Sampling Date/Time, Sample Matrix, Container Type, # of Cont, Preservative, Bottle #, MSMSD, and Comments. Includes entries for Outfall008_20230105_Grab and Trip Blanks.

Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [008] Grab

Project Manager: Katharine Miller 520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)

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

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: Adrian Mobeke

ANALYSIS REQUIRED: VOCs - only A+A+ZOVE (E624), VOCs PP + xylenes, Freon 11 (E824), Oil & Grease (E1664A-HEM), Ethilopy Analytical Orange CA, FI coil (SM9221), Source Molecular in Miami Lakes FL (SM348-357), MT-Bacteroides, Human (SM348-357)

Relinquished By, Date/Time, Company, Turn-around time, Sample Integrity, Date Requirements, All Level IV.

* Sample shipped separately via FedEx to Luni, Ultra 1.9/1-9 2.8/2.8 2.9/2.9 1.8/1.8 sc11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122678-2

Login Number: 122678

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 008 GRAB

JOB NUMBER

570-122678-3

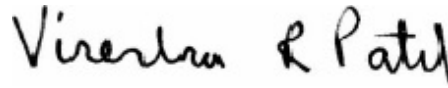
Job Notes

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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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2/24/2023 2:15:44 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 008 GRAB

Job ID: 570-122678-3

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 008 GRAB

Job ID: 570-122678-3

Job ID: 570-122678-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122678-3

Comments

No additional comments.

Receipt

The samples were received on 1/5/2023 4:00 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 1.8° C, 1.9° C, 2.8° C and 2.9° 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 008 GRAB

Job ID: 570-122678-3

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 008 GRAB

Job ID: 570-122678-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122678-2	Outfall008_20230105_Grab_Extra	Water	01/05/23 08:50	01/05/23 16:00

1

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Work Orders: 3B02094

Project: 570-122678-3

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: Outfall008_20230105_Grab_Extra (570-122678-2)
3B02094-01 (Water)

Sampled: 01/05/23 8:50 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	111%		82-125	Conc: 55.6		02/07/23	
4-Bromofluorobenzene	91%		88-108	Conc: 45.6		02/07/23	
Toluene-d8	99%		92-112	Conc: 49.6		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

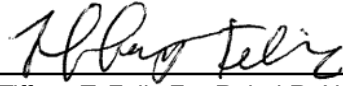
Item	Definition
O-09	This sample was received with the EPA recommended holding time expired.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of 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.

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-995-5494

Chain of Custody Record



Carrier Tracking No(e):
Client Information (Sub Contract Lab)
Client Contact: Pateti, Virendra
Shipping/Receiving: Virendra.Patel@et.eurofinsus.com
State of Origin: California
Company: Weck Laboratories, Inc.
Accreditations Required (See note):
State Program - California

Address: 14859 East Clark Avenue,
City: City of Industry
State, Zip: CA, 917451396
Phone:
Email:
Project Name: Boeing SSFL NPDES - Outfall 008 GRAB
Site:
Due Date Requested: 2/22/2023
TAT Requested (days):
PO #:
WO #:
Project #: 44024446
SSOW#:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Snow, Ice, Rain, Other)	Analysis Requested	
					Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)
Outfall008_20230105_Grab_Extra (570-122678-2)	1/5/23	08:50 Pacific	Water	Water		X

Sample Identification - Client ID (Lab ID)
Outfall008_20230105_Grab_Extra (570-122678-2)
Sample Date: 1/5/23
Sample Time: 08:50 Pacific
Sample Type: Water
Matrix: Water
Field Filtered Sample (Yes or No):
Perform MS/MSD (Yes or No): X
S/B (Weck 6241 - 2-CEVE units) with MDLs (u):

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 the 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 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:
Relinquished by:
Date/Time:
Date:
Time:
Company:
Received by:
Date/Time:
Late/Time:
Method of Shipment:
Method of Shipment:
7/17/21

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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"/>	
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 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(Tune here)

126678



Eurofins Calscience Irvine

570-122678 Chain of Custody

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 Annual Outfall [008] Grab

Eurofins Calscience Irvine Contact: Christian Bondoc, 17461 Derian Ave Suite #100, Irvine CA 92614, Tel: 949-260-3218

Field Readings: (Include units) Time of Readings: 0850, pH 7.85, Temp 52.1 °C

Field readings QC Checked by: [Signature], Date/Time: 1-5-2023/0850

Meter serial # 12587702X

Table with columns: Sample Description, Sample I.D., Sampling Date/Time, Sample Matrix, Container Type, # of Cont, Preservative, Bottle #, MSMSD, and ANALYSIS REQUIRED (VOCs, Oil & Grease, etc.).

Legend: R = Routine, A = Annual

Relinquished By, Date/Time, Company, Received By, Date/Time, Turn-around time, Sample Integrity, Data Requirements.

* Sample shipped separately via FedEx to Luni, Ultra 1.9/1-9 2.8/2.8 2.9/2.9 1.8/1.8 sc11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122678-3

Login Number: 122678

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 4/26/2023 12:10:49 PM Revision 4

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 008 COMP

JOB NUMBER

570-122945-1

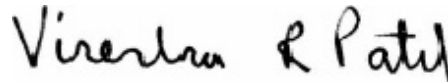
Job Notes

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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
4/26/2023 12:10:49 PM
Revision 4

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 008 COMP

Job ID: 570-122945-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
BA	Relative percent difference out of control
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LQ	LCS/LCSD recovery above method control limits

GC Semi VOA

Qualifier	Qualifier Description
BA	Relative percent difference out of control
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
EY	Result exceeds normal dynamic range; reported as a min. est.
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

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
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

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

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Glossary (Continued)

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

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Job ID: 570-122945-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122945-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 1/19/2023. The report (revision 4) is being revised due to: The client requested Chromium Tota/Dissolved to be added to the metals list of analytes..

Report revision history

Revision 1 - 1/24/2023 - Reason - The metals reporting was adjusted to report all elements by EPA 200.8..

Revision 2 - 2/3/2023 - Reason - Revised to include As/Be for metals reporting.

Revision 3 - 4/4/2023 - Reason - The client requested Chromium Tota/Dissolved to be added to the metals list of analytes..

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 4 coolers at receipt time were 1.5° C, 1.8° C, 1.9° C and 2.1° 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: Outfall008_20230106_Comp (570-122945-1), Outfall008_20230106_Comp_F (570-122945-2) and Outfall008_20230106_Comp_Extra (570-122945-3). 570-122945-AO-1 and AN-1. The samples were preserved to the appropriate pH in the laboratory.

570-122945-AO-1 was received leaking and with a hole.

GC/MS Semi VOA

Method 625.1 SIM: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-295604 and analytical batch 570-296124 recovered outside control limits for the following analytes: 4,6-Dinitro-2-methylphenol. 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 570-295604 and analytical batch 570-296124 recovered outside control limits for the following analytes: Benzidine.

Method 625.1 SIM: The continuing calibration verification (CCV) associated with batch 570-295532 recovered above the upper control limit for 4,6-Dinitro-2-methylphenol. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: Outfall008_20230106_Comp (570-122945-1).

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

HPLC/IC

Method 218.6:

The following samples to be analyzed for hexavalent chromium were filtered and buffered with ammonium sulfate solution per EPA Method 218.6 within 24 hours of collection. This extends the holding time to 28 days per the 2017 Clean Water Act Methods Update Rule, which supersedes preservation and holding time requirements in the analytical method.

Outfall008_20230106_Comp (570-122945-1) and (570-123038-J-2)

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Job ID: 570-122945-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

<commaMerge>

Method 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-294335 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: Outfall008_20230106_Comp (570-122945-1).

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 570-295061 recovered outside control limits for the following analytes: Aroclor 1016. 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 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.

Method 608.3: The RPD of the laboratory control sample (LCS) and 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 and 4,4'-DDT.

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 continuing calibration blank (CCB) for analytical batch 570-295098 contained Nickel above the method detection limit (MDL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

Method 200.7 Rev 4.4: The matrix spike / matrix spike duplicate (MS/MSD) recoveries of Aluminum and Iron for preparation batch 570-295016 and analytical batch 570-295225 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 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-295010 and analytical batch 570-295103 were outside control limits Calcium and Iron. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-294776 and analytical batch 570-294823 were outside control limits for Calcium. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-294776 and analytical batch 570-294823 were outside control limits for Calcium. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230106_Comp_F (570-122945-2), (570-122945-H-2 MS) and (570-122945-H-2 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: Outfall008_20230106_Comp_F (570-122945-2), (570-122945-H-2 MS) and (570-122945-H-2 MSD). The sample(s) was filtered prior to

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Job ID: 570-122945-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

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 570-294695. 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 008 COMP

Job ID: 570-122945-1

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dimethyl phthalate	0.10	J,DX	1.9	0.094	ug/L	1		625.1 SIM	Total/NA
Chromium, hexavalent	0.037	J,DX	0.20	0.019	ug/L	1		218.6	Total/NA
Chloride	3.7	J,DX	5.0	1.8	mg/L	5		300.0	Total/NA
Nitrate as N	1.8		0.50	0.098	mg/L	5		300.0	Total/NA
Sulfate	3.3	J,DX	5.0	1.2	mg/L	5		300.0	Total/NA
Perchlorate	1.3	J,DX	2.0	0.91	ug/L	1		314.0	Total/NA
Nitrate Nitrite as N	1.8		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Boron	83	J,DX	500	3.5	ug/L	1		200.7 Rev 4.4	Total
Copper	2.8		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.79	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Arsenic	1.3		1.0	0.16	ug/L	1		200.8	Total Recoverable
Iron	1000		20	3.7	ug/L	1		200.8	Total Recoverable
Nickel	2.1		2.0	0.17	ug/L	1		200.8	Total Recoverable
Vanadium	3.1		2.0	0.17	ug/L	1		200.8	Total Recoverable
Aluminum	1200		15	8.6	ug/L	1		200.8	Total Recoverable
Zinc	8.5	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Chromium	1.3	J,DX	2.0	0.14	ug/L	1		200.8	Total Recoverable
Mercury	0.16	J,DX	0.20	0.12	ug/L	1		245.1	Total/NA
Hardness as calcium carbonate	52		7.1	0.50	mg/L	1		SM 2340B	Total Recoverable
Ammonia	0.041	J,DX	0.075	0.032	mg/L	1		350.1	Total/NA
Total Dissolved Solids	110		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	10		2.0	1.7	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall008_20230106_Comp_F

Lab Sample ID: 570-122945-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	78	J,DX BU	500	3.5	ug/L	1		200.7 Rev 4.4	Dissolved
Antimony	1.6	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	2.1	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.14	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Silver	0.27	J,DX BU	1.0	0.23	ug/L	1		200.8	Dissolved
Thallium	0.11	J,DX BU	1.0	0.11	ug/L	1		200.8	Dissolved
Arsenic	1.0	BU	1.0	0.16	ug/L	1		200.8	Dissolved
Iron	77	BU	20	3.7	ug/L	1		200.8	Dissolved
Nickel	1.4	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Vanadium	1.3	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Aluminum	87	BU	15	8.6	ug/L	1		200.8	Dissolved
Zinc	3.9	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved
Chromium	0.34	J,DX BU	2.0	0.14	ug/L	1		200.8	Dissolved
Hardness as calcium carbonate	48		7.1	0.50	mg/L	1		SM 2340B	Dissolved

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 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

Date Collected: 01/06/23 09:05

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.19	0.12	ug/L		01/13/23 05:33	01/13/23 19:28	1
1,2-Dichlorobenzene	ND		0.19	0.11	ug/L		01/13/23 05:33	01/13/23 19:28	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		0.19	0.087	ug/L		01/13/23 05:33	01/13/23 19:28	1
1,3-Dichlorobenzene	ND		0.19	0.11	ug/L		01/13/23 05:33	01/13/23 19:28	1
1,4-Dichlorobenzene	ND		0.19	0.13	ug/L		01/13/23 05:33	01/13/23 19:28	1
2,4,6-Trichlorophenol	ND		0.96	0.13	ug/L		01/13/23 05:33	01/13/23 19:28	1
2,4-Dichlorophenol	ND		0.96	0.13	ug/L		01/13/23 05:33	01/13/23 19:28	1
2,4-Dimethylphenol	ND		0.19	0.12	ug/L		01/13/23 05:33	01/13/23 19:28	1
2,4-Dinitrophenol	ND		4.8	4.1	ug/L		01/13/23 05:33	01/13/23 19:28	1
2,4-Dinitrotoluene	ND		0.19	0.11	ug/L		01/13/23 05:33	01/13/23 19:28	1
2,6-Dinitrotoluene	ND		0.19	0.17	ug/L		01/13/23 05:33	01/13/23 19:28	1
2-Chloronaphthalene	ND		0.19	0.14	ug/L		01/13/23 05:33	01/13/23 19:28	1
2-Chlorophenol	ND		0.19	0.092	ug/L		01/13/23 05:33	01/13/23 19:28	1
2-Nitrophenol	ND		4.8	3.4	ug/L		01/13/23 05:33	01/13/23 19:28	1
3,3'-Dichlorobenzidine	ND		4.8	2.9	ug/L		01/13/23 05:33	01/13/23 19:28	1
4,6-Dinitro-2-methylphenol	ND	LQ	4.8	4.4	ug/L		01/13/23 05:33	01/13/23 19:28	1
4-Bromophenyl phenyl ether	ND		0.19	0.096	ug/L		01/13/23 05:33	01/13/23 19:28	1
4-Chloro-3-methylphenol	ND		0.96	0.13	ug/L		01/13/23 05:33	01/13/23 19:28	1
4-Chlorophenyl phenyl ether	ND		0.19	0.16	ug/L		01/13/23 05:33	01/13/23 19:28	1
4-Nitrophenol	ND		4.8	3.2	ug/L		01/13/23 05:33	01/13/23 19:28	1
Acenaphthene	ND		0.19	0.094	ug/L		01/13/23 05:33	01/13/23 19:28	1
Acenaphthylene	ND		0.19	0.12	ug/L		01/13/23 05:33	01/13/23 19:28	1
Anthracene	ND		0.19	0.081	ug/L		01/13/23 05:33	01/13/23 19:28	1
Benzidine	ND	BA	4.8	2.6	ug/L		01/13/23 05:33	01/13/23 19:28	1
Benzo[a]anthracene	ND		0.19	0.12	ug/L		01/13/23 05:33	01/13/23 19:28	1
Benzo[a]pyrene	ND		0.19	0.15	ug/L		01/13/23 05:33	01/13/23 19:28	1
Benzo[b]fluoranthene	ND		0.19	0.11	ug/L		01/13/23 05:33	01/13/23 19:28	1
Benzo[g,h,i]perylene	ND		0.19	0.10	ug/L		01/13/23 05:33	01/13/23 19:28	1
Benzo[k]fluoranthene	ND		0.19	0.11	ug/L		01/13/23 05:33	01/13/23 19:28	1
bis (2-chloroisopropyl) ether	ND		0.19	0.13	ug/L		01/13/23 05:33	01/13/23 19:28	1
Bis(2-chloroethoxy)methane	ND		0.19	0.10	ug/L		01/13/23 05:33	01/13/23 19:28	1
Bis(2-chloroethyl)ether	ND		0.19	0.10	ug/L		01/13/23 05:33	01/13/23 19:28	1
Bis(2-ethylhexyl) phthalate	ND		4.8	3.5	ug/L		01/13/23 05:33	01/13/23 19:28	1
Butyl benzyl phthalate	ND		0.96	0.65	ug/L		01/13/23 05:33	01/13/23 19:28	1
Chrysene	ND		0.19	0.11	ug/L		01/13/23 05:33	01/13/23 19:28	1
Dibenz(a,h)anthracene	ND		0.19	0.15	ug/L		01/13/23 05:33	01/13/23 19:28	1
Diethyl phthalate	ND		1.9	0.17	ug/L		01/13/23 05:33	01/13/23 19:28	1
Dimethyl phthalate	0.10	J,DX	1.9	0.094	ug/L		01/13/23 05:33	01/13/23 19:28	1
Di-n-butyl phthalate	ND		1.9	1.8	ug/L		01/13/23 05:33	01/13/23 19:28	1
Di-n-octyl phthalate	ND		2.9	0.51	ug/L		01/13/23 05:33	01/13/23 19:28	1
Fluoranthene	ND		0.19	0.097	ug/L		01/13/23 05:33	01/13/23 19:28	1
Fluorene	ND		0.19	0.091	ug/L		01/13/23 05:33	01/13/23 19:28	1
Hexachlorobenzene	ND		0.19	0.13	ug/L		01/13/23 05:33	01/13/23 19:28	1
Hexachlorobutadiene	ND		0.19	0.15	ug/L		01/13/23 05:33	01/13/23 19:28	1
Hexachlorocyclopentadiene	ND		0.19	0.15	ug/L		01/13/23 05:33	01/13/23 19:28	1
Hexachloroethane	ND		0.19	0.12	ug/L		01/13/23 05:33	01/13/23 19:28	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.12	ug/L		01/13/23 05:33	01/13/23 19:28	1
Isophorone	ND		0.19	0.095	ug/L		01/13/23 05:33	01/13/23 19:28	1
Naphthalene	ND		0.19	0.11	ug/L		01/13/23 05:33	01/13/23 19:28	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

Date Collected: 01/06/23 09:05

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrobenzene	ND		0.19	0.14	ug/L		01/13/23 05:33	01/13/23 19:28	1
N-Nitrosodimethylamine	ND		0.19	0.18	ug/L		01/13/23 05:33	01/13/23 19:28	1
N-Nitrosodi-n-propylamine	ND		0.19	0.14	ug/L		01/13/23 05:33	01/13/23 19:28	1
N-Nitrosodiphenylamine	ND		0.19	0.10	ug/L		01/13/23 05:33	01/13/23 19:28	1
Pentachlorophenol	ND		0.96	0.81	ug/L		01/13/23 05:33	01/13/23 19:28	1
Phenanthrene	ND		0.19	0.16	ug/L		01/13/23 05:33	01/13/23 19:28	1
Phenol	ND		0.96	0.50	ug/L		01/13/23 05:33	01/13/23 19:28	1
Pyrene	ND		0.19	0.083	ug/L		01/13/23 05:33	01/13/23 19:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	79		28 - 127				01/13/23 05:33	01/13/23 19:28	1
2-Fluorobiphenyl (Surr)	56		31 - 120				01/13/23 05:33	01/13/23 19:28	1
2-Fluorophenol	34		17 - 120				01/13/23 05:33	01/13/23 19:28	1
Nitrobenzene-d5	55		27 - 120				01/13/23 05:33	01/13/23 19:28	1
Phenol-d6 (Surr)	26		10 - 120				01/13/23 05:33	01/13/23 19:28	1
p-Terphenyl-d14 (Surr)	68		45 - 120				01/13/23 05:33	01/13/23 19:28	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: EPA 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall008_20230106_Comp

Date Collected: 01/06/23 09:05

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0033	0.0031	ug/L		01/10/23 08:13	01/11/23 13:09	1
alpha-BHC	ND		0.0013	0.0012	ug/L		01/10/23 08:13	01/11/23 13:09	1
beta-BHC	ND		0.0050	0.0039	ug/L		01/10/23 08:13	01/11/23 13:09	1
delta-BHC	ND		0.0033	0.0020	ug/L		01/10/23 08:13	01/11/23 13:09	1
gamma-BHC (Lindane)	ND		0.0013	0.00066	ug/L		01/10/23 08:13	01/11/23 13:09	1
Chlordane (technical)	ND		0.033	0.026	ug/L		01/10/23 08:13	01/11/23 13:09	1
4,4'-DDD	ND	BA LQ	0.0067	0.0044	ug/L		01/10/23 08:13	01/11/23 13:09	1
4,4'-DDE	ND		0.0033	0.0019	ug/L		01/10/23 08:13	01/11/23 13:09	1
4,4'-DDT	ND	BA	0.0033	0.0016	ug/L		01/10/23 08:13	01/11/23 13:09	1
Dieldrin	ND		0.0033	0.0013	ug/L		01/10/23 08:13	01/11/23 13:09	1
Endosulfan I	ND		0.0013	0.0013	ug/L		01/10/23 08:13	01/11/23 13:09	1
Endosulfan II	ND		0.0067	0.0041	ug/L		01/10/23 08:13	01/11/23 13:09	1
Endosulfan sulfate	ND		0.0033	0.0014	ug/L		01/10/23 08:13	01/11/23 13:09	1
Endrin	ND		0.0033	0.0023	ug/L		01/10/23 08:13	01/11/23 13:09	1
Endrin aldehyde	ND		0.033	0.024	ug/L		01/10/23 08:13	01/11/23 13:09	1
Heptachlor	ND		0.0013	0.0012	ug/L		01/10/23 08:13	01/11/23 13:09	1
Heptachlor epoxide	ND		0.0067	0.0039	ug/L		01/10/23 08:13	01/11/23 13:09	1
Toxaphene	ND		0.067	0.054	ug/L		01/10/23 08:13	01/11/23 13:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	71	PI	20 - 139	01/10/23 08:13	01/11/23 13:09	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND	LQ	0.10	0.044	ug/L	-	01/10/23 08:13	01/11/23 16:59	1
Aroclor 1221	ND		0.10	0.044	ug/L	-	01/10/23 08:13	01/11/23 16:59	1
Aroclor 1232	ND		0.10	0.044	ug/L	-	01/10/23 08:13	01/11/23 16:59	1
Aroclor 1242	ND		0.10	0.044	ug/L	-	01/10/23 08:13	01/11/23 16:59	1
Aroclor 1248	ND		0.10	0.044	ug/L	-	01/10/23 08:13	01/11/23 16:59	1
Aroclor 1254	ND		0.10	0.052	ug/L	-	01/10/23 08:13	01/11/23 16:59	1
Aroclor 1260	ND		0.10	0.052	ug/L	-	01/10/23 08:13	01/11/23 16:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	53	PI	20 - 154				01/10/23 08:13	01/11/23 16:59	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp

Date Collected: 01/06/23 09:05

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.037	J,DX	0.20	0.019	ug/L			01/09/23 04:29	1

1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230106_Comp

Date Collected: 01/06/23 09:05

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.7	J,DX	5.0	1.8	mg/L			01/07/23 16:57	5
Nitrite as N	ND		0.50	0.22	mg/L			01/07/23 16:57	5
Fluoride	ND		0.50	0.23	mg/L			01/07/23 16:57	5
Nitrate as N	1.8		0.50	0.098	mg/L			01/07/23 16:57	5
Sulfate	3.3	J,DX	5.0	1.2	mg/L			01/07/23 16:57	5

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	1.3	J,DX	2.0	0.91	ug/L			01/09/23 15:44	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 008 COMP

Job ID: 570-122945-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230106_Comp

Date Collected: 01/06/23 09:05

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.8		0.10	0.020	mg/L			01/13/23 11:53	1

1

2

3

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp

Date Collected: 01/06/23 09:05

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	83	J,DX	500	3.5	ug/L		01/11/23 08:34	01/11/23 17:21	1

1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp_F
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	78	J,DX BU	500	3.5	ug/L			01/11/23 09:24	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 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

Date Collected: 01/06/23 09:05

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		01/11/23 07:42	01/11/23 11:25	1
Cadmium	ND		1.0	0.13	ug/L		01/11/23 07:42	01/11/23 11:25	1
Copper	2.8		2.0	0.32	ug/L		01/11/23 07:42	01/11/23 11:25	1
Lead	0.79	J,DX	1.0	0.12	ug/L		01/11/23 07:42	01/11/23 11:25	1
Selenium	ND		2.0	0.52	ug/L		01/11/23 07:42	01/11/23 11:25	1
Silver	ND		1.0	0.23	ug/L		01/11/23 07:42	01/11/23 11:25	1
Thallium	ND		1.0	0.11	ug/L		01/11/23 07:42	01/11/23 11:25	1
Beryllium	ND		0.50	0.26	ug/L		01/11/23 07:42	01/11/23 11:25	1
Arsenic	1.3		1.0	0.16	ug/L		01/11/23 07:42	01/11/23 11:25	1
Iron	1000		20	3.7	ug/L		01/11/23 07:42	01/11/23 11:25	1
Nickel	2.1		2.0	0.17	ug/L		01/11/23 07:42	01/11/23 11:25	1
Vanadium	3.1		2.0	0.17	ug/L		01/11/23 07:42	01/11/23 11:25	1
Aluminum	1200		15	8.6	ug/L		01/11/23 07:42	01/11/23 11:25	1
Zinc	8.5	J,DX	20	2.8	ug/L		01/11/23 07:42	01/11/23 11:25	1
Chromium	1.3	J,DX	2.0	0.14	ug/L		01/11/23 07:42	01/11/23 11:25	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp_F

Date Collected: 01/06/23 09:05

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.6	J,DX BU	2.0	0.36	ug/L			01/10/23 12:05	1
Cadmium	ND	BU	1.0	0.13	ug/L			01/10/23 12:05	1
Copper	2.1	BU	2.0	0.32	ug/L			01/10/23 12:05	1
Lead	0.14	J,DX BU	1.0	0.12	ug/L			01/10/23 12:05	1
Selenium	ND	BU	2.0	0.52	ug/L			01/10/23 12:05	1
Silver	0.27	J,DX BU	1.0	0.23	ug/L			01/10/23 12:05	1
Thallium	0.11	J,DX BU	1.0	0.11	ug/L			01/10/23 12:05	1
Beryllium	ND	BU	0.50	0.26	ug/L			01/10/23 12:05	1
Arsenic	1.0	BU	1.0	0.16	ug/L			01/10/23 12:05	1
Iron	77	BU	20	3.7	ug/L			01/10/23 12:05	1
Nickel	1.4	J,DX BU	2.0	0.17	ug/L			01/10/23 12:05	1
Vanadium	1.3	J,DX BU	2.0	0.17	ug/L			01/10/23 12:05	1
Aluminum	87	BU	15	8.6	ug/L			01/10/23 12:05	1
Zinc	3.9	J,DX BU	20	2.8	ug/L			01/10/23 12:05	1
Chromium	0.34	J,DX BU	2.0	0.14	ug/L			01/10/23 12:05	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.16	J,DX	0.20	0.12	ug/L		01/10/23 17:07	01/12/23 15:14	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 008 COMP

Job ID: 570-122945-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230106_Comp_F
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/10/23 17:32	01/12/23 14:56	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 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

Date Collected: 01/06/23 09:05

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	52		7.1	0.50	mg/L			01/13/23 16:31	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 008 COMP

Job ID: 570-122945-1

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

Client Sample ID: Outfall008_20230106_Comp_F

Lab Sample ID: 570-122945-2

Date Collected: 01/06/23 09:05

Matrix: Water

Date Received: 01/06/23 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	48		7.1	0.50	mg/L			01/12/23 16:31	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 008 COMP

Job ID: 570-122945-1

General Chemistry

Client Sample ID: Outfall008_20230106_Comp

Date Collected: 01/06/23 09:05

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1

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)	0.041	J,DX	0.075	0.032	mg/L		01/18/23 13:02	01/18/23 14:50	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/11/23 14:55	1
Total Dissolved Solids (SM 2540C)	110		10	8.7	mg/L			01/10/23 16:16	1
Total Suspended Solids (SM 2540D)	10		2.0	1.7	mg/L			01/11/23 13:24	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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)					
		TBP (28-127)	FBP (31-120)	2FP (17-120)	NBZ (27-120)	PHL6 (10-120)	TPHd14 (45-120)
570-122945-1	Outfall008_20230106_Comp	79	56	34	55	26	68
LCS 570-295604/2-A	Lab Control Sample	84	63	45	63	33	86
LCSD 570-295604/3-A	Lab Control Sample Dup	86	66	44	62	32	78
MB 570-295604/1-A	Method Blank	79	59	43	68	30	68

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TCX1 (20-139)
570-122945-1	Outfall008_20230106_Comp	71 PI

Surrogate Legend

TCX = Tetrachloro-m-xylene

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)
LCS 570-294695/2-A	Lab Control Sample	108
LCSD 570-294695/3-A	Lab Control Sample Dup	103
MB 570-294695/1-A	Method Blank	121

Surrogate Legend

TCX = Tetrachloro-m-xylene

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCB1 (20-154)
570-122945-1	Outfall008_20230106_Comp	53 PI
LCS 570-294695/4-A	Lab Control Sample	75 PI
LCSD 570-294695/5-A	Lab Control Sample Dup	68
MB 570-294695/1-A	Method Blank	81

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,4-Trichlorobenzene	ND		0.20	0.13	ug/L		01/13/23 05:33	01/13/23 17:44	1
1,2-Dichlorobenzene	ND		0.20	0.11	ug/L		01/13/23 05:33	01/13/23 17:44	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		0.20	0.091	ug/L		01/13/23 05:33	01/13/23 17:44	1
1,3-Dichlorobenzene	ND		0.20	0.12	ug/L		01/13/23 05:33	01/13/23 17:44	1
1,4-Dichlorobenzene	ND		0.20	0.14	ug/L		01/13/23 05:33	01/13/23 17:44	1
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		01/13/23 05:33	01/13/23 17:44	1
2,4-Dichlorophenol	ND		1.0	0.14	ug/L		01/13/23 05:33	01/13/23 17:44	1
2,4-Dimethylphenol	ND		0.20	0.13	ug/L		01/13/23 05:33	01/13/23 17:44	1
2,4-Dinitrophenol	ND		5.0	4.3	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
2,6-Dinitrotoluene	ND		0.20	0.18	ug/L		01/13/23 05:33	01/13/23 17:44	1
2-Chloronaphthalene	ND		0.20	0.14	ug/L		01/13/23 05:33	01/13/23 17:44	1
2-Chlorophenol	ND		0.20	0.096	ug/L		01/13/23 05:33	01/13/23 17:44	1
2-Nitrophenol	ND		5.0	3.5	ug/L		01/13/23 05:33	01/13/23 17:44	1
3,3'-Dichlorobenzidine	ND		5.0	3.0	ug/L		01/13/23 05:33	01/13/23 17:44	1
4,6-Dinitro-2-methylphenol	ND		5.0	4.5	ug/L		01/13/23 05:33	01/13/23 17:44	1
4-Bromophenyl phenyl ether	ND		0.20	0.10	ug/L		01/13/23 05:33	01/13/23 17:44	1
4-Chloro-3-methylphenol	ND		1.0	0.13	ug/L		01/13/23 05:33	01/13/23 17:44	1
4-Chlorophenyl phenyl ether	ND		0.20	0.17	ug/L		01/13/23 05:33	01/13/23 17:44	1
4-Nitrophenol	ND		5.0	3.4	ug/L		01/13/23 05:33	01/13/23 17:44	1
Acenaphthene	ND		0.20	0.098	ug/L		01/13/23 05:33	01/13/23 17:44	1
Acenaphthylene	ND		0.20	0.13	ug/L		01/13/23 05:33	01/13/23 17:44	1
Anthracene	ND		0.20	0.084	ug/L		01/13/23 05:33	01/13/23 17:44	1
Benzidine	ND		5.0	2.7	ug/L		01/13/23 05:33	01/13/23 17:44	1
Benzo[a]anthracene	ND		0.20	0.12	ug/L		01/13/23 05:33	01/13/23 17:44	1
Benzo[a]pyrene	ND		0.20	0.15	ug/L		01/13/23 05:33	01/13/23 17:44	1
Benzo[b]fluoranthene	ND		0.20	0.11	ug/L		01/13/23 05:33	01/13/23 17:44	1
Benzo[g,h,i]perylene	ND		0.20	0.11	ug/L		01/13/23 05:33	01/13/23 17:44	1
Benzo[k]fluoranthene	ND		0.20	0.11	ug/L		01/13/23 05:33	01/13/23 17:44	1
bis (2-chloroisopropyl) ether	ND		0.20	0.13	ug/L		01/13/23 05:33	01/13/23 17:44	1
Bis(2-chloroethoxy)methane	ND		0.20	0.11	ug/L		01/13/23 05:33	01/13/23 17:44	1
Bis(2-chloroethyl)ether	ND		0.20	0.10	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
Butyl benzyl phthalate	ND		1.0	0.67	ug/L		01/13/23 05:33	01/13/23 17:44	1
Chrysene	ND		0.20	0.11	ug/L		01/13/23 05:33	01/13/23 17:44	1
Dibenz(a,h)anthracene	ND		0.20	0.16	ug/L		01/13/23 05:33	01/13/23 17:44	1
Diethyl phthalate	ND		2.0	0.18	ug/L		01/13/23 05:33	01/13/23 17:44	1
Dimethyl phthalate	ND		2.0	0.098	ug/L		01/13/23 05:33	01/13/23 17:44	1
Di-n-butyl phthalate	ND		2.0	1.8	ug/L		01/13/23 05:33	01/13/23 17:44	1
Di-n-octyl phthalate	ND		3.0	0.54	ug/L		01/13/23 05:33	01/13/23 17:44	1
Fluoranthene	ND		0.20	0.10	ug/L		01/13/23 05:33	01/13/23 17:44	1
Fluorene	ND		0.20	0.095	ug/L		01/13/23 05:33	01/13/23 17:44	1
Hexachlorobenzene	ND		0.20	0.13	ug/L		01/13/23 05:33	01/13/23 17:44	1
Hexachlorobutadiene	ND		0.20	0.15	ug/L		01/13/23 05:33	01/13/23 17:44	1
Hexachlorocyclopentadiene	ND		0.20	0.15	ug/L		01/13/23 05:33	01/13/23 17:44	1
Hexachloroethane	ND		0.20	0.13	ug/L		01/13/23 05:33	01/13/23 17:44	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.13	ug/L		01/13/23 05:33	01/13/23 17:44	1
Isophorone	ND		0.20	0.099	ug/L		01/13/23 05:33	01/13/23 17:44	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

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
Naphthalene	ND		0.20	0.11	ug/L		01/13/23 05:33	01/13/23 17:44	1
Nitrobenzene	ND		0.20	0.14	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
N-Nitrosodi-n-propylamine	ND		0.20	0.14	ug/L		01/13/23 05:33	01/13/23 17:44	1
N-Nitrosodiphenylamine	ND		0.20	0.11	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
Phenanthrene	ND		0.20	0.16	ug/L		01/13/23 05:33	01/13/23 17:44	1
Phenol	ND		1.0	0.52	ug/L		01/13/23 05:33	01/13/23 17:44	1
Pyrene	ND		0.20	0.086	ug/L		01/13/23 05:33	01/13/23 17:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	79		28 - 127	01/13/23 05:33	01/13/23 17:44	1
2-Fluorobiphenyl (Surr)	59		31 - 120	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
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

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	Limits
1,2,4-Trichlorobenzene	20.0	11.4		ug/L		57	57 - 130
1,2-Dichlorobenzene	20.0	12.1		ug/L		60	40 - 120
1,2-Diphenylhydrazine(as Azobenzene)	20.0	13.9		ug/L		70	60 - 115
1,3-Dichlorobenzene	20.0	11.8		ug/L		59	37 - 120
1,4-Dichlorobenzene	20.0	11.7		ug/L		59	39 - 120
2,4,6-Trichlorophenol	20.0	17.0		ug/L		85	52 - 129
2,4-Dichlorophenol	20.0	15.0		ug/L		75	53 - 122
2,4-Dimethylphenol	20.0	14.6		ug/L		73	42 - 120
2,4-Dinitrophenol	20.0	26.0		ug/L		130	1 - 173
2,4-Dinitrotoluene	20.0	18.9		ug/L		95	48 - 127
2,6-Dinitrotoluene	20.0	18.9		ug/L		95	68 - 137
2-Chloronaphthalene	20.0	14.5		ug/L		72	65 - 120
2-Chlorophenol	20.0	15.5		ug/L		78	36 - 120
2-Nitrophenol	20.0	17.3		ug/L		87	45 - 167
3,3'-Dichlorobenzidine	20.0	16.3		ug/L		82	8 - 213
4,6-Dinitro-2-methylphenol	20.0	26.1		ug/L		130	53 - 130
4-Bromophenyl phenyl ether	20.0	15.6		ug/L		78	65 - 120
4-Chloro-3-methylphenol	20.0	17.0		ug/L		85	41 - 128
4-Chlorophenyl phenyl ether	20.0	15.7		ug/L		78	38 - 145
4-Nitrophenol	20.0	9.30		ug/L		46	13 - 129
Benzidine	20.0	5.62		ug/L		28	20 - 164
bis (2-chloroisopropyl) ether	20.0	16.0		ug/L		80	63 - 139
Bis(2-chloroethoxy)methane	20.0	14.8		ug/L		74	49 - 165
Bis(2-chloroethyl)ether	20.0	15.9		ug/L		80	43 - 126
Bis(2-ethylhexyl) phthalate	20.0	18.7		ug/L		93	29 - 137

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

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
Butyl benzyl phthalate	20.0	19.9		ug/L		99	1 - 140
Diethyl phthalate	20.0	16.8		ug/L		84	1 - 120
Dimethyl phthalate	20.0	16.6		ug/L		83	1 - 120
Di-n-butyl phthalate	20.0	16.5		ug/L		82	8 - 120
Di-n-octyl phthalate	20.0	18.9		ug/L		95	19 - 132
Hexachlorobenzene	20.0	16.3		ug/L		82	8 - 142
Hexachlorobutadiene	20.0	11.3		ug/L		57	38 - 120
Hexachlorocyclopentadiene	20.0	19.2		ug/L		96	43 - 145
Hexachloroethane	20.0	11.8		ug/L		59	55 - 120
Isophorone	20.0	14.1		ug/L		71	47 - 180
Nitrobenzene	20.0	13.2		ug/L		66	54 - 158
N-Nitrosodimethylamine	20.0	9.48		ug/L		47	20 - 120
N-Nitrosodi-n-propylamine	20.0	15.2		ug/L		76	14 - 198
N-Nitrosodiphenylamine	20.0	17.2		ug/L		86	65 - 133
Pentachlorophenol	20.0	16.3		ug/L		82	38 - 152
Phenol	20.0	7.32		ug/L		37	17 - 120

Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits
2,4,6-Tribromophenol	84		28 - 127
2-Fluorobiphenyl (Surr)	63		31 - 120
2-Fluorophenol	45		17 - 120
Nitrobenzene-d5	63		27 - 120
Phenol-d6 (Surr)	33		10 - 120
p-Terphenyl-d14 (Surr)	86		45 - 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
1,2,4-Trichlorobenzene	20.0	11.3		ug/L		57	57 - 130	1	30
1,2-Dichlorobenzene	20.0	12.2		ug/L		61	40 - 120	1	20
1,2-Diphenylhydrazine(as Azobenzene)	20.0	14.5		ug/L		72	60 - 115	4	30
1,3-Dichlorobenzene	20.0	11.5		ug/L		58	37 - 120	3	20
1,4-Dichlorobenzene	20.0	11.6		ug/L		58	39 - 120	1	20
2,4,6-Trichlorophenol	20.0	17.1		ug/L		85	52 - 129	0	35
2,4-Dichlorophenol	20.0	15.1		ug/L		76	53 - 122	1	30
2,4-Dimethylphenol	20.0	14.5		ug/L		73	42 - 120	1	35
2,4-Dinitrophenol	20.0	27.6		ug/L		138	1 - 173	6	79
2,4-Dinitrotoluene	20.0	19.9		ug/L		99	48 - 127	5	25
2,6-Dinitrotoluene	20.0	19.6		ug/L		98	68 - 137	3	29
2-Chloronaphthalene	20.0	15.1		ug/L		76	65 - 120	4	15
2-Chlorophenol	20.0	14.7		ug/L		73	36 - 120	5	37
2-Nitrophenol	20.0	16.5		ug/L		83	45 - 167	5	33
3,3'-Dichlorobenzidine	20.0	17.0		ug/L		85	8 - 213	4	65
4,6-Dinitro-2-methylphenol	20.0	27.4	LQ	ug/L		137	53 - 130	5	122
4-Bromophenyl phenyl ether	20.0	15.6		ug/L		78	65 - 120	0	26
4-Chloro-3-methylphenol	20.0	16.4		ug/L		82	41 - 128	3	44

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
4-Chlorophenyl phenyl ether	20.0	16.3		ug/L		81	38 - 145	4	36	
4-Nitrophenol	20.0	10.5		ug/L		53	13 - 129	12	79	
Benzidine	20.0	9.78	BA	ug/L		49	20 - 164	54	30	
bis (2-chloroisopropyl) ether	20.0	15.3		ug/L		76	63 - 139	5	46	
Bis(2-chloroethoxy)methane	20.0	14.3		ug/L		71	49 - 165	4	32	
Bis(2-chloroethyl)ether	20.0	14.7		ug/L		73	43 - 126	8	65	
Bis(2-ethylhexyl) phthalate	20.0	19.3		ug/L		97	29 - 137	3	50	
Butyl benzyl phthalate	20.0	19.8		ug/L		99	1 - 140	0	36	
Diethyl phthalate	20.0	17.1		ug/L		85	1 - 120	1	60	
Dimethyl phthalate	20.0	16.7		ug/L		83	1 - 120	1	110	
Di-n-butyl phthalate	20.0	16.9		ug/L		85	8 - 120	3	28	
Di-n-octyl phthalate	20.0	20.4		ug/L		102	19 - 132	8	42	
Hexachlorobenzene	20.0	17.1		ug/L		85	8 - 142	5	33	
Hexachlorobutadiene	20.0	10.8		ug/L		54	38 - 120	4	38	
Hexachlorocyclopentadiene	20.0	20.1		ug/L		100	43 - 145	5	22	
Hexachloroethane	20.0	11.2		ug/L		56	55 - 120	5	32	
Isophorone	20.0	13.9		ug/L		69	47 - 180	2	56	
Nitrobenzene	20.0	12.8		ug/L		64	54 - 158	3	37	
N-Nitrosodimethylamine	20.0	9.54		ug/L		48	20 - 120	1	21	
N-Nitrosodi-n-propylamine	20.0	14.8		ug/L		74	14 - 198	3	52	
N-Nitrosodiphenylamine	20.0	17.3		ug/L		86	65 - 133	0	20	
Pentachlorophenol	20.0	16.8		ug/L		84	38 - 152	3	52	
Phenol	20.0	6.93		ug/L		35	17 - 120	5	39	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol	86		28 - 127
2-Fluorobiphenyl (Surr)	66		31 - 120
2-Fluorophenol	44		17 - 120
Nitrobenzene-d5	62		27 - 120
Phenol-d6 (Surr)	32		10 - 120
p-Terphenyl-d14 (Surr)	78		45 - 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		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aldrin	ND		0.0033	0.0031	ug/L		01/10/23 08:13	01/11/23 10:57	1
alpha-BHC	ND		0.0013	0.0012	ug/L		01/10/23 08:13	01/11/23 10:57	1
beta-BHC	ND		0.0050	0.0039	ug/L		01/10/23 08:13	01/11/23 10:57	1
delta-BHC	ND		0.0033	0.0020	ug/L		01/10/23 08:13	01/11/23 10:57	1
gamma-BHC (Lindane)	ND		0.0013	0.00066	ug/L		01/10/23 08:13	01/11/23 10:57	1
Chlordane (technical)	ND		0.033	0.026	ug/L		01/10/23 08:13	01/11/23 10:57	1
4,4'-DDD	ND		0.0067	0.0044	ug/L		01/10/23 08:13	01/11/23 10:57	1
4,4'-DDE	ND		0.0033	0.0019	ug/L		01/10/23 08:13	01/11/23 10:57	1
4,4'-DDT	ND		0.0033	0.0016	ug/L		01/10/23 08:13	01/11/23 10:57	1
Dieldrin	ND		0.0033	0.0013	ug/L		01/10/23 08:13	01/11/23 10:57	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

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	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Endosulfan I	ND		0.0013	0.0013	ug/L		01/10/23 08:13	01/11/23 10:57	1
Endosulfan II	ND		0.0067	0.0041	ug/L		01/10/23 08:13	01/11/23 10:57	1
Endosulfan sulfate	ND		0.0033	0.0014	ug/L		01/10/23 08:13	01/11/23 10:57	1
Endrin	ND		0.0033	0.0023	ug/L		01/10/23 08:13	01/11/23 10:57	1
Endrin aldehyde	ND		0.033	0.024	ug/L		01/10/23 08:13	01/11/23 10:57	1
Heptachlor	ND		0.0013	0.0012	ug/L		01/10/23 08:13	01/11/23 10:57	1
Heptachlor epoxide	ND		0.0067	0.0039	ug/L		01/10/23 08:13	01/11/23 10:57	1
Toxaphene	ND		0.067	0.054	ug/L		01/10/23 08:13	01/11/23 10:57	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	121		20 - 139	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	LCS	Unit	D	%Rec	%Rec	Limits
		Result	Qualifier					
Aldrin	0.0333	0.0351		ug/L		105		42 - 140
alpha-BHC	0.0333	0.0362		ug/L		108		37 - 140
beta-BHC	0.0333	0.0330		ug/L		99		17 - 147
delta-BHC	0.0333	0.0378		ug/L		113		19 - 140
gamma-BHC (Lindane)	0.0333	0.0354		ug/L		106		32 - 140
4,4'-DDD	0.0333	0.0528	LQ	ug/L		159		31 - 141
4,4'-DDE	0.0333	0.0370		ug/L		111		30 - 145
4,4'-DDT	0.0333	0.0143		ug/L		43		25 - 160
Dieldrin	0.0333	0.0345		ug/L		103		36 - 146
Endosulfan I	0.0333	0.0334		ug/L		100		45 - 153
Endosulfan II	0.0333	0.0347		ug/L		104		1 - 202
Endosulfan sulfate	0.0333	0.0332		ug/L		100		26 - 144
Endrin	0.0333	0.0392		ug/L		118		30 - 147
Endrin aldehyde	0.0333	0.0315	J,DX	ug/L		94		50 - 135
Heptachlor	0.0333	0.0351		ug/L		105		34 - 140
Heptachlor epoxide	0.0333	0.0350		ug/L		105		37 - 142

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	108		20 - 139

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	LCSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD Limit
		Result	Qualifier							
Aldrin	0.0333	0.0323		ug/L		97		42 - 140	8	35
alpha-BHC	0.0333	0.0336		ug/L		101		37 - 140	7	36
beta-BHC	0.0333	0.0304		ug/L		91		17 - 147	8	44
delta-BHC	0.0333	0.0335		ug/L		101		19 - 140	12	52
gamma-BHC (Lindane)	0.0333	0.0331		ug/L		99		32 - 140	7	39
4,4'-DDD	0.0333	0.0343	BA	ug/L		103		31 - 141	42	39

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

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		RPD	Limit
							Limits	RPD		
4,4'-DDE	0.0333	0.0340		ug/L		102	30 - 145	9	35	
4,4'-DDT	0.0333	0.0336	BA	ug/L		101	25 - 160	81	42	
Dieldrin	0.0333	0.0311		ug/L		93	36 - 146	10	49	
Endosulfan I	0.0333	0.0306		ug/L		92	45 - 153	9	28	
Endosulfan II	0.0333	0.0305		ug/L		91	1 - 202	13	53	
Endosulfan sulfate	0.0333	0.0298		ug/L		89	26 - 144	11	38	
Endrin	0.0333	0.0347		ug/L		104	30 - 147	12	48	
Endrin aldehyde	0.0333	0.0289	J,DX	ug/L		87	50 - 135	9	30	
Heptachlor	0.0333	0.0337		ug/L		101	34 - 140	4	43	
Heptachlor epoxide	0.0333	0.0320		ug/L		96	37 - 142	9	26	

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
Tetrachloro-m-xylene	103		20 - 139

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

Lab Sample ID: MB 570-294695/1-A
Matrix: Water
Analysis Batch: 295061

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
Aroclor 1221	ND		0.10	0.044	ug/L		01/10/23 08:13	01/11/23 16:40	1
Aroclor 1232	ND		0.10	0.044	ug/L		01/10/23 08:13	01/11/23 16:40	1
Aroclor 1242	ND		0.10	0.044	ug/L		01/10/23 08:13	01/11/23 16:40	1
Aroclor 1248	ND		0.10	0.044	ug/L		01/10/23 08:13	01/11/23 16:40	1
Aroclor 1254	ND		0.10	0.052	ug/L		01/10/23 08:13	01/11/23 16:40	1
Aroclor 1260	ND		0.10	0.052	ug/L		01/10/23 08:13	01/11/23 16:40	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	81		20 - 154	01/10/23 08:13	01/11/23 16:40	1

Lab Sample ID: LCS 570-294695/4-A
Matrix: Water
Analysis Batch: 295061

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	RPD
Aroclor 1016	0.133	0.370	PI LQ	ug/L		278	50 - 140	
Aroclor 1260	0.133	0.147	PI	ug/L		110	8 - 140	

Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits
DCB Decachlorobiphenyl (Surr)	75	PI	20 - 154

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Lab Sample ID: LCSD 570-294695/5-A
Matrix: Water
Analysis Batch: 295061

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		RPD	Limit
							Limits	RPD		
Aroclor 1016	0.133	0.424	PI LQ	ug/L		318	50 - 140	13	36	
Aroclor 1260	0.133	0.123	PI	ug/L		92	8 - 140	18	38	
		LCS	LCS							
Surrogate	%Recovery	Qualifier	Limits							
DCB Decachlorobiphenyl (Surr)	68		20 - 154							

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 570-294364/4
Matrix: Water
Analysis Batch: 294364

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 570-294364/5
Matrix: Water
Analysis Batch: 294364

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	49.4		ug/L		99	95 - 107			

Lab Sample ID: LCSD 570-294364/6
Matrix: Water
Analysis Batch: 294364

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	49.7		ug/L		99	95 - 107	1	20	

Lab Sample ID: 570-123038-J-2 MS
Matrix: Water
Analysis Batch: 294364

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	0.22		50.1	50.3		ug/L		100	85 - 121			

Lab Sample ID: 570-123038-J-2 MSD
Matrix: Water
Analysis Batch: 294364

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	0.22		50.1	49.9		ug/L		99	85 - 121	1	25	

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-294334/5
Matrix: Water
Analysis Batch: 294334

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			01/07/23 14:36	1
Nitrate as N	ND		0.10	0.020	mg/L			01/07/23 14:36	1

Lab Sample ID: LCS 570-294334/6
Matrix: Water
Analysis Batch: 294334

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	2.52		mg/L		101	90 - 110
Nitrate as N	5.00	4.92		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-294334/7
Matrix: Water
Analysis Batch: 294334

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	2.50		mg/L		100	90 - 110	1	15
Nitrate as N	5.00	4.92		mg/L		98	90 - 110	0	15

Lab Sample ID: 570-123038-J-2 MS
Matrix: Water
Analysis Batch: 294334

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	0.097	J,DX MB	2.50	2.58		mg/L		99	80 - 120
Nitrate as N	0.92		5.00	6.05		mg/L		103	80 - 120

Lab Sample ID: 570-123038-J-2 MSD
Matrix: Water
Analysis Batch: 294334

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	0.097	J,DX MB	2.50	2.57		mg/L		99	80 - 120	0	20
Nitrate as N	0.92		5.00	6.04		mg/L		102	80 - 120	0	20

Lab Sample ID: MB 570-294335/5
Matrix: Water
Analysis Batch: 294335

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			01/07/23 14:36	1
Fluoride	ND		0.10	0.046	mg/L			01/07/23 14:36	1
Sulfate	ND		1.0	0.24	mg/L			01/07/23 14:36	1

Lab Sample ID: LCS 570-294335/6
Matrix: Water
Analysis Batch: 294335

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	49.7		mg/L		99	90 - 110

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 570-294335/6
Matrix: Water
Analysis Batch: 294335

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.40		mg/L		96	90 - 110
Sulfate	50.0	49.5		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-294335/7
Matrix: Water
Analysis Batch: 294335

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	49.8		mg/L		100	90 - 110	0	15
Fluoride	2.50	2.43		mg/L		97	90 - 110	1	15
Sulfate	50.0	49.5		mg/L		99	90 - 110	0	15

Lab Sample ID: 570-123038-J-2 MS
Matrix: Water
Analysis Batch: 294335

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	57.3		mg/L		105	80 - 120
Fluoride	ND		2.50	2.51		mg/L		101	80 - 120
Sulfate	180	EY	50.0	246	EY LM	mg/L		125	80 - 120

Lab Sample ID: 570-123038-J-2 MSD
Matrix: Water
Analysis Batch: 294335

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	57.3		mg/L		105	80 - 120	0	20
Fluoride	ND		2.50	2.52		mg/L		101	80 - 120	0	20
Sulfate	180	EY	50.0	246	EY LM	mg/L		125	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-294424/7
Matrix: Water
Analysis Batch: 294424

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			01/09/23 12:57	1

Lab Sample ID: LCS 570-294424/8
Matrix: Water
Analysis Batch: 294424

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: LCSD 570-294424/9
Matrix: Water
Analysis Batch: 294424

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	1	15

Lab Sample ID: 570-122945-1 MS
Matrix: Water
Analysis Batch: 294424

Client Sample ID: Outfall008_20230106_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	1.3	J,DX	50.0	52.3		ug/L		102	80 - 120

Lab Sample ID: 570-122945-1 MSD
Matrix: Water
Analysis Batch: 294424

Client Sample ID: Outfall008_20230106_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	1.3	J,DX	50.0	52.6		ug/L		103	80 - 120	0	15

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 570-295016/1-A
Matrix: Water
Analysis Batch: 295225

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 295016

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		500	3.5	ug/L		01/11/23 08:34	01/11/23 17:13	1

Lab Sample ID: LCS 570-295016/2-A
Matrix: Water
Analysis Batch: 295225

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 295016

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	500	503		ug/L		101	85 - 115

Lab Sample ID: LCSD 570-295016/3-A
Matrix: Water
Analysis Batch: 295225

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 295016

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	500	510		ug/L		102	85 - 115	1	20

Lab Sample ID: 570-122945-1 MS
Matrix: Water
Analysis Batch: 295225

Client Sample ID: Outfall008_20230106_Comp
Prep Type: Total Recoverable
Prep Batch: 295016

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	83	J,DX	500	605		ug/L		104	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Lab Sample ID: 570-122945-1 MSD
 Matrix: Water
 Analysis Batch: 295225

Client Sample ID: Outfall008_20230106_Comp
 Prep Type: Total Recoverable
 Prep Batch: 295016

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	83	J,DX	500	602		ug/L		104	80 - 120	1	20

Lab Sample ID: MB 570-294801/1-A
 Matrix: Water
 Analysis Batch: 295098

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			01/11/23 09:15	1

Lab Sample ID: LCS 570-294801/2-A
 Matrix: Water
 Analysis Batch: 295098

Client Sample ID: Lab Control Sample
 Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	500	475	J,DX	ug/L		95	85 - 115

Lab Sample ID: LCSD 570-294801/3-A
 Matrix: Water
 Analysis Batch: 295098

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	453	J,DX	ug/L		91	85 - 115	5	20

Lab Sample ID: 570-122945-2 MS
 Matrix: Water
 Analysis Batch: 295098

Client Sample ID: Outfall008_20230106_Comp_F
 Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	78	J,DX BU	500	532		ug/L		91	80 - 120

Lab Sample ID: 570-122945-2 MSD
 Matrix: Water
 Analysis Batch: 295098

Client Sample ID: Outfall008_20230106_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	78	J,DX BU	500	549		ug/L		94	80 - 120	3	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-295010/1-A
 Matrix: Water
 Analysis Batch: 295102

Client Sample ID: Method Blank
 Prep Type: Total Recoverable
 Prep Batch: 295010

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		01/11/23 07:42	01/11/23 11:28	1
Cadmium	ND		1.0	0.13	ug/L		01/11/23 07:42	01/11/23 11:28	1
Copper	ND		2.0	0.32	ug/L		01/11/23 07:42	01/11/23 11:28	1
Lead	ND		1.0	0.12	ug/L		01/11/23 07:42	01/11/23 11:28	1
Selenium	ND		2.0	0.52	ug/L		01/11/23 07:42	01/11/23 11:28	1
Silver	ND		1.0	0.23	ug/L		01/11/23 07:42	01/11/23 11:28	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Lab Sample ID: MB 570-295010/1-A
Matrix: Water
Analysis Batch: 295102

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 295010

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		1.0	0.11	ug/L		01/11/23 07:42	01/11/23 11:28	1
Beryllium	ND		0.50	0.26	ug/L		01/11/23 07:42	01/11/23 11:28	1
Arsenic	ND		1.0	0.16	ug/L		01/11/23 07:42	01/11/23 11:28	1
Iron	ND		20	3.7	ug/L		01/11/23 07:42	01/11/23 11:28	1
Nickel	ND		2.0	0.17	ug/L		01/11/23 07:42	01/11/23 11:28	1
Vanadium	ND		2.0	0.17	ug/L		01/11/23 07:42	01/11/23 11:28	1
Aluminum	ND		15	8.6	ug/L		01/11/23 07:42	01/11/23 11:28	1
Zinc	ND		20	2.8	ug/L		01/11/23 07:42	01/11/23 11:28	1
Chromium	ND		2.0	0.14	ug/L		01/11/23 07:42	01/11/23 11:28	1

Lab Sample ID: LCS 570-295010/2-A
Matrix: Water
Analysis Batch: 295102

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 295010

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	85.0		ug/L		106	85 - 115
Cadmium	80.0	81.9		ug/L		102	85 - 115
Copper	80.0	82.8		ug/L		103	85 - 115
Lead	80.0	81.5		ug/L		102	85 - 115
Selenium	80.0	79.3		ug/L		99	85 - 115
Silver	80.0	81.9		ug/L		102	85 - 115
Thallium	80.0	80.6		ug/L		101	85 - 115
Beryllium	80.0	85.7		ug/L		107	85 - 115
Arsenic	80.0	79.8		ug/L		100	85 - 115
Iron	800	866		ug/L		108	85 - 115
Nickel	80.0	82.5		ug/L		103	85 - 115
Vanadium	80.0	81.6		ug/L		102	85 - 115
Aluminum	80.0	91.0		ug/L		114	85 - 115
Zinc	80.0	82.2		ug/L		103	85 - 115
Chromium	80.0	81.6		ug/L		102	85 - 115

Lab Sample ID: LCSD 570-295010/3-A
Matrix: Water
Analysis Batch: 295102

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 295010

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	84.5		ug/L		106	85 - 115	1	20
Cadmium	80.0	81.2		ug/L		101	85 - 115	1	20
Copper	80.0	82.2		ug/L		103	85 - 115	1	20
Lead	80.0	81.9		ug/L		102	85 - 115	0	20
Selenium	80.0	78.9		ug/L		99	85 - 115	0	20
Silver	80.0	81.3		ug/L		102	85 - 115	1	20
Thallium	80.0	81.0		ug/L		101	85 - 115	0	20
Beryllium	80.0	84.2		ug/L		105	85 - 115	2	20
Arsenic	80.0	79.3		ug/L		99	85 - 115	1	20
Iron	800	857		ug/L		107	85 - 115	1	20
Nickel	80.0	81.9		ug/L		102	85 - 115	1	20
Vanadium	80.0	80.9		ug/L		101	85 - 115	1	20
Aluminum	80.0	87.1		ug/L		109	85 - 115	4	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Lab Sample ID: LCSD 570-295010/3-A
Matrix: Water
Analysis Batch: 295102

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 295010

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Zinc	80.0	80.8		ug/L		101	85 - 115	2	20
Chromium	80.0	80.6		ug/L		101	85 - 115	1	20

Lab Sample ID: 570-122945-1 MS
Matrix: Water
Analysis Batch: 295103

Client Sample ID: Outfall008_20230106_Comp
Prep Type: Total Recoverable
Prep Batch: 295010

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		80.0	83.0		ug/L		104	80 - 120		
Cadmium	ND		80.0	80.3		ug/L		100	80 - 120		
Copper	2.8		80.0	82.5		ug/L		100	80 - 120		
Lead	0.79	J,DX	80.0	79.7		ug/L		99	80 - 120		
Selenium	ND		80.0	75.9		ug/L		95	80 - 120		
Silver	ND		80.0	80.4		ug/L		101	80 - 120		
Thallium	ND		80.0	80.8		ug/L		101	80 - 120		
Beryllium	ND		80.0	84.8		ug/L		106	80 - 120		
Arsenic	1.3		80.0	79.2		ug/L		97	80 - 120		
Iron	1000		800	1970	LM	ug/L		121	80 - 120		
Nickel	2.1		80.0	81.2		ug/L		99	80 - 120		
Vanadium	3.1		80.0	79.7		ug/L		96	80 - 120		
Aluminum	1200		80.0	1480	BB	ug/L		409	80 - 120		
Zinc	8.5	J,DX	80.0	84.8		ug/L		95	80 - 120		
Chromium	1.3	J,DX	80.0	80.1		ug/L		98	80 - 120		

Lab Sample ID: 570-122945-1 MSD
Matrix: Water
Analysis Batch: 295103

Client Sample ID: Outfall008_20230106_Comp
Prep Type: Total Recoverable
Prep Batch: 295010

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		80.0	82.6		ug/L		103	80 - 120	0	20
Cadmium	ND		80.0	79.2		ug/L		99	80 - 120	1	20
Copper	2.8		80.0	82.6		ug/L		100	80 - 120	0	20
Lead	0.79	J,DX	80.0	79.4		ug/L		98	80 - 120	0	20
Selenium	ND		80.0	74.0		ug/L		92	80 - 120	3	20
Silver	ND		80.0	79.5		ug/L		99	80 - 120	1	20
Thallium	ND		80.0	78.9		ug/L		99	80 - 120	2	20
Beryllium	ND		80.0	83.6		ug/L		105	80 - 120	1	20
Arsenic	1.3		80.0	78.3		ug/L		96	80 - 120	1	20
Iron	1000		800	1990	LM	ug/L		123	80 - 120	1	20
Nickel	2.1		80.0	81.0		ug/L		99	80 - 120	0	20
Vanadium	3.1		80.0	79.2		ug/L		95	80 - 120	1	20
Aluminum	1200		80.0	1560	BB	ug/L		508	80 - 120	5	20
Zinc	8.5	J,DX	80.0	84.3		ug/L		95	80 - 120	0	20
Chromium	1.3	J,DX	80.0	81.3		ug/L		100	80 - 120	1	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

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
Antimony	ND		2.0	0.36	ug/L			01/10/23 12:07	1
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
Silver	ND		1.0	0.23	ug/L			01/10/23 12:07	1
Thallium	ND		1.0	0.11	ug/L			01/10/23 12:07	1
Beryllium	ND		0.50	0.26	ug/L			01/10/23 12:07	1
Arsenic	ND		1.0	0.16	ug/L			01/10/23 12:07	1
Iron	ND		20	3.7	ug/L			01/10/23 12:07	1
Nickel	ND		2.0	0.17	ug/L			01/10/23 12:07	1
Vanadium	ND		2.0	0.17	ug/L			01/10/23 12:07	1
Aluminum	ND		15	8.6	ug/L			01/10/23 12:07	1
Zinc	ND		20	2.8	ug/L			01/10/23 12:07	1
Chromium	ND		2.0	0.14	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
Antimony	80.0	76.9		ug/L		96	85 - 115
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
Silver	80.0	76.2		ug/L		95	85 - 115
Thallium	80.0	75.2		ug/L		94	85 - 115
Beryllium	80.0	81.7		ug/L		102	85 - 115
Arsenic	80.0	74.1		ug/L		93	85 - 115
Iron	800	786		ug/L		98	85 - 115
Nickel	80.0	75.6		ug/L		95	85 - 115
Vanadium	80.0	76.0		ug/L		95	85 - 115
Aluminum	80.0	77.0		ug/L		96	85 - 115
Zinc	80.0	75.0		ug/L		94	85 - 115
Chromium	80.0	76.3		ug/L		95	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
Antimony	80.0	76.1		ug/L		95	85 - 115	1	20
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
Silver	80.0	76.2		ug/L		95	85 - 115	0	20
Thallium	80.0	75.0		ug/L		94	85 - 115	0	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

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
Beryllium	80.0	80.0		ug/L		100	85 - 115	2	20
Arsenic	80.0	72.9		ug/L		91	85 - 115	2	20
Iron	800	787		ug/L		98	85 - 115	0	20
Nickel	80.0	76.3		ug/L		95	85 - 115	1	20
Vanadium	80.0	76.5		ug/L		96	85 - 115	1	20
Aluminum	80.0	74.9		ug/L		94	85 - 115	3	20
Zinc	80.0	73.2		ug/L		91	85 - 115	2	20
Chromium	80.0	76.3		ug/L		95	85 - 115	0	20

Lab Sample ID: 570-122945-2 MS
Matrix: Water
Analysis Batch: 294823

Client Sample ID: Outfall008_20230106_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	1.6	J,DX BU	80.0	74.6		ug/L		91	80 - 120		
Cadmium	ND	BU	80.0	72.4		ug/L		90	80 - 120		
Copper	2.1	BU	80.0	73.7		ug/L		89	80 - 120		
Lead	0.14	J,DX BU	80.0	70.2		ug/L		88	80 - 120		
Selenium	ND	BU	80.0	70.8		ug/L		89	80 - 120		
Silver	0.27	J,DX BU	80.0	72.4		ug/L		90	80 - 120		
Thallium	0.11	J,DX BU	80.0	72.0		ug/L		90	80 - 120		
Beryllium	ND	BU	80.0	73.7		ug/L		92	80 - 120		
Arsenic	1.0	BU	80.0	73.4		ug/L		90	80 - 120		
Iron	77	BU	800	801		ug/L		90	80 - 120		
Nickel	1.4	J,DX BU	80.0	72.7		ug/L		89	80 - 120		
Vanadium	1.3	J,DX BU	80.0	73.8		ug/L		91	80 - 120		
Aluminum	87	BU	80.0	160		ug/L		91	80 - 120		
Zinc	3.9	J,DX BU	80.0	73.6		ug/L		87	80 - 120		
Chromium	0.34	J,DX BU	80.0	69.8		ug/L		87	80 - 120		

Lab Sample ID: 570-122945-2 MSD
Matrix: Water
Analysis Batch: 294823

Client Sample ID: Outfall008_20230106_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	1.6	J,DX BU	80.0	77.2		ug/L		95	80 - 120	3	20
Cadmium	ND	BU	80.0	73.8		ug/L		92	80 - 120	2	20
Copper	2.1	BU	80.0	74.5		ug/L		90	80 - 120	1	20
Lead	0.14	J,DX BU	80.0	72.0		ug/L		90	80 - 120	3	20
Selenium	ND	BU	80.0	71.5		ug/L		89	80 - 120	1	20
Silver	0.27	J,DX BU	80.0	74.1		ug/L		92	80 - 120	2	20
Thallium	0.11	J,DX BU	80.0	73.7		ug/L		92	80 - 120	2	20
Beryllium	ND	BU	80.0	73.3		ug/L		92	80 - 120	0	20
Arsenic	1.0	BU	80.0	74.3		ug/L		92	80 - 120	1	20
Iron	77	BU	800	814		ug/L		92	80 - 120	2	20
Nickel	1.4	J,DX BU	80.0	74.4		ug/L		91	80 - 120	2	20
Vanadium	1.3	J,DX BU	80.0	74.5		ug/L		92	80 - 120	1	20
Aluminum	87	BU	80.0	158		ug/L		89	80 - 120	1	20
Zinc	3.9	J,DX BU	80.0	74.4		ug/L		88	80 - 120	1	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Lab Sample ID: 570-122945-2 MSD
 Matrix: Water
 Analysis Batch: 294823

Client Sample ID: Outfall008_20230106_Comp_F
 Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium	0.34	J,DX BU	80.0	70.6		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: 570-122945-1 MS
 Matrix: Water
 Analysis Batch: 295531

Client Sample ID: Outfall008_20230106_Comp
 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

Lab Sample ID: 570-122945-1 MSD
 Matrix: Water
 Analysis Batch: 295531

Client Sample ID: Outfall008_20230106_Comp
 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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: 245.1 - Mercury (CVAA) (Continued)

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: 570-122945-2 MS
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Outfall008_20230106_Comp_F
Prep Type: Dissolved
Prep Batch: 294909

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	BU	8.00	7.42		ug/L		93	85 - 115

Lab Sample ID: 570-122945-2 MSD
Matrix: Water
Analysis Batch: 295531

Client Sample ID: Outfall008_20230106_Comp_F
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	BU	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

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	RPD Limit
Ammonia	0.500	0.462		mg/L		92	90 - 110	2	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

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

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

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 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 570-295139/1
 Matrix: Water
 Analysis Batch: 295139

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 13:24	1

Lab Sample ID: LCS 570-295139/2
 Matrix: Water
 Analysis Batch: 295139

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

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

Lab Sample ID: LCSD 570-295139/3
Matrix: Water
Analysis Batch: 295139

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	2	10

Lab Sample ID: 570-123100-B-2 DU
Matrix: Water
Analysis Batch: 295139

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	720		705		mg/L		2	10

- 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 008 COMP

Job ID: 570-122945-1

GC/MS Semi VOA

Analysis Batch: 295532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_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
570-122945-1	Outfall008_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
570-122945-1	Outfall008_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	
LCS 570-294695/4-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-294695/3-A	Lab Control Sample Dup	Total/NA	Water	608	
LCSD 570-294695/5-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 294966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_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

Analysis Batch: 295061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	608.3	294695
MB 570-294695/1-A	Method Blank	Total/NA	Water	608.3	294695
LCS 570-294695/4-A	Lab Control Sample	Total/NA	Water	608.3	294695
LCSD 570-294695/5-A	Lab Control Sample Dup	Total/NA	Water	608.3	294695

HPLC/IC

Analysis Batch: 294334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	300.0	
MB 570-294334/5	Method Blank	Total/NA	Water	300.0	
LCS 570-294334/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-294334/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123038-J-2 MS	Matrix Spike	Total/NA	Water	300.0	
570-123038-J-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

HPLC/IC

Analysis Batch: 294335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	300.0	
MB 570-294335/5	Method Blank	Total/NA	Water	300.0	
LCS 570-294335/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-294335/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123038-J-2 MS	Matrix Spike	Total/NA	Water	300.0	
570-123038-J-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 294364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	218.6	
MB 570-294364/4	Method Blank	Total/NA	Water	218.6	
LCS 570-294364/5	Lab Control Sample	Total/NA	Water	218.6	
LCSD 570-294364/6	Lab Control Sample Dup	Total/NA	Water	218.6	
570-123038-J-2 MS	Matrix Spike	Total/NA	Water	218.6	
570-123038-J-2 MSD	Matrix Spike Duplicate	Total/NA	Water	218.6	

Analysis Batch: 294424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	314.0	
MB 570-294424/7	Method Blank	Total/NA	Water	314.0	
LCS 570-294424/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-294424/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-122945-1 MS	Outfall008_20230106_Comp	Total/NA	Water	314.0	
570-122945-1 MSD	Outfall008_20230106_Comp	Total/NA	Water	314.0	

Analysis Batch: 295714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Analysis Batch: 294360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total Recoverable	Water	SM 2340B	
570-122945-2	Outfall008_20230106_Comp_F	Dissolved	Water	SM 2340B	

Filtration Batch: 294776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-2	Outfall008_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	
570-122945-2 MS	Outfall008_20230106_Comp_F	Dissolved	Water	Filtration	
570-122945-2 MSD	Outfall008_20230106_Comp_F	Dissolved	Water	Filtration	

Filtration Batch: 294801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-2	Outfall008_20230106_Comp_F	Dissolved	Water	Filtration	
MB 570-294801/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-294801/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-294801/3-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 008 COMP

Job ID: 570-122945-1

Metals (Continued)

Filtration Batch: 294801 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-2 MS	Outfall008_20230106_Comp_F	Dissolved	Water	Filtration	
570-122945-2 MSD	Outfall008_20230106_Comp_F	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
570-122945-2	Outfall008_20230106_Comp_F	Dissolved	Water	200.8	294776
570-122945-2 MS	Outfall008_20230106_Comp_F	Dissolved	Water	200.8	294776
570-122945-2 MSD	Outfall008_20230106_Comp_F	Dissolved	Water	200.8	294776

Prep Batch: 294903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_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	
570-122945-1 MS	Outfall008_20230106_Comp	Total/NA	Water	245.1	
570-122945-1 MSD	Outfall008_20230106_Comp	Total/NA	Water	245.1	

Filtration Batch: 294905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-2	Outfall008_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	
570-122945-2 MS	Outfall008_20230106_Comp_F	Dissolved	Water	Filtration	
570-122945-2 MSD	Outfall008_20230106_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 294909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-2	Outfall008_20230106_Comp_F	Dissolved	Water	245.1	294905
MB 570-294905/1-B	Method Blank	Dissolved	Water	245.1	294905
LCS 570-294905/2-B	Lab Control Sample	Dissolved	Water	245.1	294905
LCSD 570-294905/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	294905
570-122945-2 MS	Outfall008_20230106_Comp_F	Dissolved	Water	245.1	294905
570-122945-2 MSD	Outfall008_20230106_Comp_F	Dissolved	Water	245.1	294905

Prep Batch: 295010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total Recoverable	Water	200.8	
MB 570-295010/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-295010/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-295010/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-122945-1 MS	Outfall008_20230106_Comp	Total Recoverable	Water	200.8	
570-122945-1 MSD	Outfall008_20230106_Comp	Total Recoverable	Water	200.8	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Metals

Prep Batch: 295016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total Recoverable	Water	200.7	
MB 570-295016/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 570-295016/2-A	Lab Control Sample	Total Recoverable	Water	200.7	
LCSD 570-295016/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.7	
570-122945-1 MS	Outfall008_20230106_Comp	Total Recoverable	Water	200.7	
570-122945-1 MSD	Outfall008_20230106_Comp	Total Recoverable	Water	200.7	

Analysis Batch: 295098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-2	Outfall008_20230106_Comp_F	Dissolved	Water	200.7 Rev 4.4	294801
MB 570-294801/1-A	Method Blank	Dissolved	Water	200.7 Rev 4.4	294801
LCS 570-294801/2-A	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	294801
LCSD 570-294801/3-A	Lab Control Sample Dup	Dissolved	Water	200.7 Rev 4.4	294801
570-122945-2 MS	Outfall008_20230106_Comp_F	Dissolved	Water	200.7 Rev 4.4	294801
570-122945-2 MSD	Outfall008_20230106_Comp_F	Dissolved	Water	200.7 Rev 4.4	294801

Analysis Batch: 295102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-295010/1-A	Method Blank	Total Recoverable	Water	200.8	295010
LCS 570-295010/2-A	Lab Control Sample	Total Recoverable	Water	200.8	295010
LCSD 570-295010/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	295010

Analysis Batch: 295103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total Recoverable	Water	200.8	295010
570-122945-1 MS	Outfall008_20230106_Comp	Total Recoverable	Water	200.8	295010
570-122945-1 MSD	Outfall008_20230106_Comp	Total Recoverable	Water	200.8	295010

Analysis Batch: 295225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total Recoverable	Water	200.7 Rev 4.4	295016
MB 570-295016/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	295016
LCS 570-295016/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	295016
LCSD 570-295016/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.7 Rev 4.4	295016
570-122945-1 MS	Outfall008_20230106_Comp	Total Recoverable	Water	200.7 Rev 4.4	295016
570-122945-1 MSD	Outfall008_20230106_Comp	Total Recoverable	Water	200.7 Rev 4.4	295016

Analysis Batch: 295531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	245.1	294903
570-122945-2	Outfall008_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
570-122945-1 MS	Outfall008_20230106_Comp	Total/NA	Water	245.1	294903
570-122945-1 MSD	Outfall008_20230106_Comp	Total/NA	Water	245.1	294903
570-122945-2 MS	Outfall008_20230106_Comp_F	Dissolved	Water	245.1	294909
570-122945-2 MSD	Outfall008_20230106_Comp_F	Dissolved	Water	245.1	294909

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

General Chemistry

Analysis Batch: 294886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_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: 295139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	SM 2540D	
MB 570-295139/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-295139/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-295139/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-123100-B-2 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 295446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_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: 296119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	218.6 CR3	

Prep Batch: 296847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_20230106_Comp	Total/NA	Water	Distill/Ammonia	
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
570-122945-1	Outfall008_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 008 COMP

Job ID: 570-122945-1

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

Date Collected: 01/06/23 09:05

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			1040.6 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 19:28	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 13:09	N5Y3	EET CAL 4
		Instrument ID: GC52A								
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	295061	01/11/23 16:59	UJ3K	EET CAL 4
		Instrument ID: GC66								
Total/NA	Analysis	218.6		1	4 mL	4 mL	294364	01/09/23 04:29	YO8L	EET CAL 4
		Instrument ID: IC33								
Total/NA	Analysis	300.0		5	4 mL	4 mL	294334	01/07/23 16:57	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	300.0		5	4 mL	4 mL	294335	01/07/23 16:57	PS	EET CAL 4
		Instrument ID: IC9								
Total/NA	Analysis	314.0		1	4 mL	4 mL	294424	01/09/23 15:44	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	200.7			50 mL	50 mL	295016	01/11/23 08:34	JP8N	EET CAL 4
Total Recoverable	Analysis	200.7 Rev 4.4		1			295225	01/11/23 17:21	P1R	EET CAL 4
		Instrument ID: ICP11								
Total Recoverable	Prep	200.8			50 mL	50 mL	295010	01/11/23 07:42	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			295103	01/11/23 11:25	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 15:14	C0YH	EET CAL 4
		Instrument ID: HG8								
Total Recoverable	Analysis	SM 2340B		1			294360	01/13/23 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	296847	01/18/23 13:02	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	296851	01/18/23 14:50	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 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	295139	01/11/23 13:24	UWCT	EET CAL 4
		Instrument ID: NOEQUIP								

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Client Sample ID: Outfall008_20230106_Comp_F

Lab Sample ID: 570-122945-2

Date Collected: 01/06/23 09:05

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	294801	01/10/23 11:45	ECX6	EET CAL 4
Dissolved	Analysis	200.7 Rev 4.4		1			295098	01/11/23 09:24	K1UV	EET CAL 4
Instrument ID: ICP11										
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 12:05	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
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 14:56	C0YH	EET CAL 4
Instrument ID: HG8										
Dissolved	Analysis	SM 2340B		1			294360	01/12/23 16:31	P1R	EET CAL 4
Instrument ID: NOEQUIP										

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 008 COMP

Job ID: 570-122945-1

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	02-02-23
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 008 COMP

Job ID: 570-122945-1

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
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	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
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

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 SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122945-1	Outfall008_20230106_Comp	Water	01/06/23 09:05	01/06/23 18:15
570-122945-2	Outfall008_20230106_Comp_F	Water	01/06/23 09:05	01/06/23 18:15

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Virendra Patel

From: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Wednesday, April 26, 2023 11:16 AM
To: Virendra Patel
Cc: Pehlivan, Victoria
Subject: RE: 570-122945-1

EXTERNAL EMAIL*

I'll send the email. Please ask the lab if they can rush (understand that will be additional)

Katherine Miller
HALEY & ALDRICH
Tel: 520.289.8606

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Sent: Wednesday, April 26, 2023 10:10 AM
To: Miller, Katherine <KMiller@haleyaldrich.com>
Cc: Pehlivan, Victoria <VPehlivan@haleyaldrich.com>
Subject: RE: 570-122945-1

CAUTION: External Email

Katherine –

Hi.

No – Hex Chrome value can't be reported as Total Chromium results.

We can go back to ask the lab to pick-up Chromium Total/Dissolved from existing data if you wish to do so.

Fee would be \$100 report revision + \$10 Total metals reprocessing + \$10 Dissolved metals reprocessing = \$120.00 for L2 revision only.

L4 revision = \$250.00 in addition to L2 revision

If you wish to proceed with Total/Dissolved Chromium reprocessing, please send an email that can be included as record in the supplemental report Thank you!

Best Regards,

Virendra Patel
Team Lead / 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: Miller, Katherine <KMiller@haleyaldrich.com>
Sent: Saturday, April 22, 2023 10:44 AM
To: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Cc: Pehlivan, Victoria <VPehlivan@haleyaldrich.com>
Subject: 570-122945-1

EXTERNAL EMAIL*

Virendra,

Could I report total chromium for 570-122945-1 at the hex chrom value? Or could the lab add total and dissolved chromium to this report?

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

* 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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122945

Error on COC, please add Arsenic and Beryllium for total and dissolved metals K. Rapp 1/24/23

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

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

Project Boeing-SSFL NPDES Permit 2023 Annual Outfall [008] Outfall 008 Comp

Project Manager: Katharine Miller 520.289.8806, 520.904.6944 (cell) Field Manager: Mark Dominick 976.234.5033, 818.599.0702 (cell)

Sample ID: Outfall008_20230106_Comp

Sample Description: Outfall008_20230106_Comp

Sampling Date/Time: 1/6/2023 10:05

Sample Matrix: WM

Container Type: 1L Glass Amber

Sample Matrix: WM

Sampling Date/Time: 1/6/2023 10:05

Container Type: 1L Glass Amber

Sample Matrix: WM

Sampling Date/Time: 1/6/2023 10:05

Container Type: 1L Glass Amber

Sample Matrix: WM

Sampling Date/Time: 1/6/2023 10:05

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Sample Matrix: WM

Sampling Date/Time: 1/6/2023 10:05

Container Type: 1L Glass Amber

Sample Matrix: WM

Sampling Date/Time: 1/6/2023 10:05

Container Type: 1L Glass Amber

Hand-delivered to ABC Labs with copy of COC 1-5-23 1:18 2-11-23 1:19 1-9 5:11

Table with columns for Sample ID, Matrix, Date/Time, and various parameters like TSS, TDS, etc.

Comments: 48 hours Holding Time NO2 & NO3

Comments: Unfiltered and unprecipitated analysis. Separate RAD cards for each parameter. Analyze duplicate, incl MSMSD.

Comments: Only test if first or second rain events of the year

Comments: Filter and preserve with 2-filtrs of receipt at lab

Comments: Sample reaching DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.

Comments: Hold

Comments: Hold

Comments: Hold

Legend, R = Routine, A = Annual. Received By: [Signature] Date/Time: 1/6/23 13:00 EC. Relinquished By: [Signature] Date/Time: 1/6/23 18:15 EC.

Barcode and Chain of Custody information: 570-122945 Chain of Custody

CHAIN OF CUSTODY FORM

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p> <p>Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #110 Irvine CA 92614 Tel. 949-260-3218</p> <p>TestAmerica's services under this CoC shall be performed in accordance with the TPCA within Blanket Service Agreement# 2019-22-TestAmerica by /lid between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories, Inc.</p>			<p>Project Boeing-SSFL NPDES Permit 2023 Annual Outfall [008] Outfall 008 Comp</p> <p>Project Manager: Katharine Miller 520.269.8606, 520.904.6944 (cell)</p> <p>Field Manager: Mark Dominick 978.294.5033, 818.689.0702 (cell)</p>			<p>ANALYSIS REQUIRED</p> <table border="1"> <tr> <td>R/A</td><td>R</td><td>R/A</td><td>R</td><td>R/A</td><td>R</td><td>R/A</td><td>R</td><td>R/A</td><td>R</td><td>R/A</td><td>R</td><td>R/A</td><td>R</td><td>R/A</td><td>R</td><td>R/A</td><td>R</td> </tr> <tr> <td></td><td>X</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></td><td></td><td></td> </tr> <tr> <td colspan="18">Total Recoverable Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl</td> </tr> <tr> <td colspan="18">Total Dissolved Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl</td> </tr> <tr> <td colspan="18">TSS (160.2) (SM2540D)</td> </tr> <tr> <td colspan="18">TDS (SM2540C/E160.1)</td> </tr> <tr> <td colspan="18">Chloride (300)</td> </tr> <tr> <td colspan="18">Total Dissolved Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl</td> </tr> <tr> <td colspan="18">Total Recoverable Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl</td> </tr> <tr> <td colspan="18">Total Dissolved Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl</td> </tr> <tr> <td colspan="18">Priority Pollutants-Pesticides+PCBs (E609)</td> </tr> <tr> <td colspan="18">Total Recoverable Metals: Mercury (E245.1)</td> </tr> <tr> <td colspan="18">Total Dissolved Metals: Mercury (E245.1)</td> </tr> </table>												R/A	R	R/A	R	R/A	R	R/A	R	R/A	R	R/A	R	R/A	R	R/A	R	R/A	R		X																	Total Recoverable Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl																		Total Dissolved Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl																		TSS (160.2) (SM2540D)																		TDS (SM2540C/E160.1)																		Chloride (300)																		Total Dissolved Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl																		Total Recoverable Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl																		Total Dissolved Metals: (E200.7), Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8), Ag, Cd, Cu, Pb, Sb, Se, Tl																		Priority Pollutants-Pesticides+PCBs (E609)																		Total Recoverable Metals: Mercury (E245.1)																		Total Dissolved Metals: Mercury (E245.1)																	
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TSS (160.2) (SM2540D)																																																																																																																																																																																																																																																											
TDS (SM2540C/E160.1)																																																																																																																																																																																																																																																											
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Priority Pollutants-Pesticides+PCBs (E609)																																																																																																																																																																																																																																																											
Total Recoverable Metals: Mercury (E245.1)																																																																																																																																																																																																																																																											
Total Dissolved Metals: Mercury (E245.1)																																																																																																																																																																																																																																																											
Sample Description		Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Comments																																																																																																																																																																																																																																																	
Outfall008_20230106_Comp			1/6/2023 10:05	WM	500 mL Poly	3	HNO3	85	Yes	48 hours Holding Time NO ₃ & NO ₂																																																																																																																																																																																																																																																	
Outfall008_20230106_Comp_F			1/6/2023 10:05	WM	1L Glass Amber	2	None	110	No	Unfiltered and unpressurized analysis. Separate RAD on the sampler workstation. Analyze duplicate, net MSMSD.																																																																																																																																																																																																																																																	
Outfall008_20230106_Comp_Extra			1/6/2023 10:05	WM	500 mL Poly	6	None	125	Yes	Only test if first or second rain events of the year																																																																																																																																																																																																																																																	
				WM	500 mL Poly	1	None	155	No																																																																																																																																																																																																																																																		
				WM	500 mL Poly	3	H2SO4	160	Yes																																																																																																																																																																																																																																																		
				WM	1L Poly	1	None	185	No																																																																																																																																																																																																																																																		
				WM	500 mL Poly	3	NI/OH	220	Yes																																																																																																																																																																																																																																																		
				WM	2.5 Gal Cube	3	None	225	Yes																																																																																																																																																																																																																																																		
				WM	1L Glass Amber	3	None	230	Yes																																																																																																																																																																																																																																																		
				WM	2.5 Gal Cube	3	None	235	No																																																																																																																																																																																																																																																		
				WM	1L Glass Amber	6	None	250	Yes																																																																																																																																																																																																																																																		
				WM	1L Poly	3	None	195	Yes	Filter and preserve with 24hrs of receipt at lab.																																																																																																																																																																																																																																																	
				WM	brosilicate vials	3	None	320	Yes	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.																																																																																																																																																																																																																																																	
				WM	1L Glass Amber	2	None	110	No	Hold																																																																																																																																																																																																																																																	
				WM	500 mL Poly	2	None	125	No	Hold																																																																																																																																																																																																																																																	
				WM	1L Glass Amber	2	None	250	No	Hold																																																																																																																																																																																																																																																	

Legend: R = Routine, A = Annual

Relinquished By: M Dominick 1-6-2023/1300 M:A
Date/Time: 1/6/23 1300 EC
Company: EC

Relinquished By: M Dominick 1-6-23 1815 EC
Date/Time: 1/6/23 1815 EC
Company: EC

Relinquished By: M Dominick 1-6-23 1815 EC
Date/Time: 1/6/23 1815 EC
Company: EC

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

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

Hand-delivered to ABC Labs with copy of COC 1-5/23 1:8/1.8 2:1/2.1 1:9/1.9 5:11



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel Virendra		Lab PM: Patel Virendra		Carrier Tracking No(s): 570-203527-1		COC No: 570-203527-1	
Client Contact: Virendra.Patel@et.eurofins.com		Phone: Virendra.Patel@et.eurofins.com		E-Mail: Virendra.Patel@et.eurofins.com		State of Origin: California		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 2/8/2023		TAT Requested (days):		Accreditations Required (See note): State Program - California		Job #: 570-122945-4	
Address: 13715 Rider Trail North		City: Earth City		State, Zip: MO, 63045		PO #: 314-298-8566(Tel) 314-298-8757(Fax)		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:	
Project Name: Boeing SSFL NPDES - Outfall 008 COMP		Project #: 44024446		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Sample Type (C=Comp, G=grab)		Sample Date	
Site:		SSOW#:		Sample Time		Sample Date		Sample Date	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type		Matrix	
Outfall008_20230106_Comp (570-122945-1)		1/6/23		09 05 Pacific		Water		Water	
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		A01R_U/EXchrom_Actin Total Uranium		900.0/EVaporation Gross Alpha/Beta		903.0/PreSep_21 Radium-226	
901.1 Cs/Fill_Geo_K-40 and Cesium-137		X		X		X		X	
904.0/PreSep_0 Radium-226		X		X		X		X	
905.5/90/PreSep_7 Strontium-90		X		X		X		X	
906.0/SC_Dist_Susp Tritium		X		X		X		X	
Total Number of containers		6		Boeing SSFL, DO NOT FILTER, use prep date from preservation		Special Instructions/Note:			

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Relinquished by	Date/Time:	Company	Method of Shipment
Relinquished by	1/9/23 1401	EC Company	
Relinquished by		Company	
Relinquished by		Company	
Custody Seals Intact:	Cooler Temperature(s) °C and Other Remarks:		
Δ Yes Δ No	Custody Seal No		



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No:
880 Riverside Parkway, West Sacramento, CA 95605		Patel, Virendra	Patel, Virendra	570-203580 1	570-203580 1
Phone: 916-373-5600 (Tel) 916-372-1059 (Fax)		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1	Job #: 570-122945-2
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 Water J - DI Water K - EDTA L - EDA Other: 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)	
Due Date Requested: 1/24/2023		Analysis Requested			
TAT Requested (days):					
PO #:		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)
WO #:		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)
Project #: 44024446		1/6/23	09 05 Pacific	Water	Water
Site: Boeing SSFL NPDES - Outfall 008 COMP		1/6/23	09 05 Pacific	Water	Water
Sample Identification - Client ID (Lab ID)		Special Instructions/Note:			
Outfall008_20230106_Comp (570-122945-1)		See OAS Boeing_wiu to zero, Use Boeing glassware.			
Outfall008_20230106_Comp_Extra (570-122945-3)		See OAS Boeing_wiu to zero, Use Boeing glassware.			
Total Number of containers		2			
Total Number of containers		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/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) _____</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>					
Special Instructions/QC Requirements					
Primary Deliverable Rank: 2		Method of Shipment:			
Date/Time: 1/9/23 1552		Received by: _____ Company: EC			
Date/Time: _____		Received by: _____ Company: _____			
Date/Time: _____		Received by: _____ 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: 2841 Dow Avenue Suite 100 Tustin CA 92780 Phone: 714-895-5494		Patel, Virendra	Patel, Virendra		570-203595 1
Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1	
Company: EMSL Analytical Inc.		Accreditations Required (See note): State Program - California		Job #: 570-122945-3	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 - Triama 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:
Address: 520 Mission Street, South Pasadena CA, 91030		Due Date Requested: 1/20/2023	Analysis Requested		
City: South Pasadena	TAT Requested (days)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Asbestos 100.2)/Asbestos 100.2	Total Number of Containers
State, Zip: CA, 91030	PO #:	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Sample Type (C=Comp, G=grab)	Preservation Code: Water	1
Phone:	WO #:	Sample Date	Sample Time	1/6/23 09:05 Pacific	Special Instructions/Note: See Attached Instructions
Email:	Project #: 44024446	Sample Identification - Client ID (Lab ID)	Outfall008_20230106_Comp (570-122945-1)		
Site: Boeing SSFL NPDES - Outfall 008 COMP	SSOW#:	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		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:			
Unconfirmed		Primary Deliverable Rank: 2			
Deliverable Requested: I, II, III, IV Other (specify)		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Time: _____			
Relinquished by: <i>[Signature]</i>		Date: 1/9/23 1638			
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:			



ICOC No:
570-203595

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122945-1

Login Number: 122945

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 12:02:29 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 008 COMP

JOB NUMBER

570-122945-2

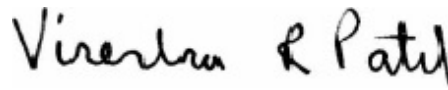
Job Notes

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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 12:02:29 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 008 COMP

Job ID: 570-122945-2

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 008 COMP

Job ID: 570-122945-2

Job ID: 570-122945-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122945-2

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 4 coolers at receipt time were 1.5° C, 1.8° C, 1.9° C and 2.1° 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: Outfall008_20230106_Comp (570-122945-1) 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 008 COMP

Job ID: 570-122945-2

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
2,3,7,8-TCDD	0.0000039	J,DX q	0.0000096	0.0000002	ug/L	1		1613B	Total/NA
				2					
1,2,3,7,8-PeCDF	0.0000010	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				2					
2,3,4,7,8-PeCDF	0.0000027	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,7,8-HxCDD	0.0000020	J,DX MB q	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				1					
1,2,3,7,8,9-HxCDD	0.0000046	J,DX MB q	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,7,8-HxCDF	0.0000076	J,DX MB q	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				1					
1,2,3,6,7,8-HxCDF	0.0000041	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				8					
1,2,3,7,8,9-HxCDF	0.0000021	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				3					
2,3,4,6,7,8-HxCDF	0.0000042	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				3					
1,2,3,4,6,7,8-HpCDD	0.0000075	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				7					
1,2,3,4,6,7,8-HpCDF	0.0000037	J,DX MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				2					
1,2,3,4,7,8,9-HpCDF	0.0000037	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				9					
OCDD	0.000079	J,DX MB	0.000096	0.0000004	ug/L	1		1613B	Total/NA
				9					
OCDF	0.0000040	J,DX MB	0.000096	0.0000001	ug/L	1		1613B	Total/NA
				7					
Total TCDD	0.0000079	J,DX q	0.0000096	0.0000002	ug/L	1		1613B	Total/NA
				2					
Total TCDF	0.0000092	J,DX MB q	0.0000096	0.0000000	ug/L	1		1613B	Total/NA
				91					
Total PeCDF	0.0000013	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				2					
Total HxCDD	0.0000035	J,DX MB q	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				5					
Total HxCDF	0.0000048	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				3					
Total HpCDD	0.000017	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				7					
Total HpCDF	0.0000056	J,DX MB	0.000048	0.0000001	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 008 COMP

Job ID: 570-122945-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230106_Comp

Date Collected: 01/06/23 09:05

Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.0000039	J,DX q	0.0000096	0.0000002	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,7,8-PeCDF	0.0000010	J,DX MB	0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
2,3,4,7,8-PeCDF	0.0000027	J,DX MB q	0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,4,7,8-HxCDD	0.0000020	J,DX MB q	0.000048	0.0000003	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,6,7,8-HxCDD	ND		0.000048	0.0000002	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,7,8,9-HxCDD	0.0000046	J,DX MB q	0.000048	0.0000002	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,4,7,8-HxCDF	0.0000076	J,DX MB q	0.000048	0.0000002	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,6,7,8-HxCDF	0.0000041	J,DX MB q	0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,7,8,9-HxCDF	0.0000021	J,DX MB	0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
2,3,4,6,7,8-HxCDF	0.0000042	J,DX MB	0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,4,6,7,8-HpCDD	0.0000075	J,DX MB	0.000048	0.0000003	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,4,6,7,8-HpCDF	0.0000037	J,DX MB	0.000048	0.0000002	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
1,2,3,4,7,8,9-HpCDF	0.0000037	J,DX MB	0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
OCDD	0.000079	J,DX MB	0.000096	0.0000004	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
OCDF	0.0000040	J,DX MB	0.000096	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
Total TCDD	0.0000079	J,DX q	0.0000096	0.0000002	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
Total TCDF	0.0000092	J,DX MB q	0.0000096	0.0000000	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
Total PeCDD	ND		0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
Total PeCDF	0.0000013	J,DX MB q	0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
Total HxCDD	0.0000035	J,DX MB q	0.000048	0.0000002	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
Total HxCDF	0.0000048	J,DX MB q	0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
Total HpCDD	0.000017	J,DX MB	0.000048	0.0000003	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
Total HpCDF	0.0000056	J,DX MB	0.000048	0.0000001	ug/L	-	01/13/23 05:53	01/28/23 09:17	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	86		25 - 164				01/13/23 05:53	01/28/23 09:17	1
13C-2,3,7,8-TCDF	90		24 - 169				01/13/23 05:53	01/28/23 09:17	1
13C-1,2,3,7,8-PeCDD	70		25 - 181				01/13/23 05:53	01/28/23 09:17	1
13C-1,2,3,7,8-PeCDF	75		24 - 185				01/13/23 05:53	01/28/23 09:17	1
13C-2,3,4,7,8-PeCDF	65		21 - 178				01/13/23 05:53	01/28/23 09:17	1
13C-1,2,3,4,7,8-HxCDD	54		32 - 141				01/13/23 05:53	01/28/23 09:17	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
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	68		28 - 130	01/13/23 05:53	01/28/23 09:17	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152	01/13/23 05:53	01/28/23 09:17	1
13C-1,2,3,6,7,8-HxCDF	59		26 - 123	01/13/23 05:53	01/28/23 09:17	1
13C-1,2,3,7,8,9-HxCDF	89		29 - 147	01/13/23 05:53	01/28/23 09:17	1
13C-2,3,4,6,7,8-HxCDF	85		28 - 136	01/13/23 05:53	01/28/23 09:17	1
13C-1,2,3,4,6,7,8-HpCDD	74		23 - 140	01/13/23 05:53	01/28/23 09:17	1
13C-1,2,3,4,6,7,8-HpCDF	60		28 - 143	01/13/23 05:53	01/28/23 09:17	1
13C-1,2,3,4,7,8,9-HpCDF	83		26 - 138	01/13/23 05:53	01/28/23 09:17	1
13C-OCDD	96		17 - 157	01/13/23 05:53	01/28/23 09:17	1
13C-OCDF	89		17 - 157	01/13/23 05:53	01/28/23 09:17	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	92		35 - 197	01/13/23 05:53	01/28/23 09:17	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.0000096	0.0000003	ug/L		01/13/23 05:53	02/03/23 15:53	1
				2					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	81		24 - 169				01/13/23 05:53	02/03/23 15:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	105		35 - 197				01/13/23 05:53	02/03/23 15:53	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-2

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)
570-122945-1	Outfall008_20230106_Comp	92
570-122945-1 - RA	Outfall008_20230106_Comp	105
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 008 COMP

Job ID: 570-122945-2

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)
570-122945-1	Outfall008_20230106_Comp	86	90	70	75	65	54	68	50
570-122945-1 - RA	Outfall008_20230106_Comp		81						
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)
570-122945-1	Outfall008_20230106_Comp	59	89	85	74	60	83	96	89
570-122945-1 - RA	Outfall008_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

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Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-122945-2

Project/Site: Boeing SSFL NPDES - Outfall 008 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 008 COMP

Job ID: 570-122945-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

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

Table with columns: Analyte, MB Result, MB Qualifier, RL, EDL, Unit, D, Prepared, Analyzed, Dil Fac. Contains 30 rows of chemical analysis data including TCDD, TCDF, PeCDD, PeCDF, HxCDD, HxCDF, OCDD, and OCDF.

Table with columns: Isotope Dilution, MB %Recovery, MB Qualifier, Limits, Prepared, Analyzed, Dil Fac. Contains 4 rows of isotope dilution data for TCDD, TCDF, PeCDD, and PeCDF.

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-2

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 008 COMP

Job ID: 570-122945-2

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
LCS LCS			
Surrogate	%Recovery	Qualifier	Limits
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 LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				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	
LCSD LCSD										
Isotope Dilution	%Recovery	Qualifier	Limits							
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 008 COMP

Job ID: 570-122945-2

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 008 COMP

Job ID: 570-122945-2

Specialty Organics

Prep Batch: 646691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1 - RA	Outfall008_20230106_Comp	Total/NA	Water	1613B	
570-122945-1	Outfall008_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
570-122945-1	Outfall008_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
570-122945-1 - RA	Outfall008_20230106_Comp	Total/NA	Water	1613B	646691

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-2

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

Date Collected: 01/06/23 09:05

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		1041.8 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 15:53	GRB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1041.8 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 09:17	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 008 COMP

Job ID: 570-122945-2

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 008 COMP

Job ID: 570-122945-2

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 008 COMP

Job ID: 570-122945-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122945-1	Outfall008_20230106_Comp	Water	01/06/23 09:05	01/06/23 18:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

122945

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 Contract: Christian Bordeco
17461 Dertian Ave Suite #110
Irvine CA 92614
Tel: 949-260-3218

TestAmerica's services under this CoC shall be performed in accordance with the TPCA within Blanket Service
Agreement# 2019-22-TestAmerica by /lid between Haley & Aldrich, Inc. Its subsidiaries and affiliates, and
TestAmerica Laboratories, Inc.

Sampler: Adrian Mobekta

Project
Boeing-SSFL NPDES
Permit 2023
Annual Outfall [008]
Outfall 008
Comp

Project Manager: Katharine Miller
520 269 8606, 520 904.6944 (cell)
Field Manager: Mark Dominick
978.294.5033, 818 699.0702 (cell)

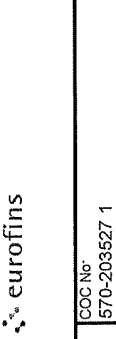
Table with columns: Sample Description, Sample Matrix, Sampling Date/Time, Sample I.D., Container Type, # of Cont., Preservative, Bottle #, MS/MSD (Yes/No), and various analytical parameters including Metals, Cyanide, Ammonia, etc.

Hand-delivered to ABC Labs with copy of CoC
1-5/15 1.8/1.8 2-1/2-1 1.9/1.9 5c11



570-122945 Chain of Custody

Vertical navigation bar with numbered tabs 1 through 16.



Chain of Custody Record

Client Information (Sub Contract Lab)

Sampler	Lab PM	Carrier Tracking No(s)	COC No.
Patel Virendra	Patel Virendra	570-203527-1	570-203527-1
Phone:	E-Mail:	State of Origin.	Page:
Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	California	Page 1 of 1
Company	Accreditations Required (See note)		
TestAmerica Laboratories, Inc.	State Program - California		
Address:	Due Date Requested	Job #:	
13715 Rider Trail North	2/8/2023	570-122945-4	
City:	TAT Requested (days)	Preservation Codes	
Earth City		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:	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:	
MO. 63045	WO #:		
Phone:	Project #:		
314-298-8566(Tel) 314-298-8757(Fax)	44024446		
Email:	SSOW#:		

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901 Cs/Fill_Geo_K-40 and Cesium-137	901 U/ExChrom_Actin Total Uranium	900.0/Evaporation Gross Alpha/Beta	903.0/PresSep_21 Radium-226	904.0/PresSep_0 Radium-228	905.5/P90/PresSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	Total Number of containers	Special Instructions/Note:
Outfall008_20230106_Comp (570-122945-1)	1/6/23	09 05 Pacific		Water	X	X	X	X	X	X	X	X	X	6	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 Return To Client Disposal By Lab Archive For Months

Special Instructions/QC Requirements:

Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2

Empty Kit Relinquished by _____ Date: _____

Relinquished by Date/Time: 1/9/23 1401 Company EC

Relinquished by _____ Date/Time: _____ Company _____

Relinquished by _____ Date/Time: _____ Company _____

Custody Seals Intact: _____ Cooler Temperature(s) °C and Other Remarks: _____

Yes No Custody Seal 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)		COG No:
880 Riverside Parkway,		Patel, Virendra	Virendra, Virendra		State of Origin:		570-203580 1
West Sacramento		Phone:	E-Mail:		California		Page:
State, Zip:		Shipping/Receiving		Virendra.Patel@eurofins.com		Page 1 of 1	
CA, 95605		Accreditations Required (See note)					
Phone:		State Program - California					
916-373-5600(Tel) 916-372-1059(Fax)		Job #:					
Email:		570-122945-2					
Project Name:		Analysis Requested					
Boeing SSFL NPDES - Outfall 008 COMP		Preservation Codes					
Site:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice Water J - DI Water K - EDTA L - EDA Other					
Sample Identification - Client ID (Lab ID)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Total Number of Containers			
Outfall008_20230106_Comp (570-122945-1)	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_Sox_Sep_P Standard List w/ Totals
	1/6/23	09:05 Pacific	Water	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(Hold) 1613B/1613B_Sox_Sep_P Standard List w/ Totals
Outfall008_20230106_Comp_Extra (570-122945-3)	1/6/23	09:05 Pacific	Water	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
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:				Time:			
Relinquished by:				Method of Shipment:			
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				Ver: 06/08/2021			

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: EMSL Analytical Inc.		Patel, Virendra	Patel, Virendra	570-203595-1	570-203595-1
Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1
Address: 520 Mission Street, South Pasadena, CA, 91030		Due Date Requested: 1/20/2023	Accreditations Required (See note) State Program - California		
City: South Pasadena		TAT Requested (days)	Analysis Requested		
State: CA, 91030		PO #:	Preservation Codes		
Phone:		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:		
Email:		Project #:	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 - Triama Z - other (specify)		
Project Name: Boeing SSFL NPDES - Outfall 008 COMP		SSOW#:	Total Number of Containers		
Site:		Sample Date	Special Instructions/Note.		
Sample Identification - Client ID (Lab ID)		Sample Time	See Attached Instructions		
Outfall008_20230106_Comp (570-122945-1)		1/6/23	1		
Sample Type (C=Comp, G=grab)		Preservation Code:			
Water		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)					
SUB (Asbestos 100.2)/Asbestos 100.2					
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/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)
 Return To Client Disposal By Lab Archive For _____ Months

Empty Kit Relinquished by:	Date	Time	Method of Shipment:
Relinquished by:	1/9/23	1638	Company
Relinquished by:			Company
Relinquished by:			Company

Custody Seals Intact: Yes No Δ No
 Cooler Temperature(s) °C and Other Remarks: _____



ICOC No:
570-203595

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



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	570-203580.1
Company: Eurofins Environment Testing Northern Ca		E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	Job #: 570-122945-2
Address: 880 Riverside Parkway, West Sacramento State, Zip: CA, 95605		Accreditations Required (See note): State P 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 - EDTA 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)	
Due Date Requested: 1/24/2023		Field Filtered Sample (Yes or No)		Analysis Requested	
TAT Requested (days):		Perform MS/MSD (Yes or No)			
PO #:		1613B/1613B_Sox_Sep_P Standard List w/ Totals		Total Number of containers	
WO #:		1613B/1613B_Sox_Sep_P Standard List w/ Totals (Hold)			
Project #: 44024446		Sample Date		Special Instructions/Note:	
SSOW#:		Sample Time		See QAS, Boeing_w/lu to zero; Use Boeing glassware.	
Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Sample Type (C=Comp, G=grab)		See QAS, Boeing_w/lu to zero; Use Boeing glassware.	
Sample Identification - Client ID (Lab ID)		Preservation Code:			
Outfall008_20230106_Comp (570-122945-1)		09:05 Pacific			
Outfall008_20230106_Comp_Extra (570-122945-3)		09:05 Pacific			
<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					
Empty Kit Relinquished by: _____ Date: _____					
Relinquished by: <i>[Signature]</i> Date: 1/19/23 1552 Company: EC					
Relinquished by: _____ Date/Time: _____ Company: _____					
Relinquished by: _____ Date/Time: _____ Company: _____					
Custody Seals Intact: <i>[Signature]</i> Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: 2-46					
<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: _____					

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122945-2

Login Number: 122945

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: 570-122945-2

Login Number: 122945

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	
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 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?	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.	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 1/23/2023 7:57:11 AM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 008 COMP

JOB NUMBER

570-122945-3

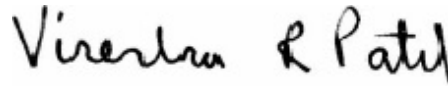
Job Notes

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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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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 008 COMP

Job ID: 570-122945-3

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 008 COMP

Job ID: 570-122945-3

Job ID: 570-122945-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122945-3

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 4 coolers at receipt time were 1.5° C, 1.8° C, 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 Asbestos 100.2: This method was subcontracted to EMSL Analytical Inc - LA Testing - Pasadena. 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 008 COMP

Job ID: 570-122945-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122945-1	Outfall008_20230106_Comp	Water	01/06/23 09:05	01/06/23 18:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8



LA Testing

520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
<http://www.LATesting.com> / pasadenalab@latesting.com

LA Testing Order ID: 322300471
Customer ID: 32CALS51
Customer PO:
Project ID:

Attn: Virendra Patel
Eurofins Calscience, Inc.
2841 Dow Ave, Suite 100
Tustin, CA 92780

Phone: (714) 895-5494
Fax: (714) 894-7501
Received: 01/10/2023
Analyzed: 01/14/2023

Proj: 570-203595.1/ 570-122945-3/ 44024446/ Boeing SSFL NPDES - Outfall 008 COMP

Test Report: Determination of Asbestos Structures $\geq 0.5 \mu\text{m}$ & $> 10 \mu\text{m}$ in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm ²)	Area Analyzed (mm ²)	ASBESTOS					
					Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits	MFL (million fibers per liter)
Outfall008_2023010 6_Comp (570-122945-1) 322300471-0001	1/10/2023 04:10 PM	1	1288	0.2580	$\geq 0.5 \mu\text{m}$	None Detected	ND	5.00	<5.00	0.00 - 18.00
					$> 10 \mu\text{m}$ only	None Detected	ND	5.00	<5.00	0.00 - 18.00

Collection Date/Time: 01/06/2023 09:05 AM

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/15/2023 08:59:58

LA Testing maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by LA Testing. LA Testing bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. Estimation of uncertainty is available on request. Sample collection and containers provided by the client, acceptable bottle blank level is defined as $\leq 0.01\text{MFL} > 10\mu\text{m}$. ND=None Detected. No Fibers Detected: the value will be reported as less than 369% of the concentration equivalent to one fiber. 1 to 4 fibers: The result will be reported as less than the corresponding upper 95% confidence limit (Poisson). 5 to 30 fibers: Mean and 95% confidence intervals will be reported on the basis of the Poisson assumption. When more than 30 fibers are counted, both the Gaussian 95% confidence interval and the Poisson 95% confidence interval will be calculated. The large of these two intervals will be selected for data reporting. When the Gaussian 95% confidence interval is selected for data reporting, the Poisson will also be noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895-5494

Chain of Custody Record



eurofins
Environmental Testing

Client Information (Sub Contract Lab) Sampler: Lab PM: Patel, Virendra
Shipping/Receiving Phone: E-Mail: Virendra.Patel@el.eurofins.com
Company: EMSL Analytical, Inc. State of Origin: California
Address: 520 Mission Street, Due Date Requested: 1/20/2023
City: South Pasadena TAT Requested (days): State Program - California
State, Zip: CA, 91030
Phone: PO #: W/O #:
Email: Project #: 44024446
Project Name: Boeing SSFL NPDES - Outfall 008 COMP
Site: SSONW#:

Carrier Tracking No(s):
COC No: 570-203595.1
Page: Page 1 of 1
Job #: 570-122945-3
Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amichlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecalhydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab, A=AI)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Total Number of containers	Special Instructions/Note:
Outfall008_20230106_Comp (570-122945-1)	1/6/23	09:05 Pacific	Water			X	SUB (Asbestos 100.2)/ Asbestos 100.2	1	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 analytes/methods 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</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p><input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p> <p>Empty Kit Relinquished by: _____ Date: _____</p> <p>Relinquished by: _____ Date/Time: 1/9/23 1635 Company: _____</p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p> <p>Custody Seals Intact: _____ Custody Seal No.: _____</p> <p>Δ Yes Δ No</p> <p>Cooler Temperature(s) °C and Other Remarks:</p>									

1.2°C

[Signature]

Received by: Jynderk MOKISSAOK
Date/Time: 01/10/2023 09:55 AM
Company: Testing



ICOC No:
570-203595

#322300471

Containers

Count
1

Container Type
Plastic 1 liter - unpreserved

Preservative
None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100.2)/ Asbestos 100.2	Wastewater

122945

CHAIN OF CUSTODY FORM

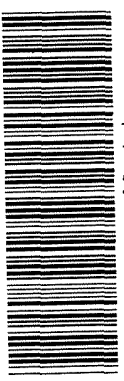
Eurofins Calscience Irvine

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contract: Christian Bordeco 17461 Derian Ave Suite #110 Irvine CA 92614 Tel: 949-260-3218		Project Boeing-SSFL NPDES Permit 2023 Annual Outfall [008] Outfall 008 Comp		Project Manager: Katharine Miller 520.269.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.294.5033, 818.699.0702 (cell)			
TestAmerica's services under this CoC shall be performed in accordance with the TPCA within Blanket Service Agreement# 2019-22-TestAmerica by /rid between Haley & Aldrich, Inc. Its subsidiaries and affiliates, and TestAmerica Laboratories, Inc.		Sampler: Adrian Mobekta		Sampling Date/Time 1/6/2023 10:05			
Sample Description	Sample Matrix	Sample I.D.	Container Type	# of Cont.	Preservative	Bottle #	MSMSD
	WM		500 mL Poly	3	HNO ₃	85	Yes
	WM		1 L Glass Amber	2	None	110	No
	WM		500 mL Poly	6	None	125	Yes
	WM		500 mL Poly	1	None	155	No
	WM		500 mL Poly	3	H2SO4	160	Yes
	WM		1 L Poly	1	None	185	No
	WM		500 mL Poly	3	NI(OH)	220	Yes
	WM		2.5 Gal Cube	3	None	225	Yes
	WM		1 L Glass Amber	3	None	230	Yes
	WM		2.5 Gal Cube	3	None	235	No
	WM		1 L Glass Amber	6	None	250	Yes
	WM		1 L Poly	3	None	195	Yes
	WM		brosilicate vials	3	None	320	Yes
	WM		1 L Glass Amber	2	None	110	No
	WM		500 mL Poly	2	None	125	No
	WM		1 L Glass Amber	2	None	250	No

Relinquished By: <i>Mark Dominick</i> Date/Time: 1-6-2023/13:00 Company: M:A	Received By: <i>[Signature]</i> Date/Time: 1/6/23 13:00 Company: EC
Relinquished By: <i>[Signature]</i> Date/Time: 1/6/23 18:15 Company: EC	Received By: <i>[Signature]</i> Date/Time: 1-6-23 18:15 Company: EC

Legend: R = Routine, A = 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

Hand-delivered to ABC Labs with copy of CoC 1-5/23 1:8/1.8 2-1/2-1 19/1.9 5:11



570-122945 Chain of Custody



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		570-203595 1
Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1	
Company: EMSL Analytical Inc.		Accreditations Required (See note): State Program - California		Job #: 570-122945-3	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:
Address: 520 Mission Street, South Pasadena CA, 91030		Due Date Requested: 1/20/2023		Analysis Requested	
City: South Pasadena State, Zip: CA, 91030		TAT Requested (days)		Total Number of Containers	
Phone:		PO #:		SUB (Asbestos 100.2)/Asbestos 100.2	
Email:		WO #:		Perform MS/MSD (Yes or No)	
Project Name: Boeing SSFL NPDES - Outfall 008 COMP		Project #: 44024446		Field Filtered Sample (Yes or No)	
Site:		SSOW#:		X	
Sample Identification - Client ID (Lab ID)		Sample Date		X	
Outfall008_20230106_Comp (570-122945-1)		1/6/23		1	
Sample Type (C=Comp, G=grab)		Sample Time		Special Instructions/Note.	
G=grab		09:05 Pacific		See Attached Instructions	
Preservation Code: Water		Date			
Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Date/Time:			
		1/9/23 1638			
		Date/Time:			
		Date/Time:			
		Date/Time:			
		Cooler Temperature(s) °C and Other Remarks:			
		Custody Seal No			
		Δ Yes Δ No			
<p>Possible Hazard Identification Unconfirmed Deliverable Requested, I, II, III, IV Other (specify) Primary Deliverable Rank: 2</p> <p>Special Instructions/QC Requirements:</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>					
<p>Empty Kit Relinquished by: [Signature] Date: 1/9/23 1638 Company: [Blank]</p> <p>Relinquished by: [Signature] Date/Time: 1/9/23 1638 Company: [Blank]</p> <p>Relinquished by: [Signature] Date/Time: [Blank] Company: [Blank]</p>					
<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>					



ICOC No:
570-203595

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122945-3

Login Number: 122945

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 3:40:03 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 008 COMP

JOB NUMBER

570-122945-4

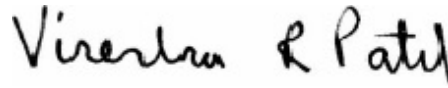
Job Notes

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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 008 COMP

Job ID: 570-122945-4

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 008 COMP

Job ID: 570-122945-4

Job ID: 570-122945-4

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122945-4

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 4 coolers at receipt time were 1.5° C, 1.8° C, 1.9° C and 2.1° 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: Outfall008_20230106_Comp (570-122945-1), Outfall008_20230106_Comp_F (570-122945-2) and Outfall008_20230106_Comp_Extra (570-122945-3). 570-122945-AO-1 and AN-1. The samples were preserved to the appropriate pH in the laboratory.

570-122945-AO-1 was received leaking and with a hole.

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. Outfall008_20230106_Comp (570-122945-1), (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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-4

Job ID: 570-122945-4 (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.

Outfall008_20230106_Comp (570-122945-1), (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.

Outfall008_20230106_Comp (570-122945-1), (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.

Outfall008_20230106_Comp (570-122945-1)

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. Outfall008_20230106_Comp (570-122945-1), (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. Outfall008_20230106_Comp (570-122945-1), (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. Outfall008_20230106_Comp (570-122945-1), (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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-4

Job ID: 570-122945-4 (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.

Outfall008_20230106_Comp (570-122945-1), (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: Outfall008_20230106_Comp (570-122945-1).

Method PrecSep_0: Radium-228 Prep Batch 160-596471

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230106_Comp (570-122945-1). 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: Outfall008_20230106_Comp (570-122945-1). 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: Outfall008_20230106_Comp (570-122945-1). 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 008 COMP

Job ID: 570-122945-4

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

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 008 COMP

Job ID: 570-122945-4

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	5.22		1.95	2.04	3.00	2.33	pCi/L	01/18/23 10:03	02/02/23 18:51	1
Gross Beta	1.98		0.808	0.832	4.00	1.09	pCi/L	01/18/23 10:03	02/02/23 18:51	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-4

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-2.89	U	6.84	6.85	20.0	7.96	pCi/L	01/12/23 14:04	01/27/23 11:43	1
Potassium-40	-26.7	U	85.3	85.3		120	pCi/L	01/12/23 14:04	01/27/23 11:43	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-4

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0955	U	0.139	0.139	1.00	0.235	pCi/L	01/11/23 09:34	02/02/23 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	66.2		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 008 COMP

Job ID: 570-122945-4

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230106_Comp
 Date Collected: 01/06/23 09:05
 Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.129	U G	0.706	0.706	1.00	1.28	pCi/L	01/11/23 10:20	01/20/23 12:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	66.2		40 - 110					01/11/23 10:20	01/20/23 12:14	1
Y Carrier	66.2		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 008 COMP

Job ID: 570-122945-4

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0229	U	0.458	0.458	3.00	0.826	pCi/L	01/12/23 11:13	01/27/23 18:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	78.8		40 - 110					01/12/23 11:13	01/27/23 18:50	1
Y Carrier	75.9		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 008 COMP

Job ID: 570-122945-4

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230106_Comp
 Date Collected: 01/06/23 09:05
 Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-53.6	U	149	149	500	288	pCi/L	01/17/23 15:44	01/20/23 18:55	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-4

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230106_Comp
Date Collected: 01/06/23 09:05
Date Received: 01/06/23 18:15

Lab Sample ID: 570-122945-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.248	U	0.272	0.273	1.00	0.370	pCi/L	01/17/23 16:09	01/25/23 14:42	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	80.2		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 008 COMP

Job ID: 570-122945-4

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)	
570-122945-1	Outfall008_20230106_Comp	66.2	
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)
570-122945-1	Outfall008_20230106_Comp	66.2	66.2
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)
570-122945-1	Outfall008_20230106_Comp	78.8	75.9
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)	
570-122945-1	Outfall008_20230106_Comp	80.2	
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 008 COMP

Job ID: 570-122945-4

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 008 COMP

Job ID: 570-122945-4

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 008 COMP

Job ID: 570-122945-4

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 Limits	RER	RER Limit
Radium-226	11.3	10.98		1.12	1.00	0.0883	pCi/L	97	75 - 125	0.23	1
Carrier	%Yield	LCSD Qualifier	Limits								
Ba Carrier	99.4		40 - 110								

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
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	%Yield	MB Qualifier	Limits							
Ba Carrier	97.5		40 - 110							
Y Carrier	82.6		40 - 110							
								Prepared	Analyzed	Dil Fac
								01/11/23 10:20	01/20/23 12:06	1
								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 Limits
Radium-228	8.26	10.58		1.44	1.00	0.643	pCi/L	128	75 - 125
Carrier	%Yield	LCS Qualifier	Limits						
Ba Carrier	91.6		40 - 110						
Y Carrier	77.0		40 - 110						

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 Limits	RER	RER Limit
Radium-228	8.26	9.293		1.25	1.00	0.462	pCi/L	112	75 - 125	0.48	1
Carrier	%Yield	LCSD Qualifier	Limits								
Ba Carrier	99.4		40 - 110								
Y Carrier	84.1		40 - 110								

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-4

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 Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
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 Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
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 Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
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 008 COMP

Job ID: 570-122945-4

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	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual						
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	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
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	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
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	LCS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual						
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	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
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 008 COMP

Job ID: 570-122945-4

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Prep Batch: 596421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122945-1	Outfall008_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
570-122945-1	Outfall008_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
570-122945-1	Outfall008_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
570-122945-1	Outfall008_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
570-122945-1	Outfall008_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
570-122945-1	Outfall008_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
570-122945-1	Outfall008_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 008 COMP

Job ID: 570-122945-4

Client Sample ID: Outfall008_20230106_Comp

Lab Sample ID: 570-122945-1

Date Collected: 01/06/23 09:05

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			200.00 mL	1.0 g	597281	01/18/23 10:03	MST	EET SL
Total/NA	Analysis	900.0		1			599058	02/02/23 18:51	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			598464	01/27/23 11:43	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			741.80 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			741.80 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			510.16 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			104.01 mL	1.0 g	597258	01/17/23 15:44	SEH	EET SL
Total/NA	Analysis	906.0		1			597783	01/20/23 18:55	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			250.62 mL	1.0 mL	597259	01/17/23 16:09	SAC	EET SL
Total/NA	Analysis	A-01-R		1			598220	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 008 COMP

Job ID: 570-122945-4

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 008 COMP

Job ID: 570-122945-4

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 008 COMP

Job ID: 570-122945-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122945-1	Outfall008_20230106_Comp	Water	01/06/23 09:05	01/06/23 18:15

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122945

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 Bordeco 17461 Dertan Ave Suite #110 Irvine CA 92614 Tel: 949-260-3218			Project Boeing-SSFL NPDES Permit 2023 Annual Outfall [008] Outfall 008 Comp			Project Manager: Katherine Miller 520.269.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.294.5033, 818.699.0702 (cell)	
TestAmerica's services under this CoC shall be performed in accordance with the TPCA within blanket Service Agreement# 2019-22-TestAmerica by /lid between Haley & Aldrich, Inc. Its subsidiaries and affiliates, and TestAmerica Laboratories, Inc.			Sampler: Adrian Mobekta				
Sample Description	Sample Matrix	Sampling Date/Time	Container Type	# of Cont.	Preservative	Bottle #	MSMSD
	WM		500 mL Poly	3	HNO ₃	85	Yes
	WM		1L Glass Amber	2	None	110	No
	WM		500 mL Poly	6	None	125	Yes
	WM		500 mL Poly	1	None	155	No
	WM		500 mL Poly	3	H2SO4	160	Yes
	WM	1/6/2023	1L Poly	1	None	185	No
	WM		500 mL Poly	3	NI(OH)	220	Yes
	WM		2.5 Gal Cube	3	None	225	Yes
	WM		1L Glass Amber	3	None	230	Yes
	WM		2.5 Gal Cube	3	None	235	No
	WM		1L Glass Amber	6	None	250	Yes
	WM	1/6/2023	1L Poly	3	None	195	Yes
	WM		brosillate vials	3	None	320	Yes
	WM		1L Glass Amber	2	None	110	No
	WM		500 mL Poly	2	None	125	No
	WM		1L Glass Amber	2	None	250	No

Relinquished By <i>Mark Dominick</i>	Date/Time 1-6-2023/1300	Company M:A
Relinquished By <i>Mark Dominick</i>	Date/Time 1/6/23	Company EC
Relinquished By	Date/Time 1/6/23	Company EC

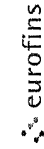
Hand-delivered to ABC Labs with copy of CoC 1-5/23 1:8/1.8 2-1/2-1 1-9/1.9 5-11



570-122945 Chain of Custody



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel Virendra	Carrier Tracking No(s): 570-203527-1
Address: 13715 Rider Trail North		E-Mail: Virendra.Patel@et.eurofins.com	Page: Page 1 of 1
City: Earth City		State of Origin: California	Job #: 570-122945-4
State, Zip: MO, 63045		Accreditations Required (See note): State Program - California	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)
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Analysis Requested:	Other:
Email:		901_1Cs/Fill_Geo_K-40 and Cesium-137	
Project #: 44024446		901_U/EXchrom_Actin Total Uranium	
Site: Boeing SSFL NPDES - Outfall 008 COMP		900_0/EVaporation Gross Alpha/Beta	
Due Date Requested: 2/8/2023		903_0/PrecSep_21 Radium-226	
TAT Requested (days):		904_0/PrecSep_0 Radium-226	
PO #:		905_5/90/PrecSep_7 Strontium-90	
WO #:		906_0/SC_Dist_Susp Tritium	
Sample Date: 1/6/23		Field Filtered Sample (Yes or No):	Total Number of Containers: 6
Sample Time: 09 05 Pacific		Perform MS/MSD (Yes or No):	Boeing SSFL, DO NOT FILTER, use prep date from preservation
Sample Type (C=Comp, G=grab):		Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air):	Special Instructions/Note:
Sample Preservation Code: Water			
Sample Identification - Client ID (Lab ID): Outfall008_20230106_Comp (570-122945-1)			

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/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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Relinquished by:	Date/Time:	Company:	Method of Shipment:
Relinquished by:	1/9/23 1401	EC Company	
Relinquished by:		Company	
Relinquished by:		Company	
Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks:	



Chain of Custody Record



Client Information (Sub Contract Lab) Client Contact: Virendra Patel, Virendra Shipping/Receiving: Virendra.Patel@eurofins.com Company: Eurofins Environment Testing Northern Ca Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600 (Tel) 916-372-1059 (Fax) Email: Project Name: Boeing SSFL NPDES - Outfall 008 COMP Site:			Lab PM: Patel, Virendra E-Mail: Virendra.Patel@eurofins.com State of Origin: California Carrier Tracking No(s): COC No: 570-203580 1 Page: Page 1 of 1 Job #: 570-122945-2							
Due Date Requested: 1/24/2023 TAT Requested (days): PO #: WO #: Project #: 44024446 SSOW#:			Analysis Requested Accreditations Required (See note) State Program - California							
Sample	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_Sox_Sep_P Standard List w/ Totals	1613B/1613B_Sox_Sep_P Standard List w/ Totals (Hold)	Total Number of Containers	Special Instructions/Note:
Outfall008_20230106_Comp (570-122945-1)	1/6/23	09:05 Pacific	Water	Water	X	X			2	See OAS Boeing_wiu to zero, Use Boeing glassware.
Outfall008_20230106_Comp_Extra (570-122945-3)	1/6/23	09:05 Pacific	Water	Water			X		2	See OAS Boeing_wiu to zero, 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/testing/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) _____										
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										
Primary Deliverable Rank: 2 Date: _____ Received by: _____ Company: _____ Date/Time: 1/9/23 1552 Received by: _____ Company: _____ Date/Time: _____ Received by: _____ Company: _____ Date/Time: _____ 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: 2841 Dow Avenue Suite 100 Tustin CA 92780 Phone: 714-895-5494		Patel Virendra	Patel Virendra	570-203595 1	570-203595 1
Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	State of Origin California	Page: Page 1 of 1	
Company: EMSL Analytical Inc.		Accreditations Required (See note) State Program - California		Job #: 570-122945-3	Preservation Codes
Address: 520 Mission Street, South Pasadena CA, 91030		Due Date Requested: 1/20/2023		A - HCL	M - Hexane
City: South Pasadena		TAT Requested (days)		B - NaOH	N - None
State, Zip: CA, 91030		PO #:		C - Zn Acetate	O - AsNaO2
Phone:		WO #:		D - Nitric Acid	P - Na2O4S
Email:		Project #:		E - NaHSO4	Q - Na2SO3
Project Name: Boeing SSFL NPDES - Outfall 008 COMP		SSOW#:		F - MeOH	R - Na2S2O3
Site:		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		G - Amchlor	S - H2SO4
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	H - Ascorbic Acid	T - TSP Dodecahydrate
Outfall008_20230106_Comp (570-122945-1)		1/6/23	09:05 Pacific	I - Ice	U - Acetone
Sample Type (C=Comp, G=grab)		Preservation Code:	Water	J - DI Water	V - MCAA
Field Filtered Sample (Yes or No)				K - EDTA	W - pH 4-5
Perform MS/MSD (Yes or No)				L - EDA	Y - Triama
SUB (Asbestos 100.2)/ Asbestos 100.2		X		Z - other (specify)	
Total Number of Containers		Special Instructions/Note.			
1		See Attached Instructions			

Possible Hazard Identification	
Unconfirmed	
Deliverable Requested: I, II, III, IV Other (specify)	
Primary Deliverable Rank: 2	
Empty Kit Relinquished by:	Time:
Relinquished by:	Received by:
Relinquished by:	Received by:
Relinquished by:	Received by:
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)	
<input type="checkbox"/> Return To Client	<input type="checkbox"/> Disposal By Lab
Special Instructions/QC Requirements.	
Special Instructions/QC Requirements.	
Method of Shipment:	
Received by:	Date/Time:
Received by:	Date/Time:
Received by:	Date/Time:
Cooler Temperature(s) °C and Other Remarks:	



ICOC No:
570-203595

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



eurofins

Environmental Testing

Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Lab PM: Patel, Virendra	Carrier Tracking No(s): 570-203527.1	COC No: 570-203527.1
Client Contact: Shipping/Receiving		Phone: Virendra.Patel@eurofins.com	E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 570-122945-4	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 L - EDTA Other:
Address: 13715 Rider Trail North,		Due Date Requested: 2/8/2023		Analysis Requested	
City: Earth City	TAT Requested (days):	Perform MS/MSD (Yes or No)		Total Number of Containers	
State, Zip: MO, 63045	PO #:	Field Filtered Sample (Yes or No)		6	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	WO #:	Matrix (Weigh, Sealed, On-site, BT-Tissue, A&U)		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Email:	Project #: 44024446	Sample Type (C=Comp, G=grab)		906.0/LSC_Dist_Tritium	
Site: Outfall 008 NPDES - Outfall 008 COMP	SSOW#:	Sample Time		906.0/PreSep_7 Strontium-90	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Date		904.0/PreSep_0 Radium-228	
Outfall008_20230106_Comp (570-122945-1)	1/8/23	09:05 Pacific		903.0/PreSep_21 Radium-226	
				900.0/Evaporation Gross Alpha/Beta	
				A01R_U/Evchrom_Actin Total Uranium	
				901.1_Ca/Fill_Geo_0 K-40 and Csium-137	
				Special Instructions/Note:	

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) _____ Months
 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:

Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____
 Relinquished by: _____ Date/Time: 1/9/23 14:01 Company: EC
 Relinquished by: FEDEX Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No

Received by: _____ Date/Time: JAN 10 2023 08:46 Company: _____
 Received by: _____ Date/Time: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks: _____

Ver: 06/08/2021



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122945-4

Login Number: 122945

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: 570-122945-4

Login Number: 122945

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 < /= 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	570-122945-AC-1 and AN-1 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 2/16/2023 1:36:03 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 008 COMP

JOB NUMBER

570-122945-5

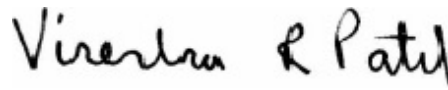
Job Notes

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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

 Generated
2/16/2023 1:36:03 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.
Project/Site: Boeing SSFL NPDES - Outfall 008 COMP

Job ID: 570-122945-5

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 008 COMP

Job ID: 570-122945-5

Job ID: 570-122945-5

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122945-5

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 4 coolers at receipt time were 1.5° C, 1.8° C, 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 Weck- 525.2 - Diazinon and Chlorpyrifos (ug/L units): 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 008 COMP

Job ID: 570-122945-5

Method	Method Description	Protocol	Laboratory
Subcontract	Weck- 525.2 - Diazinon and Chlorpyrifos (ug/L units)	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 008 COMP

Job ID: 570-122945-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122945-1	Outfall008_20230106_Comp	Water	01/06/23 09:05	01/06/23 18:15

1

2

3

4

5

6

7

8

9

Work Orders: 3A09030

Project: 570-122945-5

Attn: Virendra Patel

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

Report Date: 2/14/2023

Received Date: 1/6/2023

Turnaround Time: Normal

Phones: (949) 261-1022

Fax: (949) 260-3297

P.O. #: 570-122945-5

Billing Code:

Dear Virendra Patel,

Enclosed are the results of analyses for samples received 1/06/23 with the Chain-of-Custody document. The samples were received in good condition, at 1.1 °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: Outfall008_20230106_Comp (570-122945-5) Sampled: 01/06/23 9:05 by Client
3A09030-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2M				Instr: GCMS13			
Batch ID: W3A0956		Preparation: EPA 525.2/SPE		Prepared: 01/12/23 08:56		Analyst: EFC	
Chlorpyrifos	ND	0.0013	0.010	ug/l	1	01/14/23	
Diazinon	ND	0.0010	0.010	ug/l	1	01/14/23	
<i>Surrogate(s)</i>							
1,3-Dimethyl-2-nitrobenzene	60%		50-141	Conc: 0.299		01/14/23	
Triphenyl phosphate	114%		63-200	Conc: 0.572		01/14/23	

Quality Control Results

Semivolatiles Organics - Low Level by Tandem GC/MS/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Blank (W3A0956-BLK1)					Prepared: 01/12/23 Analyzed: 01/14/23						
Chlorpyrifos	ND	0.0013	0.010	ug/l							
Diazinon	ND	0.0010	0.010	ug/l							
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	0.328			ug/l	0.500		66	50-141			
Triphenyl phosphate	0.522			ug/l	0.500		104	63-200			
LCS (W3A0956-BS1)					Prepared: 01/12/23 Analyzed: 01/14/23						
Chlorpyrifos	0.0363	0.0013	0.010	ug/l	0.0500		73	63-145			
Diazinon	0.0251	0.0010	0.010	ug/l	0.0500		50	25-180			
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	0.328			ug/l	0.500		66	50-141			
Triphenyl phosphate	0.543			ug/l	0.500		109	63-200			
Matrix Spike (W3A0956-MS1)					Source: 3A09030-01		Prepared: 01/12/23 Analyzed: 01/14/23				
Chlorpyrifos	0.0428	0.0013	0.010	ug/l	0.0500	ND	86	37-168			
Diazinon	0.0345	0.0010	0.010	ug/l	0.0500	ND	69	36-153			
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	0.327			ug/l	0.500		65	50-141			
Triphenyl phosphate	0.581			ug/l	0.500		116	63-200			
Matrix Spike Dup (W3A0956-MSD1)					Source: 3A09030-01		Prepared: 01/12/23 Analyzed: 01/14/23				
Chlorpyrifos	0.0482	0.0013	0.010	ug/l	0.0500	ND	96	37-168	12	30	
Diazinon	0.0401	0.0010	0.010	ug/l	0.0500	ND	80	36-153	15	30	
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	0.385			ug/l	0.500		77	50-141			
Triphenyl phosphate	0.590			ug/l	0.500		118	63-200			

Notes and Definitions

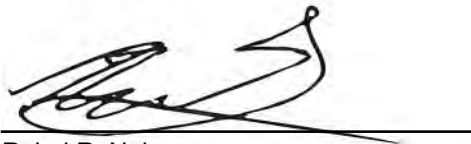
Item	Definition
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED 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.

Reviewed by:



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.

Chain of Custody Record



3AC

2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Client Information (Sub Contract Lab)

Client Contact: **Patel, Virendra**
 Shipping/Receiving: **Virendra.Patel@et.eurofinsus.com**
 Company: **Weck Laboratories, Inc.**
 Address: **14859 E. Clark Avenue,**
 City: **City of Industry**
 State, Zip: **CA, 91745**
 Phone:
 Email:
 Project Name: **Boeing SSFL NPDES - Outfall 008 COMP**
 Site:
 Lab PM: **Patel, Virendra**
 Carrier Tracking No(s):
 State of Origin: **California**
 E-Mail: **Virendra.Patel@et.eurofinsus.com**
 Accreditations Required (See note): **State Program - California**

Due Date Requested: 1/20/2023
TAT Requested (days):
PO #:
WO #:
Project #: 44024446
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)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB Weck-525.2 - Diazinon and Chlorpyrifos (ug/L)	SUB Weck-525.2 - Diazinon and Chlorpyrifos (ug/L)	SUB Weck-525.2 - Diazinon and Chlorpyrifos (ug/L)	Analysis Requested
					Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB Weck-525.2 - Diazinon and Chlorpyrifos (ug/L)	SUB Weck-525.2 - Diazinon and Chlorpyrifos (ug/L)	SUB Weck-525.2 - Diazinon and Chlorpyrifos (ug/L)	
Outfall008_20230106_Comp (570-122945-1)	1/6/23	09:05 Pacific	Water	Water	X	X	X	X		
Outfall008_20230106_Comp_Extra (570-122945-3)	1/6/23	09:05 Pacific	Water	Water	X	X	X	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 of 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 accreditations are current to date. 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 **Sample Disposal (A fee may be assessed if samples are**
 Deliverable Requested: I, II, III, IV, Other (specify) **Primary Deliverable Rank: 2**
 Empty Kit Relinquished by:
 Date:
 Time:
 Special Instructions/QC Requirements:
 Return To Client Disposal By Lab



ICOC No:
570-203444

Containers

Count 4 **Container Type** Amber Glass 1 liter - unpreserved **Preservative** None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Weck- 525.2 - Diazinon and Chlorpyrifos (ug/L units))	525.2- 24 hour extraction for Diazinon and Chlorp package needed
3	SUBCONTRACT	SUB (Weck- 525.2 - Diazinon and Chlorpyrifos (ug/L units)) (Hold)	525.2- 24 hour extraction for Diazinon and Chlorp package needed





Sample Receipt Checklist

Weck WKO: 3A09030
 Logged by: Jerico Bolotano
 Checked by: Jerico Bolotano

Date/Time Received: 01/06/22 @ 16:45
 # of Samples: 02
 Delivered by: Client

Task	Yes	No	N/A	Comments
OC present at receipt?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
OC properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
OC matches sample labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Sample Temperature	1.1°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 labels checked for correct preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
OC Headspace: (No) none, If Yes (See comment) 24.2, 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; 710B<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"/>	Cl Test Strip Lot# 061221E
O&G pH <2 verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pH paper Lot#
				pH Reading:
Adjusted for O&G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Acid Lot#
				Amt added:
Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



122945

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		Boeing-SSFL NPDES Permit 2023 Annual Outfall [008] Outfall 008 Comp		R/A	R	R/A	R	R/A	R	R/A	R	R/A	R	R/A	R		R/A	R	R/A	R
Eurofins Calscience Irvine Contact: Christian Bordonco 17461 Derian Ave Suite #110 Irvine CA 92614 Tel: 949-260-3218				Project Manager: Katharine Miller 520.269.8606, 520.904.6944 (cell)				Total Dissolved Metals: Mercury (E245.1) Total Recoverable Metals: Mercury (E245.1) Priority Pollutants-Pesticides+PCBs (E609) Cyanide (SM4500-CN-E / E395.2) Ammonia-N (950.2) Chronic Toxicity Species Generality (EPA 821 R 02 013) Gross Alpha (E900.0) Gross Beta (E900.0) Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1) Total Dissolved Metals (E200.7): Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl TSS (160.2 (SM2540D)) TDS (SM2540C/E160.1) Perchlorate (300) CF, F, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, TCDD (and all congeners) (E113B) Total Dissolved Metals (E200.7): Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl												48 hours Holding Time NO ₂ & NO ₃
Sampler: Adrian Mobeka				Field Manager: Mark Dominick 978.294.5033, 818.699.0702 (cell)				Total Dissolved Metals: X TSS (160.2 (SM2540D)) TDS (SM2540C/E160.1) Perchlorate (300) CF, F, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, TCDD (and all congeners) (E113B) Total Dissolved Metals (E200.7): Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl												
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD												
			WM	500 mL Poly	3	HNO ₃	85	Yes												
			WM	1 L Glass Amber	2	None	110	No												
			WM	500 mL Poly	6	None	125	Yes												
			WM	500 mL Poly	1	None	155	No												
			WM	500 mL Poly	3	H2SO4	160	Yes												
			WM	1L Poly	1	None	185	No												
			WM	500 mL Poly	3	NI(OH)	220	Yes												
			WM	2.5 Gal Cube	3	None	225	Yes												
			WM	1L Glass Amber	3	None	230	Yes												
			WM	2.5 Gal Cube	3	None	235	No												
			WM	1L Glass Amber	6	None	250	Yes												
			WM	1L Poly	3	None	195	Yes												
			WM	brosilicate vials	3	None	320	Yes												
			WM	1 L Glass Amber	2	None	110	No												
			WM	500 mL Poly	2	None	125	No												
			WM	1 L Glass Amber	2	None	250	No												

Hand-delivered to ABC Labs with copy of COC 1-5/15 1.8/1.8 2-11/2-1 1.9/1.9 5-11



570-122945 Chain of Custody



CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

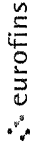
<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall (008) Outfall 008 Comp</p>		<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)</p>		<p>Field Manager: Mark Dornick 978.234.5033, 818.599.0702 (cell)</p>		<p>ANALYSIS REQUIRED</p>		<p>Comments</p>	
<p>Eurofins Calscience Irvine Contact: Christian Borjoc 17451 Derian Ave Suite #100 Irvine, CA 92614 Tel. 949-260-3218</p>		<p>Sample Matrix: WM</p>		<p>Container Type: 1 L Glass Amber</p>		<p>Preservative: None</p>		<p>Bottle #: 175</p>		<p>MS/MSD: Yes</p>	
<p>Sample I.D.: Outfall008_20230106_Comp</p>		<p>Sampling Date/Time: 1/6/2023 10:05</p>		<p># of Cont.: 6</p>		<p>None</p>		<p>Yes</p>		<p>Cr (VI), Total (E218.6)</p>	
<p>Sample Description: Outfall008_20230106_Comp_Extra</p>		<p>1/6/2023 10:05</p>		<p>3</p>		<p>None</p>		<p>Yes</p>		<p>Asbestos (EPA100.2)</p>	
<p>Sample I.D.: Outfall008</p>		<p>1/6/2023 10:05</p>		<p>1</p>		<p>None</p>		<p>No</p>		<p>Priority Pollutants-SVOCs (E25)</p>	
<p>Sample Matrix: WM</p>		<p>1 L Glass Amber</p>		<p>6</p>		<p>None</p>		<p>Yes</p>		<p>Chlorpyrifos, Dazhron (E25.2)</p>	
<p>Sample Description: Outfall008</p>		<p>1/6/2023 10:05</p>		<p>2</p>		<p>None</p>		<p>No</p>		<p>Hold</p>	
<p>Sample I.D.: Outfall008</p>		<p>1/6/2023 10:05</p>		<p>2</p>		<p>None</p>		<p>No</p>		<p>Hold</p>	
<p>Sample Matrix: WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>None</p>		<p>No</p>		<p>Hold</p>	

Legend A = Annual

<p>Relinquished By <i>Mark Dornick</i> Date/Time: 1-6-2023 13:00 Company: H.A</p>	<p>Received By <i>Mark Dornick</i> Date/Time: 1/6/23 13:00 Company: EC</p>	<p>Turn-around time (Check) 24 Hour _____ 72 Hour _____ 0 Day <input checked="" type="checkbox"/> 48 Hour _____ 5 Day _____ Normal _____</p>
<p>Relinquished By <i>Mark Dornick</i> Date/Time: 1/6/23 18:15 Company: EC</p>	<p>Received By <i>Mark Dornick</i> Date/Time: 1-6-23 18:15 Company: EC</p>	<p>Sample Integrity (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements. (Check) No Level IV _____ All Level IV: <input checked="" type="checkbox"/></p>



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel Virendra	Carrier Tracking No(s): 570-203527-1
Address: 13715 Rider Trail North		E-Mail: Virendra.Patel@et.eurofins.com	Page: Page 1 of 1
City: Earth City		State of Origin: California	
State: MO, Zip: 63045		Job #: 570-122945-4	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		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: _____	
Project Name: Boeing SSFL NPDES - Outfall 008 COMP		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: _____	
Site: _____		Total Number of containers: 6	
Due Date Requested: 2/8/2023		Special Instructions/Note: Boeing SSFL, DO NOT FILTER, use prep date from preservation	
TAT Requested (days): _____		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
PO #: _____		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
WO #: _____		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Project #: 44024446		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
SSOW#: _____		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Sample Date: 1/6/23		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Sample Time: 09 05 Pacific		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Sample Type (C=Comp, G=grab): _____		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air): _____		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Sample Date Requested: 1/6/23		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Sample Time Requested: 09 05 Pacific		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Sample Type Requested: _____		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Matrix Requested: _____		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/>		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Perform MS/MSD (Yes or No): <input checked="" type="checkbox"/>		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
901_Cs/Fill_Geo_K-40 and Csium-137: <input checked="" type="checkbox"/>		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
A01R_U/EXchrom_Actin Total Uranium: <input checked="" type="checkbox"/>		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
900.0/EVaporation Gross Alpha/Beta: <input checked="" type="checkbox"/>		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
903.0/PreSep_21 Radium-226: <input checked="" type="checkbox"/>		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
904.0/PreSep_0 Radium-228: <input checked="" type="checkbox"/>		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
905.5/90PreSep_7 Strontium-90: <input checked="" type="checkbox"/>		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
906.0/SC_Dist_Susp Tritium: <input checked="" type="checkbox"/>		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Special Instructions/Note: _____		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
<p>Possible Hazard Identification</p> <p>Unconfirmed _____</p> <p>Deliverable Requested I, II, III, IV, Other (specify) _____</p> <p>Primary Deliverable Rank 2</p> <p>Empty Kit Relinquished by _____ Date: _____</p> <p>Relinquished by _____ Date/Time: 1/9/23 1401 Company EC</p> <p>Relinquished by _____ Date/Time: _____ Company</p> <p>Relinquished by _____ Date/Time: _____ Company</p> <p>Custody Seals Intact: _____ Custody Seal No _____</p> <p>Δ Yes Δ No</p> <p>Cooler Temperature(s) °C and Other Remarks: _____</p>			
<p>Special Instructions/QC Requirements:</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p><input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</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.



Client Information (Sub Contract Lab)
 2841 Dow Avenue, Suite 100
 Tustin CA 92780
 Phone: 714-895-5494

Client Contact: Virendra Patel, Virendra
Shipping/Receiving: Virendra.Patel@eurofins.com
 California
 State of Origin:

Company: Eurofins Environment Testing Northern Ca
 Address: 880 Riverside Parkway,
 City: West Sacramento
 State: CA, Zip: 95605
 Phone: 916-373-5600 (Tel) 916-372-1059 (Fax)
 Email:

Due Date Requested: 1/24/2023
TAT Requested (days):
PO #:
WO #:
Project #: 44024446
Site: Boeing SSFL NPDES - Outfall 008 COMP

Sampler: Lab PM Patel, Virendra
Carrier Tracking No(s): 570-203580 1
Phone: E-Mail: Virendra.Patel@eurofins.com
 California
 State of Origin:

Job #: 570-122945-2
Preservation Codes:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Amchlor
 H - Ascorbic Acid
 I - Ice Water
 J - DI Water
 K - EDTA
 L - EDA
 Other:

Accreditations Required (See note):
 State Program - California
Analysis Requested

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)

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, B=Tissue, 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	(Hold)	Total Number of containers	Special Instructions/Note:
Outfall008_20230106_Comp (570-122945-1)	1/6/23	09:05 Pacific	Water	Water	X	X		X			2	See OAS Boeing_wiu to zero, Use Boeing glassware.
Outfall008_20230106_Comp_Extra (570-122945-3)	1/6/23	09:05 Pacific	Water	Water				X			2	See OAS Boeing_wiu to zero, 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/thesis/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: Date/Time: 1/9/23 1552 Company: EC
Relinquished by: Date/Time: Company:
Relinquished by: Date/Time: Company:

Custody Seals Intact: Custody Seal No
 Yes No

Cooler Temperature(s) °C and Other Remarks:

Chain of Custody Record



Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company: EMSL Analytical Inc. Address: 520 Mission Street, City: South Pasadena State, Zip: CA, 91030 Phone: Email:	Sampler: Patel, Virendra E-Mail: Virendra.Patel@eurofins.com Company: State Program - California	Lab P#: Patel, Virendra E-Mail: Virendra.Patel@eurofins.com Company: State Program - California	Carrier Tracking No(s): State of Origin: California	COC No: 570-203595-1 Page: Page 1 of 1 Job #: 570-122945-3	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: 1/20/2023 TAT Requested (days)	Analysis Requested				
PO #: WO #: Project #: 44024446 SSOW#:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Asbestos 100.2)/Asbestos 100.2	Total Number of Containers	Special Instructions/Note: See Attached Instructions
Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) Sample Type (C=Comp, G=grab) Preservation Code: Water	Sample Date 1/6/23	Sample Time 09:05 Pacific	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Identification - Client ID (Lab ID) Outfall008_20230106_Comp (570-122945-1)					
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/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)					
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 <input type="checkbox"/> Months					
Special Instructions/QC Requirements:					
Empty Kit Relinquished by:					
Relinquished by: <i>[Signature]</i> Date: 1/9/23 1638 Company:					
Relinquished by: Date/Time: Company:					
Relinquished by: Date/Time: Company:					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Δ <input type="checkbox"/> No <input type="checkbox"/> Custody Seal No					
Cooler Temperature(s) °C and Other Remarks:					



ICOC No:
570-203595

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122945-5

Login Number: 122945

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 12:31:17 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 008 COMP

JOB NUMBER

570-122945-6

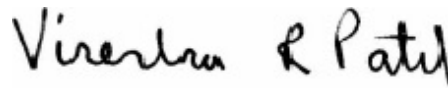
Job Notes

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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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2/3/2023 12:31:17 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 008 COMP

Job ID: 570-122945-6

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 008 COMP

Job ID: 570-122945-6

Job ID: 570-122945-6

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122945-6

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 4 coolers at receipt time were 1.5° C, 1.8° C, 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 008 COMP

Job ID: 570-122945-6

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 008 COMP

Job ID: 570-122945-6

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122945-1	Outfall008_20230106_Comp	Water	01/06/23 09:05	01/06/23 18:15

1

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January 24, 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 008
DATE RECEIVED: 6 Jan - 2023
ABC LAB. NO.: CSE0123.033

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00 %

TST RESULT

GROWTH = PASS % EFFECT = -44.72 %

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 20 Jan-23 10:01 (p 1 of 1)
 Test Code/ID: CSE0123.033 / 10-1075-3761

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 04-6018-8418 Test Type: Cell Growth Analyst:
 Start Date: 06 Jan-23 15:31 Protocol: EPA/821/R-02-013 (2002) Diluent: Laboratory Water
 Ending Date: 10 Jan-23 13:45 Species: Selenastrum capricornutum Brine: Not Applicable
 Test Length: 94h Taxon: Chlorophyta Source: Aquatic Biosystems, CO Age: 7d

Sample ID: 01-6405-7014 Code: CSE0123.033 Project: Boeing-SSFL NPDES
 Sample Date: 06 Jan-23 09:05 Material: Sample Water Source: Bioassay Report
 Receipt Date: 06 Jan-23 14:35 CAS (PC): Station: Outfall 008
 Sample Age: 6h (0.3 °C) Client: Eurofins Calscience

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
17-2328-3506	Cell Density	TST-Welch's t Test	0.0001	100% passed cell density	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
17-2328-3506	Cell Density	Control CV	0.3655	<<	0.2	Yes	Above Criteria
17-2328-3506	Cell Density	Control Resp	9.91E+5	1.00E+6	<<	Yes	Below Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	9.908E+5	6.881E+5	1.294E+6	1.088E+5	1.209E+6	1.280E+5	3.621E+5	36.55%	0.00%
100		8	1.434E+6	1.388E+6	1.480E+6	1.350E+6	1.519E+6	1.955E+4	5.529E+4	3.86%	-44.72%

Cell Density Detail

MD5: 757EE4F12C3689DF7ECE822E840FE7B9

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.088E+5	1.107E+6	1.033E+6	1.173E+6	1.166E+6	1.209E+6	1.031E+6	1.099E+6
100		1.420E+6	1.454E+6	1.430E+6	1.381E+6	1.494E+6	1.350E+6	1.519E+6	1.424E+6

CETIS Analytical Report

Report Date: 20 Jan-23 10:01 (p 1 of 2)
 Test Code/ID: CSE0123.033 / 10-1075-3761

Selenastrum Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 17-2328-3506	Endpoint: Cell Density	CETIS Version: CETISv2.1.4	Analyzed: 20 Jan-23 10:00	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Jan-23 9:58	MD5 Hash: 757EE4F12C3689DF7ECE822E840FE7B9	Editor ID: 009-702-627-3	Batch ID: 04-6018-8418	Test Type: Cell Growth	Analyst:
Start Date: 06 Jan-23 15:31	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water	Ending Date: 10 Jan-23 13:45	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 7d	Sample ID: 01-6405-7014	Code: CSE0123.033
Sample Date: 06 Jan-23 09:05	Material: Sample Water	Project: Boeing-SSFL NPDES	Source: Bioassay Report	Receipt Date: 06 Jan-23 14:35	CAS (PC):
Sample Age: 6h (0.3 °C)	Client: Eurofins Calscience	Station: Outfall 008			

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*	7	7.05	0.7111	CDF	0.0001	Non-Significant Effect

Test Acceptability Criteria					
Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control CV	0.3655	<<	0.2	Yes	Above Criteria
Control Resp	9.91E+5	1.00E+6	<<	Yes	Below Criteria

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	7.855E+11	7.855E+11	1	11.71	0.0041	Significant Effect
Error	9.394E+11	6.710E+10	14			
Total	1.725E+12		15			

ANOVA Assumptions Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variance	Levene Equality of Variance Test	3.352	8.862	0.0885	Equal Variances	
	Mod Levene Equality of Variance Test	1.25	8.862	0.2824	Equal Variances	
	Variance Ratio F Test	42.89	8.885	6.4E-05	Unequal Variances	
Distribution	Anderson-Darling A2 Test	2.48	3.878	<1.0E-05	Non-Normal Distribution	
	D'Agostino Skewness Test	4.329	2.576	1.5E-05	Non-Normal Distribution	
	Kolmogorov-Smirnov D Test	0.3061	0.2471	0.0003	Non-Normal Distribution	
	Shapiro-Wilk W Normality Test	0.6068	0.8408	1.9E-05	Non-Normal Distribution	

Cell Density Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	9.908E+5	6.881E+5	1.294E+6	1.103E+6	1.088E+5	1.209E+6	1.280E+5	36.55%	0.00%
100		8	1.434E+6	1.388E+6	1.480E+6	1.427E+6	1.350E+6	1.519E+6	1.955E+4	3.86%	-44.72%

Cell Density Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	
0	N	1.088E+5	1.107E+6	1.033E+6	1.173E+6	1.166E+6	1.209E+6	1.031E+6	1.099E+6	
100		1.420E+6	1.454E+6	1.430E+6	1.381E+6	1.494E+6	1.350E+6	1.519E+6	1.424E+6	

CETIS Analytical Report

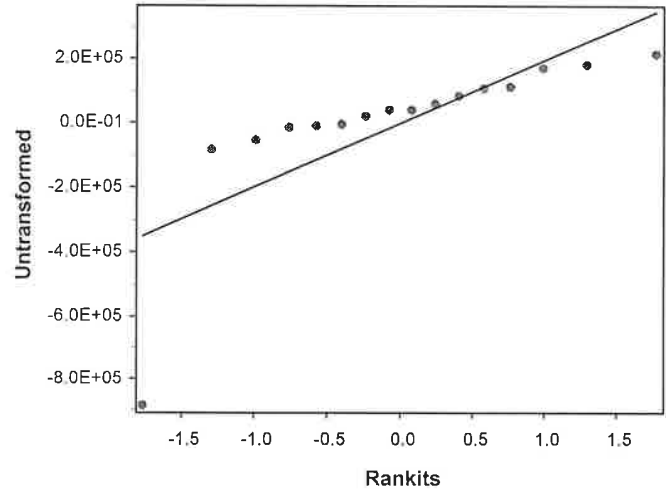
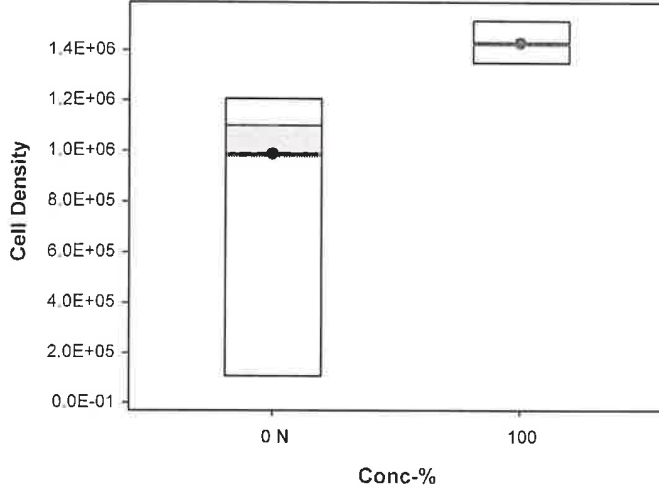
Report Date: 20 Jan-23 10:01 (p 2 of 2)
Test Code/ID: CSE0123.033 / 10-1075-3761

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 17-2328-3506	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 10:00	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Jan-23 9:58	MD5 Hash: 757EE4F12C3689DF7ECE822E840FE7B9	Editor ID: 009-702-627-3

Graphics



CETIS Measurement Report

Report Date: 20 Jan-23 10:01 (p 1 of 1)
 Test Code/ID: CSE0123.033 / 10-1075-3761

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 04-6018-8418	Test Type: Cell Growth	Analyst:
Start Date: 06 Jan-23 15:31	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 10 Jan-23 13:45	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 01-6405-7014	Code: CSE0123.033	Project: Boeing-SSFL NPDES
Sample Date: 06 Jan-23 09:05	Material: Sample Water	Source: Bioassay Report
Receipt Date: 06 Jan-23 14:35	CAS (PC):	Station: Outfall 008
Sample Age: 6h (0.3 °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	59	---	---	59	59	---	---	---	0
Overall		2	68.5	-52.21	189.2	59	78	9.5	13.44	19.61%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	463.8	453.1	474.5	452	475	1.723	8.614	1.86%	0
100		5	245.2	239.8	250.6	240	252	0.8649	4.324	1.76%	0
Overall		10	354.5	272	437	240	475	36.49	115.4	32.55%	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	70	---	---	70	70	---	---	---	0
Overall		2	92.5	-193.4	378.4	70	115	22.5	31.82	34.40%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.66	7.549	7.771	7.5	7.7	0.01789	0.08944	1.17%	0
100		5	7.54	7.268	7.812	7.2	7.8	0.04382	0.2191	2.91%	0
Overall		10	7.6	7.478	7.722	7.2	7.8	0.05375	0.17	2.24%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.44	25.27	25.61	25.2	25.5	0.02683	0.1342	0.53%	0
100		5	25.62	25.29	25.95	25.2	25.8	0.05366	0.2683	1.05%	0
Overall		10	25.53	25.37	25.69	25.2	25.8	0.07	0.2214	0.87%	0 (0%)

033

Temp. deg. C = 0.3 °C

Chlorine (mg/L) = 10.1

NH3 (mg/L) = 10.1

Eurofins CalScience Irvine

CHAIN OF CUSTODY FORM

Client Name/Address: Valley & Aldrich 5333 Mission Center Rd St. 300 San Diego, CA 92108		Project: Beijing-SSP, NPDES Permit 2123 Annual Outfall (08) Outfall 008 Comp		ANALYSIS REQUIRED																Comments								
Eurofins CalScience Irvine Contact: Christian Blundo 17481 Denton Ave Suite #110 Irvine CA 92614 Tel: 949-260-3219		Project Manager: Katherine Miller 520 253 8508, 520 954 6344 (cell)		Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)		Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)					
Sample Description	Sample ID	Sampling Date/Time	Container Type	# of Containers	Preservative	Bottle #	MS/MSO	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)		Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)	Asst. Microbiologist (2300 F, As, Cl, P, S, Se, T)				
Outfall 008	Outfall008_20220108_Comp	1/6/2022 16405	WM	600 mL Poly	3	HClO2	85	Yes	X																			
			WM	11 Glass Amber	2	Fume	112	No																				
			WM	500 mL Poly	5	Fume	125	Yes																			60 hours Holding Time HClO2 & NO2	
			WM	500 mL Poly	1	Fume	156	No																				
			WM	500 mL Poly	3	HClO2	180	Yes																				
			WM	1L Poly	1	Fume	188	No																				
	Outfall008_20220108_Comp_3	1/6/2022 16405	WM	500 mL Poly	3	HClO2	226	Yes																			Unfiltered and unpreserved sample. Separate RAD only and/or rework? Analysis indicate, not MS/MSO	
			WM	250 mL Glass	2	Fume	228	No																			Only test if first or last run unless the year of the test is indicated on the label	
			WM	11 Glass Amber	5	Fume	250	Yes																				
	Outfall008_20220108_Comp_4	1/6/2022 16405	WM	1L Poly	3	Fume	195	Yes																				Filter and preserve with 2 drops of bleach at lab
			WM	500 mL Poly	5	Fume	520	Yes																			Sample re-using DO NOT OPEN BAG. Bag to be opened in laboratory using clean procedure as	
			WM	11 Glass Amber	2	Fume	110	No																				Head
			WM	500 mL Poly	3	Fume	125	No																			Head	
			WM	11 Glass Amber	2	Fume	230	No																				Head

Hand-delivered to ABC Labs with copy of COC



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			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 2 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

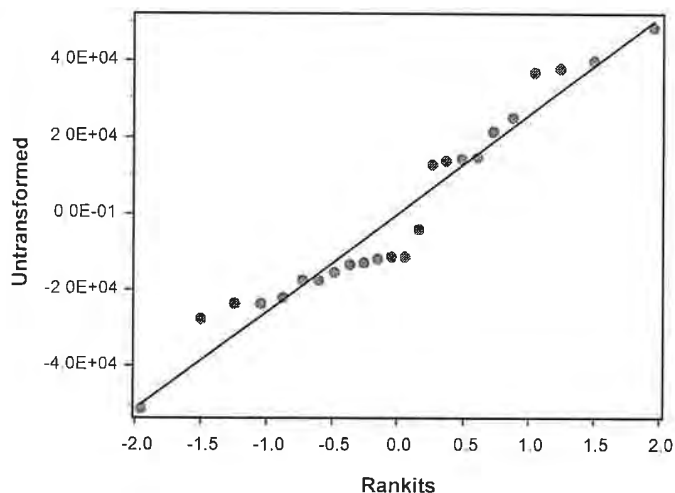
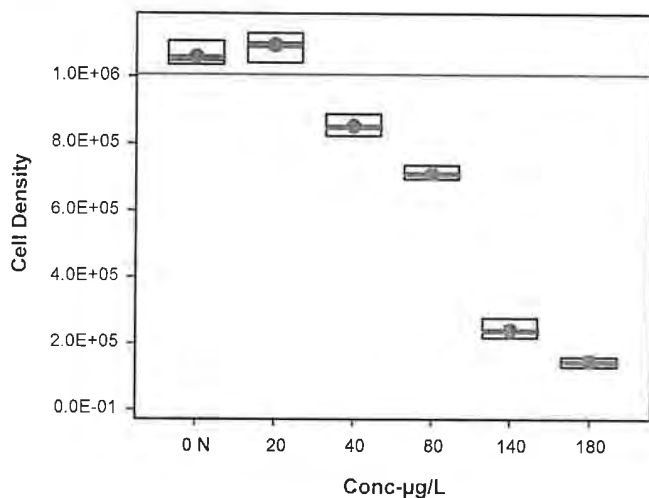
Aquatic Bioassay & Consulting Labs, Inc.

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

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

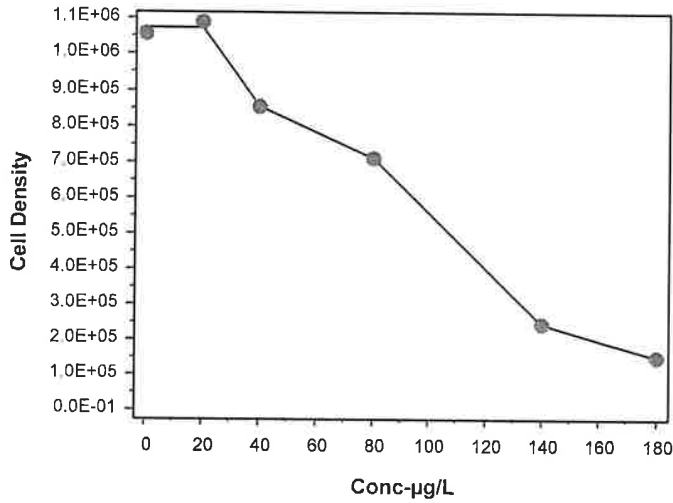
Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

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.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

122945

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

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

Project
Boeing-SSFL NPDES
Permit 2023
Annual Outfall [008]
Outfall 008
Comp

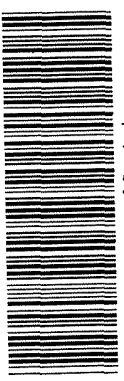
Project Manager: Katharine Miller
520.269.8606, 520.904.6944 (cell)
Field Manager: Mark Dominick
978.294.5033, 818.689.0702 (cell)

Eurofins Calscience Irvine Contact: Christian Bondoc
17461 Dertan Ave Suite #110
Irvine CA 92614
Tel: 949-260-3218

Table with columns for Sample Description, Sample Matrix, Sampling Date/Time, Sample I.D., Container Type, # of Cont., Preservative, Bottle #, MSMSD, and various analytical parameters (Total Recoverable Metals, TSS, etc.).

Legend, Received By, Date/Time, Turn-around time, Sample Integrity, Data Requirements, No Level IV.

Hand-delivered to ABC Labs with copy of COC
15/15 1.8/1.8 2.1/2.1 1.9/1.9 5.1/1.1



570-122945 Chain of Custody

122945

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [008] Outfall 008 Comp				ANALYSIS REQUIRED						Comments							
Eurofins Calscience Irvine Contact: Christian Borjoc 17451 Derian Ave Suite #100 Irvine, CA 92614 Tel. 949-260-3218				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)												Cr (VI), Total (E218.6)		Asbestos (EPA100.2)		Chlorpyrifos, Diazinon (E25.2)	
Sampler: Adrian Mobeka				Field Manager: Mark Domiprick 978.234.5033, 818.599.0702 (cell)												Priority Pollutants-SVOCs (E25)		Hold		Hold	

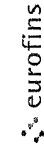
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED						Comments	
Outfall 008	Outfall008_20230106_Comp	1/6/2023 <i>10:05</i>	WM	1 L Glass Amber	6	None	175	Yes								
		<i>10:05</i>	WM	500 mL Poly	3	None	260	Yes								
Outfall 008	Outfall008_20230106_Comp_Extra	1/6/2023 <i>10:05</i>	WM	1 L Poly	1	None	270	No								
		<i>10:05</i>	WM	1 L Glass Amber	6	None	275	Yes								
				1 L Glass Amber	2	None	175	No	H	Hold						
				1 L Glass Amber	2	None	275	No	H	Hold						

Relinquished By <i>Mark Domiprick</i>	Date/Time: <i>1-6-2023 1300</i>	Company <i>H & A</i>	Legend A = Annual Received By: <i>Tom</i> Date/Time: <i>1/6/23 1300</i> EC Received By: <i>AJ</i> Date/Time: <i>1-6-23 18:15</i> Received By: Date/Time: EC
Relinquished By	Date/Time:	Company	Turn-around time (Check) 24 Hour: 72 Hour: 0 Day: <u>X</u> 48 Hour: 5 Day: Normal:
Relinquished By	Date/Time:	Company	Sample Integrity (Check) Intact: On Iso: Store samples for 6 months. Data Requirements: (Check) No Level IV: <u>X</u>



2/3/2023

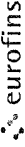
Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel Virendra		Carrier Tracking No(s): 570-203527-1	
Client Contact: Virendra.Patel@et.eurofins.com		E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	
Shipping/Receiving		State of Origin: California		Job #: 570-122945-4	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		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:	
Address: 13715 Rider Trail North		Due Date Requested: 2/8/2023		Analysis Requested 901_1Cs/Fill_Geo_0-K-40 and Cesium-137 A01R_U/EXchrom_Actin Total Uranium 900_0/EVaporation Gross Alpha/Beta 903_0/PreSep_21 Radium-226 904_0/PreSep_0 Radium-226 905_5/90/PreSep_7 Strontium-90 906_0/LSC_Dist_Susp Tritium	
City: Earth City		TAT Requested (days)			
State: MO, Zip: 63045		PO #:			
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:			
Project Name: Boeing SSFL NPDES - Outfall 008 COMP		Project #: 44024446			
Site:		SSOW#:			
Sample Identification - Client ID (Lab ID)		Sample Date			
Outfall008_20230106_Comp (570-122945-1)		1/6/23			
Sample Type (C=Comp, G=grab)		Sample Time			
G=grab		09 05 Pacific			
Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Preservation Code:			
Water		Water			
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers	
X		X		6	
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					
Empty Kit Relinquished by:		Date:		Time:	
Relinquished by:		Date/Time: 1/9/23 1401		Company: EC Company	
Relinquished by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks:	



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Carrier Tracking No(s):	COG No: 570-203580 1
Client Contact: 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 #: 570-122945-2
Analysis Requested				
Due Date Requested 1/24/2023		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 Z - other (specify)		
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:		
PO #:		Total Number of containers		
WO #:		Total Number of containers		
Project #: 44024446		Special Instructions/Note:		
SSOW#:		See OAS Boeing_wiu to zero, Use Boeing glassware.		
Boeing SSFL NPDES - Outfall 008 COMP		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	1613B/1613B_Sox_Sep_P Standard List w/ Totals	(Hold)
Sample Identification - Client ID (Lab ID)				
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:
1/6/23	09:05 Pacific	Water	Water	X
1/6/23	09:05 Pacific	Water	Water	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/tesis/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 <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months				
Deliverable Requested: I, II, III, IV, Other (specify)				
Primary Deliverable Rank: 2				
Special Instructions/QC Requirements		Method of Shipment:		
Time:		Received by:		
Date/Time:		Company:		
1/19/23 1552		EC		
Date/Time:		Company:		
Date/Time:		Company:		
Date/Time:		Company:		
Custody Seals Intact: Custody Seal No		Cooler Temperature(s) °C and Other Remarks:		
Δ Yes Δ No				



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Lab P#M: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-203595 1
Client Contact: EMSL Analytical Inc.		Phone:	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1
Address: 520 Mission Street, South Pasadena, CA, 91030		Company: EMSL Analytical Inc.	Accreditations Required (See note): State Program - California	Job #: 570-122945-3	
Due Date Requested: 1/20/2023		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:			
TAT Requested (days)					
PO #:		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 - Triama Z - other (specify)			
WO #:					
Project #:		Total Number of containers 1			
Boeing SSFL NPDES - Outfall 008 COMP					
SSOW#:		Special Instructions/Note. See Attached Instructions			
Sample Date: 1/6/23					
Sample Time: 09:05 Pacific		SUB (Asbestos 100.2) / Asbestos 100.2 Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> X Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> X			
Sample Type (C=Comp, G=grab):					
Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Preservation Code: Water			
Sample Time: 09:05 Pacific					
Sample ID (Lab ID): Outfall008_20230106_Comp (570-122945-1)		Special Instructions/Note.			
Date: 1/6/23					
Time: 09:05 Pacific		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.			
Matrix: Water					
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2					
Empty Kit Relinquished by:		Special Instructions/QC Requirements.			
Relinquished by: <i>[Signature]</i>		Date: 1/9/23 1638		Method of Shipment: Company	
Relinquished by:		Date/Time:		Received by: Company	
Relinquished by:		Date/Time:		Received by: Company	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:	



ICOC No:
570-203595

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122945-6

Login Number: 122945

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 3/11/2023 3:31:30 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 008 COMP

JOB NUMBER

570-122945-7

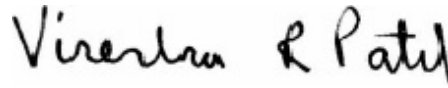
Job Notes

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 3:31:30 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 008 COMP

Job ID: 570-122945-7

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 008 COMP

Job ID: 570-122945-7

Job ID: 570-122945-7

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122945-7

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 4 coolers at receipt time were 1.5° C, 1.8° C, 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 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 008 COMP

Job ID: 570-122945-7

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122945-3	Outfall008_20230106_Comp_Extra	Water	01/06/23 09:05	01/06/23 18:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

Work Orders: 3B02110

Project: 570-122945-7

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: Outfall008_20230106_Comp_Extra (570-122945-3) Sampled: 01/06/23 9:05 by Client
3B02110-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 608.3			Instr: GC07				
Batch ID: W3B0399		Preparation: EPA 608/L-L SF			Prepared: 02/06/23 08:21		Analyst: RJG
Endrin aldehyde	ND	0.0019	0.0050	ug/l	1	02/15/23	O-09
<i>Surrogate(s)</i>							
Decachlorobiphenyl	61%		33-133	Conc: 0.0587		02/15/23	
Tetrachloro-meta-xylene	47%		32-130	Conc: 0.0444		02/15/23	

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 (W3B0399-BLK1)					Prepared: 02/06/23 Analyzed: 02/15/23						
Endrin aldehyde	ND	0.0019	0.0050	ug/l							
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0675			ug/l	0.100		67	33-133			
Tetrachloro-meta-xylene	0.0595			ug/l	0.100		59	32-130			
LCS (W3B0399-BS1)					Prepared: 02/06/23 Analyzed: 02/15/23						
Endrin aldehyde	0.0684	0.0019	0.0050	ug/l	0.100		68	18-130			
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0735			ug/l	0.100		74	33-133			
Tetrachloro-meta-xylene	0.0583			ug/l	0.100		58	32-130			
LCS Dup (W3B0399-BSD1)					Prepared: 02/06/23 Analyzed: 02/15/23						
Endrin aldehyde	0.0791	0.0019	0.0050	ug/l	0.100		79	18-130	15	30	
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0808			ug/l	0.100		81	33-133			
Tetrachloro-meta-xylene	0.0731			ug/l	0.100		73	32-130			

Notes and Definitions

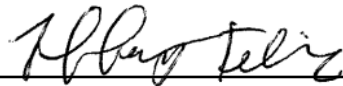
Item	Definition
O-09	This sample was received with the EPA recommended holding time expired.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of 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.

Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



SPO:

Carrier Tracking No(s):

State of Origin: California

Accreditations Required (See note): State Program - California

Client Information (Sub Contract Lab)

Lab PM: Pate, Virendra
 E-Mail: Virendra.Pate@st.eurofinsus.com

Company: Weck Laboratories, Inc.

Address: 14859 East Clark Avenue,
 City: City of Industry
 State, Zip: CA, 917451396
 Phone:

Project Name: Boeing SSFL NPDES - Outfall 008 COMP
 Site:

Sampler: (Empty)

Due Date Requested: 2/22/2023
 TAT Requested (days):

PO #:
 WO #:
 Project #: 44024446
 SSOV#:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastocil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Sub (EPA 608.3 Low Level - Endrin Aldehyde only) (ug/L units - MDL)
Outfall008_20230106_Comp_Extra (570-122945-3)	1/6/23	09:05 Pacific		Water	X		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 the 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 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

Sample Disposal (A fee may be assessed if samples are returned to client) Return To Client Disposal By Lab

Special Instructions/QC Requirements:

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: (Signature)

Date/Time: Date: Time:

Relinquished by: (Signature) Date/Time: Date: Time:

Company: (Signature) Method of Shipment: (Signature)

BPL

ICOC No:
570-206007

Containers

Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved 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. Pei 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"/>	
	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 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]

122945

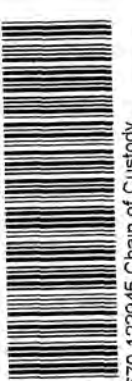
Error on COC, please add Arsenic and Beryllium for total and dissolved metals K. Rapp 1/24/23

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Total Recoverable Metals: (E200.7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	TCD (and all congeners) (E193B)	Cr, F, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Total Dissolved Metals (E200.7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha (E900.0) Gross Beta (E900.0) Tritium (H-3) (E906.0), Sr-90 (E903.1) & Radium 226 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity Spill Response (EPA 821 R 02 013)	Ammonia-N (E90.2)	Cyanide (SM4500-C/E / E395.2)	Priority Pollutants-Pesticides+PCBs (E909)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	Comments	
				500 mL Poly	3	HNO3	65	Yes	X	X													
				1 L Glass Amber	2	None	110	No															
				500 mL Poly	6	None	125	Yes			X												
				500 mL Poly	1	None	155	No				X											
				500 mL Poly	3	H2SO4	180	Yes															
		1/6/2023		1L Poly	1	None	185	No															
		1/6/2023		500 mL Poly	3	NaOH	220	Yes															
		1/6/2023		2.5 Gal Cube	3	None	225	Yes															
		1/6/2023		1L Glass Amber	3	None	230	Yes															
		1/6/2023		Gal Cube	3	None	235	No															
		1/6/2023		1L Glass Amber	6	None	250	Yes															
		1/6/2023		1L Poly	3	None	195	Yes															
		1/6/2023		bromocarbonate vials	3	None	320	Yes															
		1/6/2023		1 L Glass Amber	2	None	110	No															
		1/6/2023		500 mL Poly	2	None	125	No															
		1/6/2023		1 L Glass Amber	2	None	250	No															

Hand-delivered to ABC Labs with copy of COC 1-5/23 1:8/1-8 2:11/2-1 1:9/1-9 5:11



570-122945 Chain of Custody



122945

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 Contract: Christian Bordeco 17461 Derian Ave Suite #110 Irvine CA 92614 Tel: 949-260-3218		Project Boeing-SSFL NPDES Permit 2023 Annual Outfall [008] Outfall 008 Comp		Project Manager: Katharine Miller 520.269.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.294.5033, 818.699.0702 (cell)			
Sample Description	Sample Matrix	Sampling Date/Time	Container Type	# of Cont.	Preservative	Bottle #	MSMSD
Outfall008_20230106_Comp	WM	1/6/2023 10:45	500 mL Poly	3	HNO ₃	85	Yes
	WM		1 L Glass Amber	2	None	110	No
	WM		500 mL Poly	6	None	125	Yes
	WM		500 mL Poly	1	None	155	No
	WM		500 mL Poly	3	H2SO4	160	Yes
	WM		1L Poly	1	None	185	No
	WM		500 mL Poly	3	NI(OH)	220	Yes
	WM		2.5 Gal Cube	3	None	225	Yes
	WM		1L Glass Amber	3	None	230	Yes
	WM		2.5 Gal Cube	3	None	235	No
	WM		1L Glass Amber	6	None	250	Yes
	WM		1L Poly	3	None	195	Yes
	WM		brosilicate vials	3	None	320	Yes
	WM		1 L Glass Amber	2	None	110	No
	WM		500 mL Poly	2	None	125	No
	WM		1 L Glass Amber	2	None	250	No

Total Recoverable Metals: (E200.7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO ₃ (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	X
TCD (and all congeners) (E113B)	
Cr, F, SO ₄ , Nitrate-N, Nitrite-N, NO ₃ +NO ₂ -N, Perchlorate (300)	X
TDS (SM2540C/E160.1)	
TSS (160.2 (SM2540D))	
Total Dissolved Metals (E200.7) Al, B, Fe, Ni, V, Zn, Hardness as CaCO ₃ (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	
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)	X
Chronic Toxicity Species Generality (EPA 821 R 02 013)	
Ammonia-N (950.2)	
Cyanide (SM4500-CN-E / E395.2)	
Priority Pollutants-Pesticides+PCBs (E609)	
Total Recoverable Metals: Mercury (E245.1)	X
Total Dissolved Metals: Mercury (E245.1)	

Comments: 48 hours Holding Time NO₂ & NO₃

Unfiltered and unpressurized analysis. Separate RAD on the sampler workorder. Analyze duplicate, net MSMSD.

Only test if first or second rain events of the year

D. ABC A

Filter and preserve with 24hrs of receipt at lab.

Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.

Hold

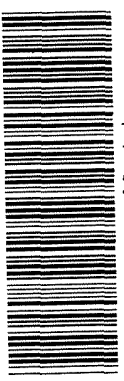
Hold

Hold

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

Hand-delivered to ABC Labs with copy of COC 1-5/23 1-8/1-8 2-1/2-1 1-9/1-9 5-11



570-122945 Chain of Custody

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

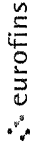
CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

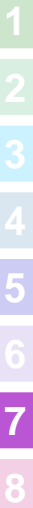
<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p> <p>Eurofins Calscience Irvine Contact: Christian Borjdo 17451 Derian Ave Suite #100 Irvine, CA 92614 Tel. 949-260-3218</p> <p><small>TestAmerica's services under this CoC shall be performed in accordance with the TACs with Blanket Service Agreement# 2019-22-7 respectively by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</small></p> <p>Sampler: Adrian Mobeka</p>				<p>Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall #008 Outfall 008 Comp</p> <p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)</p> <p>Field Manager: Mark Domitrick 978.234.5033, 818.599.0702 (cell)</p>				<p style="text-align: center;">ANALYSIS REQUIRED</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Sample Description</th> <th style="width: 15%;">Sample Matrix</th> <th style="width: 15%;">Container Type</th> <th style="width: 15%;"># of Cont.</th> <th style="width: 15%;">Preservative</th> <th style="width: 15%;">Bottle #</th> <th style="width: 15%;">MS/MSD</th> <th colspan="6">ANALYSIS REQUIRED</th> <th style="width: 15%;">Comments</th> </tr> </thead> <tbody> <tr> <td></td> <td>WM</td> <td>1 L Glass Amber</td> <td>6</td> <td>None</td> <td>175</td> <td>Yes</td> <td>Priority Pollutants-SVOCs (E25)</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Outfall008_20230106_Comp</td> <td>WM</td> <td>500 mL Poly</td> <td>3</td> <td>None</td> <td>260</td> <td>Yes</td> <td>Cr (VI), Total (E218.6)</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>WM</td> <td>1 L Poly</td> <td>1</td> <td>None</td> <td>270</td> <td>No</td> <td>Asbestos (EPA100.2)</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>WM</td> <td>1 L Glass Amber</td> <td>6</td> <td>None</td> <td>275</td> <td>Yes</td> <td>Chlorpyrifos, Diazinon (E25.2)</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Outfall008_20230106_Comp_Extra</td> <td>WM</td> <td>1 L Glass Amber</td> <td>2</td> <td>None</td> <td>175</td> <td>No</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Hold</td> <td></td> </tr> <tr> <td></td> <td>WM</td> <td>1 L Glass Amber</td> <td>2</td> <td>None</td> <td>275</td> <td>No</td> <td></td> <td></td> <td></td> <td>H</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Hold</td> <td></td> </tr> </tbody> </table>				Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED						Comments		WM	1 L Glass Amber	6	None	175	Yes	Priority Pollutants-SVOCs (E25)	X										Outfall008_20230106_Comp	WM	500 mL Poly	3	None	260	Yes	Cr (VI), Total (E218.6)	X											WM	1 L Poly	1	None	270	No	Asbestos (EPA100.2)			X									WM	1 L Glass Amber	6	None	275	Yes	Chlorpyrifos, Diazinon (E25.2)			X								Outfall008_20230106_Comp_Extra	WM	1 L Glass Amber	2	None	175	No										Hold			WM	1 L Glass Amber	2	None	275	No				H						Hold	
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<p>Relinquished By: <i>Mark Domitrick</i> Date/Time: 1-6-2023/1300 EC</p> <p>Relinquished By: <i>[Signature]</i> Date/Time: 1-6-23 18:15</p> <p>Relinquished By: <i>[Signature]</i> Date/Time: 1-6-23 18:15 EC</p>								<p>Legend A = Annual</p> <p>Received By: <i>[Signature]</i> Date/Time: 1/6/23 1300 EC</p> <p>Received By: <i>[Signature]</i> Date/Time: 1-6-23 18:15</p> <p>Received By: <i>[Signature]</i> Date/Time: 1-6-23 18:15</p>								<p>Turn-around time (Check)</p> <p>24 Hour: _____ 72 Hour: _____ 0 Day: <input checked="" type="checkbox"/></p> <p>48 Hour: _____ 5 Day: _____ Normal: _____</p> <p>Sample Integrity (Check)</p> <p>Intact: _____ On lost: _____</p> <p>Store samples for 6 months: _____</p> <p>Data Requirements: (Check)</p> <p>No Level IV: _____ All Level IV: <input checked="" type="checkbox"/></p>																																																																																																																					



Chain of Custody Record



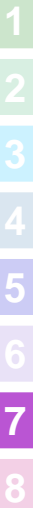
Client Information (Sub Contract Lab)		Lab PM Patel Virendra	Carrier Tracking No(s): 570-203527-1
Address: 13715 Rider Trail North		E-Mail: Virendra.Patel@et.eurofins.com	Page: Page 1 of 1
City: Earth City		State of Origin: California	Job #: 570-122945-4
State, Zip: MO, 63045		Preservation Codes: M - 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)	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Other: 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	
Email: Project #: 44024446		Total Number of containers: 6	
Site: Boeing SSFL NPDES - Outfall 008 COMP		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Due Date Requested 2/8/2023		Special Instructions/Note:	
TAT Requested (days)		6	
PO #:			
WO #:			
Project #: 44024446			
SSOW#:			
Sample Date		Special Instructions/Note:	
1/6/23			
Sample Time			
09 05 Pacific			
Sample Type (C=Comp, G=grab)			
Water			
Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)			
Field Filtered Sample (Yes or No)			
Perform MS/MSD (Yes or No)			
901_1Cs/Fill_Geo_0-K-40 and Cesium-137			
A01R_U/EXchrom_Actin Total Uranium			
900_0/EVaporation Gross Alpha/Beta			
903_0/PreSep_21 Radium-226			
904_0/PreSep_0 Radium-228			
905_5/90/PreSep_7 Strontium-90			
906_0/SC_Dist_Susp Tritium			
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)			
Sample Identification - Client ID (Lab ID)			
Outfall008_20230106_Comp (570-122945-1)			
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/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:	
Primary Deliverable Rank 2		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months	
Empty Kit Relinquished by		Method of Shipment	
Date/Time: 1/9/23 1401		Received by	
Date/Time: 1/9/23 1401		Date/Time:	
Date/Time:		Date/Time:	
Date/Time:		Date/Time:	
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:	
Custody Seal No			



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No:
880 Riverside Parkway, West Sacramento, CA 95605		Patel, Virendra	Patel, Virendra	570-203580 1	570-203580 1
Phone: 916-373-5600 (Tel) 916-372-1059 (Fax)		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1	Job #: 570-122945-2
Email:		Accreditations Required (See note) State Program - California		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)	
Due Date Requested: 1/24/2023		Analysis Requested			
TAT Requested (days):					
City: West Sacramento	PO #:	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
State, Zip: CA, 95605	WO #:	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	Sample Type (C=Comp, G=grab)	Sample Time
Phone: 916-373-5600 (Tel) 916-372-1059 (Fax)	Project #: 44024446	Sample Date	Sample Time	Sample Time	Sample Time
Email:	SSOW#:	Sample Date	Sample Time	Sample Time	Sample Time
Project Name: Boeing SSFL NPDES - Outfall 008 COMP		Sample Date	Sample Time	Sample Time	Sample Time
Site:		Sample Date	Sample Time	Sample Time	Sample Time
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Time	Sample Time
Outfall008_20230106_Comp (570-122945-1)	1/6/23	09 05 Pacific	09 05 Pacific	X	X
Outfall008_20230106_Comp_Extra (570-122945-3)	1/6/23	09 05 Pacific	09 05 Pacific	X	X
Special Instructions/Note:		Total Number of containers			
See OAS Boeing_wiu to zero, Use Boeing glassware.		2			
See OAS Boeing_wiu to zero, Use Boeing glassware.		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/tesis/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.		Special Instructions/Note:			
Possible Hazard Identification		Special Instructions/Note:			
Unconfirmed		Special Instructions/Note:			
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/Note:			
Primary Deliverable Rank: 2		Special Instructions/Note:			
Empty Kit Relinquished by:		Special Instructions/Note:			
Relinquished by:		Special Instructions/Note:			
Relinquished by:		Special Instructions/Note:			
Relinquished by:		Special Instructions/Note:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Special Instructions/Note:			
Custody Seal No		Special Instructions/Note:			
Cooler Temperature(s) °C and Other Remarks:		Special Instructions/Note:			





Client Information (Sub Contract Lab)	Sampler: Patel Virendra	Carrier Tracking No(s):	COC No: 570-203595 1	
Client Contact: Virendra Patel	E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: 1 of 1	
Shipping/Receiving Company: EMSL Analytical Inc.	Accreditations Required (See note) State Program - California			
Address: 520 Mission Street, South Pasadena, CA, 91030		Due Date Requested: 1/20/2023	Job #: 570-122945-3	
City: South Pasadena	State: CA	TAT Requested (days):	Preservation Codes	
State: CA	Zip: 91030	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:	
Phone:	Email:	WO #:	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 - Triama Z - other (specify)	
Project Name: Boeing SSFL NPDES - Outfall 008 COMP	Project #: 44024446	Sample Date: 1/6/23	Special Instructions/Note:	
Site:	SSOW#:	Sample Time: 09:05 Pacific	Total Number of containers: 1	
Sample Identification - Client ID (Lab ID): Outfall008_20230106_Comp (570-122945-1)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Sample Type (C=Comp, G=grab): Water	See Attached Instructions	
	Preservation Code:			
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				
<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) Special Instructions/QC Requirements:				
Primary Deliverable Rank: 2				
Empty Kit Relinquished by:		Time:		
Relinquished by:		Date/Time: 1/9/23 1638	Company	
Relinquished by:		Date/Time:	Company	
Relinquished by:		Date/Time:	Company	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:		



ICOC No:
570-203595

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122945-7

Login Number: 122945

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 - Outfall 008 - GRAB

JOB NUMBER

570-123267-1

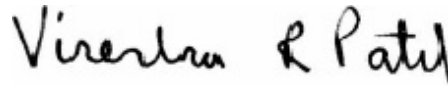
Job Notes

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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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1/23/2023 2:33:26 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.

Job ID: 570-123267-1

Project/Site: Boeing NPDES SSFL - Outfall 008 - 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 NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-123267-1

Job ID: 570-123267-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123267-1

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 temperature of the cooler at receipt was 1.9° C.

GC Semi VOA

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 570-295348. 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.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-123267-1

Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Client Sample ID: Outfall008_20230109_Grab

Lab Sample ID: 570-123267-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HEM (Oil & Grease)	3.2		0.96	0.49	mg/L	1		1664A	Total/NA

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

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-123267-1

General Chemistry

Client Sample ID: Outfall008_20230109_Grab
Date Collected: 01/09/23 10:30
Date Received: 01/09/23 17:15

Lab Sample ID: 570-123267-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	3.2		0.96	0.49	mg/L		01/12/23 10:07	01/12/23 15:55	1

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-123267-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-295348/1-A
Matrix: Water
Analysis Batch: 295498

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295348

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		01/12/23 10:07	01/12/23 15:55	1

Lab Sample ID: LCS 570-295348/2-A
Matrix: Water
Analysis Batch: 295498

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295348

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	38.2		mg/L		96	78 - 114

Lab Sample ID: LCSD 570-295348/3-A
Matrix: Water
Analysis Batch: 295498

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295348

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.6		mg/L		97	78 - 114	1	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-123267-1

General Chemistry

Prep Batch: 295348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123267-1	Outfall008_20230109_Grab	Total/NA	Water	1664A	
MB 570-295348/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-295348/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-295348/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 295498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123267-1	Outfall008_20230109_Grab	Total/NA	Water	1664A	295348
MB 570-295348/1-A	Method Blank	Total/NA	Water	1664A	295348
LCS 570-295348/2-A	Lab Control Sample	Total/NA	Water	1664A	295348
LCSD 570-295348/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	295348

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-123267-1

Client Sample ID: Outfall008_20230109_Grab

Lab Sample ID: 570-123267-1

Date Collected: 01/09/23 10:30

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	Prep	1664A			1039 mL	1000 mL	295348	01/12/23 10:07	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			295498	01/12/23 15:55	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

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 - Outfall 008 - GRAB

Job ID: 570-123267-1

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 NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-123267-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

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 008 - GRAB

Job ID: 570-123267-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123267-1	Outfall008_20230109_Grab	Water	01/09/23 10:30	01/09/23 17:15

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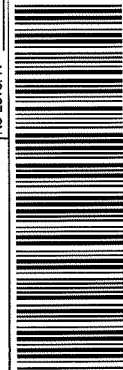
123267

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

TRAC 79B

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Deirhan Ave Suite #100 Irvine CA 92614 Tel 949-260-3218		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Grab		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Field Readings (Include units) Time of Readings: 1030 pH: 8.17 pH unit Temp: 51.7 C/F Field readings QC Checked by: <i>[Signature]</i> Date/Time: 9-20-23/1030		Meter serial #			
Sample I.D. Outfall008_20230109_Grab Outfall008_20230109_Grab_Extra		Sampling Date/Time 1/9/2023 1/9/2023	Sample Matrix WM WM	Container Type 1 L Glass Amber 1 L Glass Amber	# of Cont. 2 2	Preservative HCl HCl HCl	Bottle # 15 15	MS/MSD No No	ANALYSIS REQUIRED	Field Readings (Include units) Time of Readings: 1030 pH: 8.17 pH unit Temp: 51.7 C/F Field readings QC Checked by: <i>[Signature]</i> Date/Time: 9-20-23/1030	Comments Extra Bottles Hold
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 and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Oil & Grease (E1664A-HEM)							
Relinquished By: <i>[Signature]</i> Date/Time: 1-9-2023/1315 H.A		Company:		Legend: R=Routine Received By: <i>[Signature]</i> Date/Time: 1/9/23 1315 EC		Turn-around time (Check) 24 Hour _____ 72 Hour _____ 10 Day _____ X 48 Hour _____ 5 Day _____ Normal _____					
Relinquished By: <i>[Signature]</i> Date/Time: 1/9/23 1715 EC		Company:		Received By: <i>[Signature]</i> Date/Time: 1/9/23 1715		Sample Integrity (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements (Check) No Level IV: _____ All Level IV: _____ X					
Relinquished By: <i>[Signature]</i> Date/Time:		Company:		Received By: <i>[Signature]</i> Date/Time:		No Level IV: _____ All Level IV: _____ X					



570-123267 Chain of Custody



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123267-1

Login Number: 123267

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 2/8/2023 11:13:34 AM Revision 1

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 008 - COMP

JOB NUMBER

570-123670-1

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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2/8/2023 11:13:34 AM
Revision 1

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 008 - COMP

Job ID: 570-123670-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

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
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 008 - COMP

Job ID: 570-123670-1

Job ID: 570-123670-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-123670-1**

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 2/3/2023. 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 1/11/2023 7:10 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 1.9° C and 2.3° C.

HPLC/IC

Method 314.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 570-298087 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.

Metals

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230111_Comp_F (570-123670-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-295726.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230111_Comp_F (570-123670-2). 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.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Client Sample ID: Outfall008_20230111_Comp

Lab Sample ID: 570-123670-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.6		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrite as N	0.092	J,DX	0.10	0.043	mg/L	1		300.0	Total/NA
Nitrate as N	1.2		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate	2.9		1.0	0.24	mg/L	1		300.0	Total/NA
Perchlorate	1.1	J,DX	2.0	0.91	ug/L	1		314.0	Total/NA
Nitrate Nitrite as N	1.3		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	4.4		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.68	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Antimony	0.72	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Nickel	1.8	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Zinc	9.7	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	140		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	9.2		1.0	0.83	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall008_20230111_Comp_F

Lab Sample ID: 570-123670-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	2.1	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Antimony	1.0	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Nickel	1.6	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Zinc	7.1	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 - Outfall 008 - COMP

Job ID: 570-123670-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230111_Comp

Date Collected: 01/11/23 10:35

Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.6		1.0	0.36	mg/L			01/12/23 09:24	1
Nitrite as N	0.092	J,DX	0.10	0.043	mg/L			01/12/23 09:24	1
Nitrate as N	1.2		0.10	0.020	mg/L			01/12/23 09:24	1
Sulfate	2.9		1.0	0.24	mg/L			01/12/23 09:24	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230111_Comp
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	1.1	J,DX	2.0	0.91	ug/L			01/24/23 21:03	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230111_Comp

Date Collected: 01/11/23 10:35

Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.3		0.10	0.020	mg/L			01/24/23 12:20	1

- 1
- 2
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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

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

Client Sample ID: Outfall008_20230111_Comp

Date Collected: 01/11/23 10:35

Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/16/23 07:29	01/16/23 11:57	1
Cadmium	ND		1.0	0.13	ug/L		01/16/23 07:29	01/16/23 11:57	1
Copper	4.4		2.0	0.32	ug/L		01/16/23 07:29	01/16/23 11:57	1
Lead	0.68	J,DX	1.0	0.12	ug/L		01/16/23 07:29	01/16/23 11:57	1
Antimony	0.72	J,DX	2.0	0.36	ug/L		01/16/23 07:29	01/16/23 11:57	1
Selenium	ND		2.0	0.52	ug/L		01/16/23 07:29	01/16/23 11:57	1
Thallium	ND		1.0	0.11	ug/L		01/16/23 07:29	01/16/23 11:57	1
Nickel	1.8	J,DX	2.0	0.17	ug/L		01/16/23 07:29	01/16/23 11:57	1
Zinc	9.7	J,DX	20	2.8	ug/L		01/16/23 07:29	01/16/23 11:57	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

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

Client Sample ID: Outfall008_20230111_Comp_F

Date Collected: 01/11/23 10:35

Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND	BU	1.0	0.23	ug/L			01/16/23 10:11	1
Cadmium	ND	BU	1.0	0.13	ug/L			01/16/23 10:11	1
Copper	2.1	BU	2.0	0.32	ug/L			01/16/23 10:11	1
Lead	ND	BU	1.0	0.12	ug/L			01/16/23 10:11	1
Antimony	1.0	J,DX BU	2.0	0.36	ug/L			01/16/23 10:11	1
Selenium	ND	BU	2.0	0.52	ug/L			01/16/23 10:11	1
Thallium	ND	BU	1.0	0.11	ug/L			01/16/23 10:11	1
Nickel	1.6	J,DX BU	2.0	0.17	ug/L			01/16/23 10:11	1
Zinc	7.1	J,DX BU	20	2.8	ug/L			01/16/23 10:11	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230111_Comp
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/13/23 16:10	01/16/23 19:42	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230111_Comp_F
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/13/23 18:30	01/16/23 20:13	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

General Chemistry

Client Sample ID: Outfall008_20230111_Comp

Date Collected: 01/11/23 10:35

Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		01/24/23 10:30	01/24/23 12:23	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/13/23 16:32	1
Total Dissolved Solids (SM 2540C)	140		10	8.7	mg/L			01/18/23 14:47	1
Total Suspended Solids (SM 2540D)	9.2		1.0	0.83	mg/L			01/16/23 19:52	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-295296/5
Matrix: Water
Analysis Batch: 295296

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			01/12/23 06:53	1
Nitrate as N	ND		0.10	0.020	mg/L			01/12/23 06:53	1

Lab Sample ID: LCS 570-295296/6
Matrix: Water
Analysis Batch: 295296

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	2.64		mg/L		106	90 - 110
Nitrate as N	5.00	4.97		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-295296/7
Matrix: Water
Analysis Batch: 295296

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	2.65		mg/L		106	90 - 110	0	15
Nitrate as N	5.00	4.97		mg/L		99	90 - 110	0	15

Lab Sample ID: 570-123650-A-1 MS
Matrix: Water
Analysis Batch: 295296

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	2.75		mg/L		110	80 - 120
Nitrate as N	1.4		5.00	6.69		mg/L		106	80 - 120

Lab Sample ID: 570-123650-A-1 MSD
Matrix: Water
Analysis Batch: 295296

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	2.75		mg/L		110	80 - 120	0	20
Nitrate as N	1.4		5.00	6.70		mg/L		106	80 - 120	0	20

Lab Sample ID: MB 570-295297/5
Matrix: Water
Analysis Batch: 295297

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			01/12/23 06:53	1
Sulfate	ND		1.0	0.24	mg/L			01/12/23 06:53	1

Lab Sample ID: LCS 570-295297/6
Matrix: Water
Analysis Batch: 295297

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	49.7		mg/L		99	90 - 110

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCSD 570-295297/7
 Matrix: Water
 Analysis Batch: 295297

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	49.6		mg/L		99	90 - 110	0	15

Lab Sample ID: 570-123650-A-1 MS
 Matrix: Water
 Analysis Batch: 295297

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	35		50.0	92.7		mg/L		116	80 - 120
Sulfate	11		50.0	64.1		mg/L		107	80 - 120

Lab Sample ID: 570-123650-A-1 MSD
 Matrix: Water
 Analysis Batch: 295297

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	35		50.0	92.7		mg/L		116	80 - 120	0	20
Sulfate	11		50.0	64.2		mg/L		107	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-298087/7
 Matrix: Water
 Analysis Batch: 298087

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			01/24/23 11:47	1

Lab Sample ID: LCS 570-298087/8
 Matrix: Water
 Analysis Batch: 298087

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 570-298087/9
 Matrix: Water
 Analysis Batch: 298087

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	26.2		ug/L		105	85 - 115	7	15

Lab Sample ID: 570-124978-A-3 MS
 Matrix: Water
 Analysis Batch: 298087

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	60.7	LM	ug/L		121	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 570-124978-A-3 MSD
Matrix: Water
Analysis Batch: 298087

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	62.2	LM	ug/L		124	80 - 120	2	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-295993/1-A
Matrix: Water
Analysis Batch: 296199

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 295993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/16/23 07:29	01/16/23 11:51	1
Cadmium	ND		1.0	0.13	ug/L		01/16/23 07:29	01/16/23 11:51	1
Copper	ND		2.0	0.32	ug/L		01/16/23 07:29	01/16/23 11:51	1
Lead	ND		1.0	0.12	ug/L		01/16/23 07:29	01/16/23 11:51	1
Antimony	ND		2.0	0.36	ug/L		01/16/23 07:29	01/16/23 11:51	1
Selenium	ND		2.0	0.52	ug/L		01/16/23 07:29	01/16/23 11:51	1
Thallium	ND		1.0	0.11	ug/L		01/16/23 07:29	01/16/23 11:51	1
Nickel	ND		2.0	0.17	ug/L		01/16/23 07:29	01/16/23 11:51	1
Zinc	ND		20	2.8	ug/L		01/16/23 07:29	01/16/23 11:51	1

Lab Sample ID: LCS 570-295993/2-A
Matrix: Water
Analysis Batch: 296199

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 295993

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	80.0	80.2		ug/L		100	85 - 115
Cadmium	80.0	80.5		ug/L		101	85 - 115
Copper	80.0	81.2		ug/L		102	85 - 115
Lead	80.0	80.5		ug/L		101	85 - 115
Antimony	80.0	81.0		ug/L		101	85 - 115
Selenium	80.0	78.9		ug/L		99	85 - 115
Thallium	80.0	80.1		ug/L		100	85 - 115
Nickel	80.0	80.5		ug/L		101	85 - 115
Zinc	80.0	79.5		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-295993/3-A
Matrix: Water
Analysis Batch: 296199

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 295993

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	80.0	77.6		ug/L		97	85 - 115	3	20
Cadmium	80.0	78.3		ug/L		98	85 - 115	3	20
Copper	80.0	80.4		ug/L		100	85 - 115	1	20
Lead	80.0	79.8		ug/L		100	85 - 115	1	20
Antimony	80.0	79.1		ug/L		99	85 - 115	2	20
Selenium	80.0	78.2		ug/L		98	85 - 115	1	20
Thallium	80.0	79.4		ug/L		99	85 - 115	1	20
Nickel	80.0	80.2		ug/L		100	85 - 115	0	20
Zinc	80.0	77.7		ug/L		97	85 - 115	2	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

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

Lab Sample ID: 570-123670-1 MS
Matrix: Water
Analysis Batch: 296199

Client Sample ID: Outfall008_20230111_Comp
Prep Type: Total Recoverable
Prep Batch: 295993

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		50.0	49.0		ug/L		98	80 - 120
Cadmium	ND		100	99.6		ug/L		100	80 - 120
Copper	4.4		100	104		ug/L		99	80 - 120
Lead	0.68	J,DX	100	101		ug/L		100	80 - 120
Antimony	0.72	J,DX	100	97.0		ug/L		96	80 - 120
Selenium	ND		100	97.0		ug/L		97	80 - 120
Thallium	ND		100	100		ug/L		100	80 - 120
Nickel	1.8	J,DX	100	102		ug/L		100	80 - 120
Zinc	9.7	J,DX	100	107		ug/L		97	80 - 120

Lab Sample ID: 570-123670-1 MSD
Matrix: Water
Analysis Batch: 296199

Client Sample ID: Outfall008_20230111_Comp
Prep Type: Total Recoverable
Prep Batch: 295993

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	ND		50.0	50.3		ug/L		101	80 - 120	3	20
Cadmium	ND		100	102		ug/L		102	80 - 120	2	20
Copper	4.4		100	106		ug/L		102	80 - 120	2	20
Lead	0.68	J,DX	100	102		ug/L		101	80 - 120	1	20
Antimony	0.72	J,DX	100	96.3		ug/L		96	80 - 120	1	20
Selenium	ND		100	96.5		ug/L		97	80 - 120	1	20
Thallium	ND		100	99.7		ug/L		100	80 - 120	0	20
Nickel	1.8	J,DX	100	103		ug/L		102	80 - 120	2	20
Zinc	9.7	J,DX	100	108		ug/L		98	80 - 120	1	20

Lab Sample ID: MB 570-295715/1-A
Matrix: Water
Analysis Batch: 296079

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L			01/16/23 09:49	1
Cadmium	ND		1.0	0.13	ug/L			01/16/23 09:49	1
Copper	ND		2.0	0.32	ug/L			01/16/23 09:49	1
Lead	ND		1.0	0.12	ug/L			01/16/23 09:49	1
Antimony	ND		2.0	0.36	ug/L			01/16/23 09:49	1
Selenium	ND		2.0	0.52	ug/L			01/16/23 09:49	1
Thallium	ND		1.0	0.11	ug/L			01/16/23 09:49	1
Nickel	ND		2.0	0.17	ug/L			01/16/23 09:49	1
Zinc	ND		20	2.8	ug/L			01/16/23 09:49	1

Lab Sample ID: LCS 570-295715/2-A
Matrix: Water
Analysis Batch: 296079

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	50.0	44.6		ug/L		89	85 - 115
Cadmium	100	97.4		ug/L		97	85 - 115
Copper	100	96.2		ug/L		96	85 - 115
Lead	100	96.2		ug/L		96	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

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

Lab Sample ID: LCS 570-295715/2-A
Matrix: Water
Analysis Batch: 296079

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	100	88.3		ug/L		88	85 - 115
Selenium	100	94.3		ug/L		94	85 - 115
Thallium	100	96.8		ug/L		97	85 - 115
Nickel	100	97.7		ug/L		98	85 - 115
Zinc	100	95.1		ug/L		95	85 - 115

Lab Sample ID: LCSD 570-295715/3-A
Matrix: Water
Analysis Batch: 296079

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
Silver	50.0	45.4		ug/L		91	85 - 115	2	20
Cadmium	100	98.5		ug/L		98	85 - 115	1	20
Copper	100	97.4		ug/L		97	85 - 115	1	20
Lead	100	97.0		ug/L		97	85 - 115	1	20
Antimony	100	91.5		ug/L		92	85 - 115	4	20
Selenium	100	92.9		ug/L		93	85 - 115	1	20
Thallium	100	95.9		ug/L		96	85 - 115	1	20
Nickel	100	98.7		ug/L		99	85 - 115	1	20
Zinc	100	96.0		ug/L		96	85 - 115	1	20

Lab Sample ID: 570-123707-A-1-D MSD
Matrix: Water
Analysis Batch: 296079

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
Silver	ND		50.0	43.4		ug/L		87	80 - 120	4	20
Cadmium	ND		100	96.0		ug/L		96	80 - 120	3	20
Copper	13		100	105		ug/L		93	80 - 120	0	20
Lead	0.13	J,DX	100	95.3		ug/L		95	80 - 120	5	20
Antimony	19		100	112		ug/L		92	80 - 120	4	20
Selenium	ND		100	90.6		ug/L		91	80 - 120	0	20
Thallium	0.14	J,DX	100	93.5		ug/L		93	80 - 120	2	20
Nickel	0.45	J,DX	100	95.0		ug/L		95	80 - 120	1	20
Zinc	170		100	263		ug/L		88	80 - 120	1	20

Lab Sample ID: 570-123707-A-1-E MS
Matrix: Water
Analysis Batch: 296079

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		50.0	41.8		ug/L		84	80 - 120
Cadmium	ND		100	93.1		ug/L		93	80 - 120
Copper	13		100	105		ug/L		92	80 - 120
Lead	0.13	J,DX	100	90.9		ug/L		91	80 - 120
Antimony	19		100	108		ug/L		88	80 - 120
Selenium	ND		100	91.0		ug/L		91	80 - 120
Thallium	0.14	J,DX	100	91.5		ug/L		91	80 - 120
Nickel	0.45	J,DX	100	94.2		ug/L		94	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

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

Lab Sample ID: 570-123707-A-1-E MS
Matrix: Water
Analysis Batch: 296079

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	170		100	266		ug/L		91	80 - 120

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-295795/1-A
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295795

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/13/23 16:10	01/16/23 18:50	1

Lab Sample ID: LCS 570-295795/2-A
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295795

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.51		ug/L		106	85 - 115

Lab Sample ID: LCSD 570-295795/3-A
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295795

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.65		ug/L		108	85 - 115	2	10

Lab Sample ID: 570-123545-A-2-C MS
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 295795

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.68		ug/L		108	85 - 115

Lab Sample ID: 570-123545-A-2-D MSD
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 295795

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.57		ug/L		107	85 - 115	1	10

Lab Sample ID: MB 570-295846/1-B
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 295898

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/13/23 18:30	01/16/23 19:52	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-295846/2-B
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 295898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.40		ug/L		105	85 - 115

Lab Sample ID: LCSD 570-295846/3-B
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 295898

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.29		ug/L		104	85 - 115	1	10

Lab Sample ID: 570-123462-B-15-E MS
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 295898

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.85		ug/L		111	85 - 115

Lab Sample ID: 570-123462-B-15-F MSD
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 295898

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.33		ug/L		104	85 - 115	6	10

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-298176/5-A
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298176

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		01/24/23 10:30	01/24/23 12:05	1

Lab Sample ID: LCS 570-298176/6-A
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298176

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.515		mg/L		103	90 - 110

Lab Sample ID: LCSD 570-298176/7-A
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298176

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.521		mg/L		104	90 - 110	1	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 380-33711-B-1-B MS
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 298176

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	ND		0.500	0.535		mg/L		107	90 - 110

Lab Sample ID: 380-33711-B-1-C MSD
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 298176

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	ND		0.500	0.538		mg/L		108	90 - 110	1	25

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

Lab Sample ID: MB 570-296127/11
Matrix: Water
Analysis Batch: 296127

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			01/13/23 14:05	1

Lab Sample ID: LCS 570-296127/12
Matrix: Water
Analysis Batch: 296127

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 570-296127/13
Matrix: Water
Analysis Batch: 296127

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	255		ug/L		102	90 - 110	0	20

Lab Sample ID: MRL 570-296127/10
Matrix: Water
Analysis Batch: 296127

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	4.46	J,DX	ug/L		89	50 - 150

Lab Sample ID: 570-123567-H-4 MS
Matrix: Water
Analysis Batch: 296127

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	235		ug/L		94	70 - 130

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

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

Lab Sample ID: 570-123567-H-4 MSD
Matrix: Water
Analysis Batch: 296127

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	3	30

Lab Sample ID: 570-123567-H-4 DU
Matrix: Water
Analysis Batch: 296127

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	ND		ND		ug/L		NC	

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

Lab Sample ID: MB 570-296831/1
Matrix: Water
Analysis Batch: 296831

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 14:47	1

Lab Sample ID: LCS 570-296831/2
Matrix: Water
Analysis Batch: 296831

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 570-296831/3
Matrix: Water
Analysis Batch: 296831

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	1060		mg/L		106	84 - 108	2	10

Lab Sample ID: 570-124106-K-3 DU
Matrix: Water
Analysis Batch: 296831

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	1300		1320		mg/L		0.2	10

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

Lab Sample ID: MB 570-296269/1
Matrix: Water
Analysis Batch: 296269

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			01/16/23 19:52	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

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

Lab Sample ID: LCS 570-296269/2
Matrix: Water
Analysis Batch: 296269

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

Lab Sample ID: LCSD 570-296269/3
Matrix: Water
Analysis Batch: 296269

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	107		mg/L		107	77 - 116	2	10

Lab Sample ID: 570-123650-I-1 DU
Matrix: Water
Analysis Batch: 296269

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	7.4		7.20		mg/L		3	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

HPLC/IC

Analysis Batch: 295296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	300.0	
MB 570-295296/5	Method Blank	Total/NA	Water	300.0	
LCS 570-295296/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-295296/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123650-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-123650-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 295297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	300.0	
MB 570-295297/5	Method Blank	Total/NA	Water	300.0	
LCS 570-295297/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-295297/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123650-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-123650-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 298087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	314.0	
MB 570-298087/7	Method Blank	Total/NA	Water	314.0	
LCS 570-298087/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-298087/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-124978-A-3 MS	Matrix Spike	Total/NA	Water	314.0	
570-124978-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Analysis Batch: 298163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 295715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-2	Outfall008_20230111_Comp_F	Dissolved	Water	Filtration	
MB 570-295715/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-295715/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-295715/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-123707-A-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	
570-123707-A-1-E MS	Matrix Spike	Dissolved	Water	Filtration	

Prep Batch: 295795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	245.1	
MB 570-295795/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-295795/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-295795/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-123545-A-2-C MS	Matrix Spike	Total/NA	Water	245.1	
570-123545-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Metals

Filtration Batch: 295846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-2	Outfall008_20230111_Comp_F	Dissolved	Water	Filtration	
MB 570-295846/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-295846/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-295846/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-123462-B-15-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-123462-B-15-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Prep Batch: 295898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-2	Outfall008_20230111_Comp_F	Dissolved	Water	245.1	295846
MB 570-295846/1-B	Method Blank	Dissolved	Water	245.1	295846
LCS 570-295846/2-B	Lab Control Sample	Dissolved	Water	245.1	295846
LCSD 570-295846/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	295846
570-123462-B-15-E MS	Matrix Spike	Dissolved	Water	245.1	295846
570-123462-B-15-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	295846

Prep Batch: 295993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total Recoverable	Water	200.8	
MB 570-295993/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-295993/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-295993/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-123670-1 MS	Outfall008_20230111_Comp	Total Recoverable	Water	200.8	
570-123670-1 MSD	Outfall008_20230111_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 296079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-2	Outfall008_20230111_Comp_F	Dissolved	Water	200.8	295715
MB 570-295715/1-A	Method Blank	Dissolved	Water	200.8	295715
LCS 570-295715/2-A	Lab Control Sample	Dissolved	Water	200.8	295715
LCSD 570-295715/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	295715
570-123707-A-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	295715
570-123707-A-1-E MS	Matrix Spike	Dissolved	Water	200.8	295715

Analysis Batch: 296199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total Recoverable	Water	200.8	295993
MB 570-295993/1-A	Method Blank	Total Recoverable	Water	200.8	295993
LCS 570-295993/2-A	Lab Control Sample	Total Recoverable	Water	200.8	295993
LCSD 570-295993/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	295993
570-123670-1 MS	Outfall008_20230111_Comp	Total Recoverable	Water	200.8	295993
570-123670-1 MSD	Outfall008_20230111_Comp	Total Recoverable	Water	200.8	295993

Analysis Batch: 296261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	245.1	295795
570-123670-2	Outfall008_20230111_Comp_F	Dissolved	Water	245.1	295898
MB 570-295795/1-A	Method Blank	Total/NA	Water	245.1	295795
MB 570-295846/1-B	Method Blank	Dissolved	Water	245.1	295898
LCS 570-295795/2-A	Lab Control Sample	Total/NA	Water	245.1	295795
LCS 570-295846/2-B	Lab Control Sample	Dissolved	Water	245.1	295898

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Metals (Continued)

Analysis Batch: 296261 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-295795/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	295795
LCSD 570-295846/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	295898
570-123462-B-15-E MS	Matrix Spike	Dissolved	Water	245.1	295898
570-123462-B-15-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	295898
570-123545-A-2-C MS	Matrix Spike	Total/NA	Water	245.1	295795
570-123545-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	295795

General Chemistry

Analysis Batch: 296127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	Kelada 01	
MB 570-296127/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-296127/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-296127/13	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-296127/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-123567-H-4 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-123567-H-4 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	
570-123567-H-4 DU	Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 296269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	SM 2540D	
MB 570-296269/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-296269/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-296269/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-123650-I-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 296831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	SM 2540C	
MB 570-296831/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-296831/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-296831/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-124106-K-3 DU	Duplicate	Total/NA	Water	SM 2540C	

Prep Batch: 298176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-298176/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-298176/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-298176/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
380-33711-B-1-B MS	Matrix Spike	Total/NA	Water	Distill/Ammonia	
380-33711-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 298207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	350.1	298176
MB 570-298176/5-A	Method Blank	Total/NA	Water	350.1	298176
LCS 570-298176/6-A	Lab Control Sample	Total/NA	Water	350.1	298176
LCSD 570-298176/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	298176

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

General Chemistry (Continued)

Analysis Batch: 298207 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-33711-B-1-B MS	Matrix Spike	Total/NA	Water	350.1	298176
380-33711-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	298176

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Client Sample ID: Outfall008_20230111_Comp

Lab Sample ID: 570-123670-1

Date Collected: 01/11/23 10:35

Matrix: Water

Date Received: 01/11/23 19:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	4 mL	4 mL	295296	01/12/23 09:24	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	300.0		1	4 mL	4 mL	295297	01/12/23 09:24	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	314.0		1	4 mL	4 mL	298087	01/24/23 21:03	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	295993	01/16/23 07:29	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			296199	01/16/23 11:57	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
Total/NA	Prep	245.1			25 mL	50 mL	295795	01/13/23 16:10	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			296261	01/16/23 19:42	C0YH	EET CAL 4
	Instrument ID: HG8									
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	298176	01/24/23 10:30	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	298207	01/24/23 12:23	UXCH	EET CAL 4
	Instrument ID: ACA2									
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	296127	01/13/23 16:32	GG0B	EET CAL 4
	Instrument ID: LCHAT01									
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	296831	01/18/23 14:47	ZL7L	EET CAL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	296269	01/16/23 19:52	BDH9	EET CAL 4
	Instrument ID: NOEQUIP									

Client Sample ID: Outfall008_20230111_Comp_F

Lab Sample ID: 570-123670-2

Date Collected: 01/11/23 10:35

Matrix: Water

Date Received: 01/11/23 19:10

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	295715	01/13/23 11:57	W1BQ	EET CAL 4
Dissolved	Analysis	200.8		1			296079	01/16/23 10:11	Y2WS	EET CAL 4
	Instrument ID: ICPMS09									
Dissolved	Filtration	Filtration			25 mL	25 mL	295846	01/13/23 18:17	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	295898	01/13/23 18:30	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			296261	01/16/23 20:13	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 - Outfall 008 - COMP

Job ID: 570-123670-1

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Method	Method Description	Protocol	Laboratory
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	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

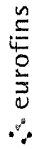
Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123670-1	Outfall008_20230111_Comp	Water	01/11/23 10:35	01/11/23 19:10
570-123670-2	Outfall008_20230111_Comp_F	Water	01/11/23 10:35	01/11/23 19:10

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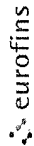
Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel Virendra	Lab PM: Patel Virendra	Carrier Tracking No(s): 570-2039937 1	COC No: 570-2039937 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: TestAmerica Laboratories Inc.		Accreditations Required (See note): State P Program - California		Job #: 570-123670-4	Job #: 570-123670-4
Address: 13715 Rider Trail North, Earth City, MO 63045		Due Date Requested: 2/13/2023		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:	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		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)	
Email:		PO #:		Total Number of containers: 2	
Project #: 44024446		WO #:		Special Instructions/Note: Boeing SSFL, DO NOT FILTER use prep date from preservation	
Site: Boeing NPDES SSFL - Outfall 008 Comp		Project SOW#:			
Sample Identification - Client ID (Lab ID)		Field Filtered Sample (Yes or No)			
Outfall008_20230111_Comp (570-123670-1)	Sample Date: 1/11/23	Sample Time: 10:35 Pacific	Perform MS/MSD (Yes or No):	901_1_Cs/113_Geo_D_K-40 and Csium-137	X
			Sample Type (C=Comp, G=grab)	A01R_U/ExChrom_Actin Total Uranium	X
			Sample Preservation Code:	900_0/Evaporation Gross Alpha/Beta	X
			Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=air)	903_0/PreSep_21 Radium-226	X
				904_0/PreSep_0 Radium-228	X
				905_5r90/PreSep_7 Strontium-90	X
				906_0/LSC_Dist_Susp Tritium	X
Possible Hazard Identification		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Unconfirmed Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank 2		Special Instructions/QC Requirements			
Empty Kit Relinquished by: <i>[Signature]</i>		Date: 1/12/23		Time: 1312	
Relinquished by: <i>[Signature]</i>		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:	



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Lab P.M.:	Carrier Tracking No(s):	COC No: 570-203964 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 #:	570-123670-2
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		Due Date Requested: 1/27/2023	Analysis Requested		
City: West Sacramento		TAT Requested (days):	Preservation Codes		
State, Zip: CA, 95605		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:		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		WO #:	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)		
Email:		Project #:	Total Number of Containers		
Project Name: Boeing NPDES SSFL - Outfall 008 Comp		44024446	2		
Site:		SSOW#:	Special Instructions/Note:		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code:
Outfall008_20230111_Comp (570-123670-1)		1/11/23	10:35 Pacific	Water	Water
Outfall008_20230111_Comp_Extra (570-123670-3)		1/11/23	10:35 Pacific	Water	Water
Perform MS/MSD (Yes or No)		Field Filtered Sample (Yes or No)		Totals	
1613B/1613B_Sox_Sep_P (MOD) Standard List w/		1613B/1613B_Sox_Sep_P (MOD) Standard List w/		1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
X		X		X	
Totals (Hold)		Totals		Totals	
1613B/1613B_Sox_Sep_P (MOD) Standard List w/		1613B/1613B_Sox_Sep_P (MOD) Standard List w/		1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
X		X		X	
<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>					
<p>Possible Hazard Identification Unconfirmed Deliverable Requested I, II, III, IV Other (specify) Primary Deliverable Rank: 2</p>					
Empty Kit Relinquished by:		Date:		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:	

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.



CHAIN OF CUSTODY FORM



570-123670 Chain of Custody

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

Eurofins Calsoence Irvine Contact: Christian Bondoc
 17461 Deiran Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project:
 Boeing-SSL NPDES
 Permit 2023
 Routine Outfall 008
 Outfall 008
 Comp

Project Manager: Katherine Miller
 520.289.8606, 520.904.6944 (cell)
 US
Field Manager: Mark Dominick
 978.234.5033, 818.599.0702 (cell)

Sampler: Adrian Mobeke

Sample Description | **Sample ID** | **Sample Matrix** | **Sampling Date/Time** | **Container Type** | **# of Cont.** | **Preservative** | **Bottle #** | **MS/MSD**

Outfall008_20230111_Comp	Outfall008_20230111_Comp	WM	1/11/2023	500 mL Poly	1	HNO ₃	95	No
Outfall008		WM	1/035	1 L Glass Amber	2	None	110	No
				500 mL Poly	2	None	130	No
Outfall008		WM	1/11/2023	500 mL Poly	1	None	165	No
				500 mL Poly	1	H ₂ SO ₄	160	No
				500 mL Poly	1	None	220	No
				2.5 Gal Cube	1	None	225	No
				1 L Glass Amber	1	None	230	No
				1 Gal Cube	6	None	235	No
				1 L Poly	1	None	185	No
				1 L Poly	1	None	205	No
				borosilicate vials	1	None	320	No
				1 L Glass Amber	1/17/23	None	110	No
500 mL Poly	2	None	130	No				

ANALYSIS REQUIRED

<input checked="" type="checkbox"/>	Total Recoverable Metals: (E1613B) (E200.7): Ag, Cd, Cu, Pb, Sb, Se, Tl
<input checked="" type="checkbox"/>	TCDD (and all congeners) (E1613B) (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl
<input checked="" type="checkbox"/>	Perchlorate (300) Cl ⁻ , SO ₄ , Nitrate-N, Nitrite-N, NO ₃ +NO ₂ -N
<input checked="" type="checkbox"/>	TDS (SM2540C/E160.1)
<input checked="" type="checkbox"/>	Total Dissolved Metals: (E200.7): Ni, Zn
<input checked="" type="checkbox"/>	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E908.0), 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)
<input checked="" type="checkbox"/>	Chronic Toxicity: Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA
<input checked="" type="checkbox"/>	Cyanide (SM4500-CNE/E335.2)
<input checked="" type="checkbox"/>	Total Dissolved Metals: Mercury (E245.1)
<input checked="" type="checkbox"/>	TSS (160.2 (SM2540D))

Field Readings

48 hours Holding Time NO₂ & NO₃

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

Filler and preserve within 24hrs of receipt at lab
 Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.

Hold

Hold

Legend: EP-Expert Panel, R-Routine

Requisitioned By: <i>Michelle Dellelah</i>	Date/Time: 1/11/23 1400	Company: H & A
Requisitioned By: <i>Sam</i>	Date/Time: 1/11/23 1910	Company: EC
Requisitioned By: <i>Sam</i>	Date/Time: 2.3/2.3 1.9/1.9	Company: SC11

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

Sample Integrity (Check)
 In tact: _____ On Ice: _____
 Data Requirements: (Check)
 No Level IV: _____ All Level IV: _____ X



* Hand-delivered to ABC Labs with copy of WOC

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123670-1

Login Number: 123670

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 NPDES SSFL - Outfall 008 - COMP

JOB NUMBER

570-123670-2

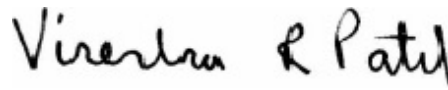
Job Notes

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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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

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 - Outfall 008 - COMP

Job ID: 570-123670-2

Job ID: 570-123670-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123670-2

Comments

No additional comments.

Receipt

The samples were received on 1/11/2023 7:10 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 1.9° C and 2.3° 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 11D2 exceeded this criteria: Outfall008_20230111_Comp (570-123670-1), (CCV 320-651543/2) and (MB 320-649091/1-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 - Outfall 008 - COMP

Job ID: 570-123670-2

Client Sample ID: Outfall008_20230111_Comp

Lab Sample ID: 570-123670-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDD	0.00000041	J,DX q MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				7					
1,2,3,7,8-PeCDF	0.00000032	J,DX q MB	0.000048	0.00000011	ug/L	1		1613B	Total/NA
2,3,4,7,8-PeCDF	0.00000058	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				2					
1,2,3,4,7,8-HxCDD	0.00000025	J,DX MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				0					
1,2,3,6,7,8-HxCDD	0.00000081	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				9					
1,2,3,7,8,9-HxCDD	0.00000071	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				7					
1,2,3,4,7,8-HxCDF	0.00000080	J,DX q MB	0.000048	0.00000011	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDF	0.00000049	J,DX q MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8,9-HxCDF	0.00000061	J,DX q MB	0.000048	0.00000011	ug/L	1		1613B	Total/NA
2,3,4,6,7,8-HxCDF	0.00000037	J,DX q MB	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				96					
1,2,3,4,6,7,8-HpCDD	0.00000044	J,DX MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				6					
1,2,3,4,6,7,8-HpCDF	0.00000020	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				4					
1,2,3,4,7,8,9-HpCDF	0.00000057	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				5					
OCDD	0.000046	J,DX MB	0.000096	0.0000002	ug/L	1		1613B	Total/NA
				8					
OCDF	0.0000032	J,DX MB	0.000096	0.0000001	ug/L	1		1613B	Total/NA
				5					
Total TCDD	0.0000019	J,DX q MB	0.0000096	0.0000001	ug/L	1		1613B	Total/NA
				9					
Total TCDF	0.00000076	J,DX q MB	0.0000096	0.0000000	ug/L	1		1613B	Total/NA
				77					
Total PeCDD	0.00000085	J,DX q MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				7					
Total PeCDF	0.00000090	J,DX q MB	0.000048	0.00000011	ug/L	1		1613B	Total/NA
Total HxCDD	0.00000056	J,DX q MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				7					
Total HxCDF	0.00000030	J,DX q MB	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				96					
Total HpCDD	0.000010	J,DX MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				6					
Total HpCDF	0.00000035	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				4					

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230111_Comp

Date Collected: 01/11/23 10:35

Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000096	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,7,8-PeCDD	0.00000041	J,DX q MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,7,8-PeCDF	0.00000032	J,DX q MB	0.000048	0.00000011	ug/L		01/25/23 04:38	01/28/23 19:35	1
2,3,4,7,8-PeCDF	0.00000058	J,DX MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,4,7,8-HxCDD	0.00000025	J,DX MB	0.000048	0.0000002	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,6,7,8-HxCDD	0.00000081	J,DX MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,7,8,9-HxCDD	0.00000071	J,DX MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,4,7,8-HxCDF	0.00000080	J,DX q MB	0.000048	0.00000011	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,6,7,8-HxCDF	0.00000049	J,DX q MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,7,8,9-HxCDF	0.00000061	J,DX q MB	0.000048	0.00000011	ug/L		01/25/23 04:38	01/28/23 19:35	1
2,3,4,6,7,8-HxCDF	0.00000037	J,DX q MB	0.000048	0.0000000	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,4,6,7,8-HpCDD	0.00000044	J,DX MB	0.000048	0.0000002	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,4,6,7,8-HpCDF	0.00000020	J,DX MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
1,2,3,4,7,8,9-HpCDF	0.00000057	J,DX MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
OCDD	0.000046	J,DX MB	0.000096	0.0000002	ug/L		01/25/23 04:38	01/28/23 19:35	1
OCDF	0.0000032	J,DX MB	0.000096	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
Total TCDD	0.0000019	J,DX q MB	0.0000096	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
Total TCDF	0.00000076	J,DX q MB	0.0000096	0.0000000	ug/L		01/25/23 04:38	01/28/23 19:35	1
Total PeCDD	0.00000085	J,DX q MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
Total PeCDF	0.00000090	J,DX q MB	0.000048	0.00000011	ug/L		01/25/23 04:38	01/28/23 19:35	1
Total HxCDD	0.00000056	J,DX q MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
Total HxCDF	0.00000030	J,DX q MB	0.000048	0.0000000	ug/L		01/25/23 04:38	01/28/23 19:35	1
Total HpCDD	0.000010	J,DX MB	0.000048	0.0000002	ug/L		01/25/23 04:38	01/28/23 19:35	1
Total HpCDF	0.0000035	J,DX MB	0.000048	0.0000001	ug/L		01/25/23 04:38	01/28/23 19:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	82		25 - 164				01/25/23 04:38	01/28/23 19:35	1
13C-2,3,7,8-TCDF	87		24 - 169				01/25/23 04:38	01/28/23 19:35	1
13C-1,2,3,7,8-PeCDD	82		25 - 181				01/25/23 04:38	01/28/23 19:35	1
13C-1,2,3,7,8-PeCDF	87		24 - 185				01/25/23 04:38	01/28/23 19:35	1
13C-2,3,4,7,8-PeCDF	81		21 - 178				01/25/23 04:38	01/28/23 19:35	1
13C-1,2,3,4,7,8-HxCDD	79		32 - 141				01/25/23 04:38	01/28/23 19:35	1
13C-1,2,3,6,7,8-HxCDD	82		28 - 130				01/25/23 04:38	01/28/23 19:35	1
13C-1,2,3,4,7,8-HxCDF	79		26 - 152				01/25/23 04:38	01/28/23 19:35	1
13C-1,2,3,6,7,8-HxCDF	89		26 - 123				01/25/23 04:38	01/28/23 19:35	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230111_Comp
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
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	92		29 - 147	01/25/23 04:38	01/28/23 19:35	1
13C-2,3,4,6,7,8-HxCDF	95		28 - 136	01/25/23 04:38	01/28/23 19:35	1
13C-1,2,3,4,6,7,8-HpCDD	82		23 - 140	01/25/23 04:38	01/28/23 19:35	1
13C-1,2,3,4,6,7,8-HpCDF	80		28 - 143	01/25/23 04:38	01/28/23 19:35	1
13C-1,2,3,4,7,8,9-HpCDF	87		26 - 138	01/25/23 04:38	01/28/23 19:35	1
13C-OCDD	90		17 - 157	01/25/23 04:38	01/28/23 19:35	1
13C-OCDF	91		17 - 157	01/25/23 04:38	01/28/23 19:35	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	92		35 - 197	01/25/23 04:38	01/28/23 19:35	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall008_20230111_Comp
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.0000096	0.0000003	ug/L		01/25/23 04:38	02/03/23 18:59	1
				5					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	80		24 - 169				01/25/23 04:38	02/03/23 18:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	105		35 - 197				01/25/23 04:38	02/03/23 18:59	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

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)
570-123670-1	Outfall008_20230111_Comp	92
570-123670-1 - RA	Outfall008_20230111_Comp	105
MB 320-649091/1-A	Method Blank	95
MB 320-649091/1-A - RA	Method Blank	107

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 320-649091/2-A	Lab Control Sample	92
LCSD 320-649091/3-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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

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)
570-123670-1	Outfall008_20230111_Comp	82	87	82	87	81	79	82	79
570-123670-1 - RA	Outfall008_20230111_Comp		80						
MB 320-649091/1-A	Method Blank	79	84	77	82	83	81	89	84
MB 320-649091/1-A - RA	Method Blank		78						

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)
570-123670-1	Outfall008_20230111_Comp	89	92	95	82	80	87	90	91
570-123670-1 - RA	Outfall008_20230111_Comp								
MB 320-649091/1-A	Method Blank	93	89	93	76	78	81	84	86
MB 320-649091/1-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 320-649091/2-A	Lab Control Sample	76	80	75	80	79	78	81	76
LCSD 320-649091/3-A	Lab Control Sample Dup	81	86	81	85	83	80	85	80

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 320-649091/2-A	Lab Control Sample	86	86	88	75	76	79	85	86
LCSD 320-649091/3-A	Lab Control Sample Dup	90	92	93	81	82	87	91	93

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: 570-123670-2

Project/Site: Boeing NPDES SSFL - Outfall 008 - 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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-649091/1-A
 Matrix: Water
 Analysis Batch: 650047

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 649091

Analyte	MB MB		RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,3,7,8-TCDD	ND		0.000010	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,7,8-PeCDD	0.00000800	J,DX	0.000050	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,7,8-PeCDF	0.00000544	J,DX q	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
2,3,4,7,8-PeCDF	0.00000644	J,DX	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,4,7,8-HxCDD	0.00000283	J,DX	0.000050	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,6,7,8-HxCDD	0.00000633	J,DX q	0.000050	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,7,8,9-HxCDD	0.00000719	J,DX q	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,4,7,8-HxCDF	0.00000820	J,DX	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,6,7,8-HxCDF	0.00000777	J,DX q	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,7,8,9-HxCDF	0.00000120	J,DX	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
2,3,4,6,7,8-HxCDF	0.00000608	J,DX	0.000050	0.00000011	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,4,6,7,8-HpCDD	0.00000229	J,DX	0.000050	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,4,6,7,8-HpCDF	0.00000121	J,DX q	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
1,2,3,4,7,8,9-HpCDF	0.00000899	J,DX	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
OCDD	0.0000158	J,DX q	0.00010	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
OCDF	0.00000284	J,DX	0.00010	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
Total TCDD	0.00000396	J,DX q	0.000010	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
Total TCDF	0.00000659	J,DX q	0.000010	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
Total PeCDD	0.00000800	J,DX	0.000050	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
Total PeCDF	0.00000119	J,DX q	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
Total HxCDD	0.00000418	J,DX q	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
Total HxCDF	0.00000341	J,DX q	0.000050	0.00000011	ug/L		01/25/23 04:38	01/28/23 15:42	1
Total HpCDD	0.00000499	J,DX q	0.000050	0.0000002	ug/L		01/25/23 04:38	01/28/23 15:42	1
Total HpCDF	0.00000235	J,DX q	0.000050	0.0000001	ug/L		01/25/23 04:38	01/28/23 15:42	1
		MB MB					Prepared	Analyzed	Dil Fac
Isotope Dilution	%Recovery	Qualifier	Limits						
13C-2,3,7,8-TCDD	79		25 - 164				01/25/23 04:38	01/28/23 15:42	1
13C-2,3,7,8-TCDF	84		24 - 169				01/25/23 04:38	01/28/23 15:42	1
13C-1,2,3,7,8-PeCDD	77		25 - 181				01/25/23 04:38	01/28/23 15:42	1
13C-1,2,3,7,8-PeCDF	82		24 - 185				01/25/23 04:38	01/28/23 15:42	1
13C-2,3,4,7,8-PeCDF	83		21 - 178				01/25/23 04:38	01/28/23 15:42	1
13C-1,2,3,4,7,8-HxCDD	81		32 - 141				01/25/23 04:38	01/28/23 15:42	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-649091/1-A
Matrix: Water
Analysis Batch: 650047

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 649091

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,6,7,8-HxCDD	89		28 - 130	01/25/23 04:38	01/28/23 15:42	1
13C-1,2,3,4,7,8-HxCDF	84		26 - 152	01/25/23 04:38	01/28/23 15:42	1
13C-1,2,3,6,7,8-HxCDF	93		26 - 123	01/25/23 04:38	01/28/23 15:42	1
13C-1,2,3,7,8,9-HxCDF	89		29 - 147	01/25/23 04:38	01/28/23 15:42	1
13C-2,3,4,6,7,8-HxCDF	93		28 - 136	01/25/23 04:38	01/28/23 15:42	1
13C-1,2,3,4,6,7,8-HpCDD	76		23 - 140	01/25/23 04:38	01/28/23 15:42	1
13C-1,2,3,4,6,7,8-HpCDF	78		28 - 143	01/25/23 04:38	01/28/23 15:42	1
13C-1,2,3,4,7,8,9-HpCDF	81		26 - 138	01/25/23 04:38	01/28/23 15:42	1
13C-OCDD	84		17 - 157	01/25/23 04:38	01/28/23 15:42	1
13C-OCDF	86		17 - 157	01/25/23 04:38	01/28/23 15:42	1
Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	95		35 - 197	01/25/23 04:38	01/28/23 15:42	1

Lab Sample ID: LCS 320-649091/2-A
Matrix: Water
Analysis Batch: 650047

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 649091

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000205		ug/L		103	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000967		ug/L		97	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	0.000993		ug/L		99	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000925		ug/L		93	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000965		ug/L		97	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000925		ug/L		92	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000974		ug/L		97	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000945		ug/L		95	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000954		ug/L		95	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000959		ug/L		96	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000949		ug/L		95	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000968		ug/L		97	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000955		ug/L		95	78 - 138
OCDD	0.00200	0.00189		ug/L		94	78 - 144
OCDF	0.00200	0.00197		ug/L		99	63 - 170
Isotope Dilution	LCS LCS		Limits				
13C-2,3,7,8-TCDD	76		20 - 175				
13C-2,3,7,8-TCDF	80		22 - 152				
13C-1,2,3,7,8-PeCDD	75		21 - 227				
13C-1,2,3,7,8-PeCDF	80		21 - 192				
13C-2,3,4,7,8-PeCDF	79		13 - 328				
13C-1,2,3,4,7,8-HxCDD	78		21 - 193				
13C-1,2,3,6,7,8-HxCDD	81		25 - 163				
13C-1,2,3,4,7,8-HxCDF	76		19 - 202				
13C-1,2,3,6,7,8-HxCDF	86		21 - 159				
13C-1,2,3,7,8,9-HxCDF	86		17 - 205				

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-649091/2-A
Matrix: Water
Analysis Batch: 650047

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 649091

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,4,6,7,8-HxCDF	88		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	75		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	76		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	79		20 - 186
13C-OCDD	85		13 - 199
13C-OCDF	86		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	92		31 - 191

Lab Sample ID: LCSD 320-649091/3-A
Matrix: Water
Analysis Batch: 650047

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 649091

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000207		ug/L		103	67 - 158	2	50	
2,3,7,8-TCDF	0.000200	0.000210		ug/L		105	75 - 158	2	50	
1,2,3,7,8-PeCDD	0.00100	0.000981		ug/L		98	70 - 142	1	50	
1,2,3,7,8-PeCDF	0.00100	0.00100		ug/L		100	80 - 134	4	50	
2,3,4,7,8-PeCDF	0.00100	0.00101		ug/L		101	68 - 160	1	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000956		ug/L		96	70 - 164	3	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00100		ug/L		100	76 - 134	4	50	
1,2,3,7,8,9-HxCDD	0.00100	0.000997		ug/L		100	64 - 162	8	50	
1,2,3,4,7,8-HxCDF	0.00100	0.000994		ug/L		99	72 - 134	2	50	
1,2,3,6,7,8-HxCDF	0.00100	0.000990		ug/L		99	84 - 130	5	50	
1,2,3,7,8,9-HxCDF	0.00100	0.000975		ug/L		97	78 - 130	2	50	
2,3,4,6,7,8-HxCDF	0.00100	0.000996		ug/L		100	70 - 156	4	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000985		ug/L		99	70 - 140	4	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00100		ug/L		100	82 - 122	4	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.000984		ug/L		98	78 - 138	3	50	
OCDD	0.00200	0.00219		ug/L		109	78 - 144	15	50	
OCDF	0.00200	0.00206		ug/L		103	63 - 170	4	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	81		20 - 175
13C-2,3,7,8-TCDF	86		22 - 152
13C-1,2,3,7,8-PeCDD	81		21 - 227
13C-1,2,3,7,8-PeCDF	85		21 - 192
13C-2,3,4,7,8-PeCDF	83		13 - 328
13C-1,2,3,4,7,8-HxCDD	80		21 - 193
13C-1,2,3,6,7,8-HxCDD	85		25 - 163
13C-1,2,3,4,7,8-HxCDF	80		19 - 202
13C-1,2,3,6,7,8-HxCDF	90		21 - 159
13C-1,2,3,7,8,9-HxCDF	92		17 - 205
13C-2,3,4,6,7,8-HxCDF	93		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	81		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	82		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	87		20 - 186

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-649091/3-A
Matrix: Water
Analysis Batch: 650047

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 649091

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-OCDD	91		13 - 199
13C-OCDF	93		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 320-649091/1-A
Matrix: Water
Analysis Batch: 651543

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 649091

<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	0.0000003	ug/L		01/25/23 04:38	02/03/23 17:08	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	78		24 - 169	01/25/23 04:38	02/03/23 17:08	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	107		35 - 197	01/25/23 04:38	02/03/23 17:08	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Specialty Organics

Prep Batch: 649091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1 - RA	Outfall008_20230111_Comp	Total/NA	Water	1613B	
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	1613B	
MB 320-649091/1-A - RA	Method Blank	Total/NA	Water	1613B	
MB 320-649091/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-649091/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-649091/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 650047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	1613B	649091
MB 320-649091/1-A	Method Blank	Total/NA	Water	1613B	649091
LCS 320-649091/2-A	Lab Control Sample	Total/NA	Water	1613B	649091
LCSD 320-649091/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	649091

Analysis Batch: 651543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1 - RA	Outfall008_20230111_Comp	Total/NA	Water	1613B	649091
MB 320-649091/1-A - RA	Method Blank	Total/NA	Water	1613B	649091

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Client Sample ID: Outfall008_20230111_Comp

Lab Sample ID: 570-123670-1

Date Collected: 01/11/23 10:35

Matrix: Water

Date Received: 01/11/23 19:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B	RA		1042.6 mL	20.0 uL	649091	01/25/23 04:38	FC	EET SAC
Total/NA	Analysis	1613B	RA	1	1 uL	1 uL	651543	02/03/23 18:59	GRB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1042.6 mL	20.0 uL	649091	01/25/23 04:38	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	650047	01/28/23 19:35	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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

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

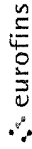
Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123670-1	Outfall008_20230111_Comp	Water	01/11/23 10:35	01/11/23 19:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel Virendra	Lab PM: Patel Virendra	Carrier Tracking No(s): 570-203987 1	COC No: 570-203987 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: TestAmerica Laboratories Inc.		Accreditations Required (See note): State P Program - California		Job #: 570-123670-4	Job #: 570-123670-4
Address: 13715 Rider Trail North, Earth City, MO 63045		Due Date Requested: 2/13/2023		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:	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		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)	
Email:		PO #:		Total Number of containers: 2	
Project #: 44024446		WO #:		Special Instructions/Note: Boeing SSFL, DO NOT FILTER use prep date from preservation	
Site: Boeing NPDES SSFL - Outfall 008 Comp		Project SOW#:			
Sample Identification - Client ID (Lab ID)		Sample Date: 1/11/23			
Outfall008_20230111_Comp (570-123670-1)		Sample Time: 10:35 Pacific			
Sample Type (C=Comp, G=grab)		Sample Time			
Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=air)		Sample Time			
Preservation Code: Water		Sample Time			
Field Filtered Sample (Yes or No)		Sample Time			
Perform MS/MSD (Yes or No)		Sample Time			
901_1_Cs/113_Geo_D_K-40 and Csium-137		Sample Time			
A01R_U/ExChrom_Actin Total Uranium		Sample Time			
900_0/Evaporation Gross Alpha/Beta		Sample Time			
903_0/PreSep_21 Radium-226		Sample Time			
904_0/PreSep_0 Radium-228		Sample Time			
905_5r90/PreSep_7 Strontium-90		Sample Time			
906_0/LSC_Dist_Susp Tritium		Sample Time			
Possible Hazard Identification		Date: 1/12/23			
Unconfirmed		Time: 1312			
Deliverable Requested I, II, III, IV, Other (specify)		Date/Time: 1/12/23 1312			
Primary Deliverable Rank: 2		Date/Time:			
Empty Kit Relinquished by:		Date/Time:			
Relinquished by:		Date/Time:			
Relinquished by:		Date/Time:			
Relinquished by:		Date/Time:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No			
Cooler Temperature(s) °C and Other Remarks:		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

eurofins



Client Information (Sub Contract Lab)		Sampler	Lab P.M.	Carrier Tracking No(s):		COC No	
Client Contact: Shipping/Receiving		Patel Virendra	Patel Virendra	570-203964 1		570-203964 1	
Company: Eurofins Environment Testing Northern Ca		Phone:	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California		Page 1 of 1	
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		Accreditations Required (See note): State Program - California		Job #:		570-123670-2	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		Due Date Requested: 1/27/2023		TAT Requested (days)		Preservation Codes: M - Hexane N - None O - As/NaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Email:		PO #:		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 Name: Boeing NPDES SSFL - Outfall 008 Comp		Project #: 44024446		Project SOW#:		M - Hexane N - None O - As/NaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Site:		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
Outfall008_20230111_Comp (570-123670-1)		1/11/23		10:35 Pacific		Water	
Outfall008_20230111_Comp_Extra (570-123670-3)		1/11/23		10:35 Pacific		Water	
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		1613B/1613B_Sox_Sep_P (MOD) Standard List w/ Totals		1613B/1613B_Sox_Sep_P (MOD) Standard List w/ Totals (Hold)	
X		X		X		X	
Total Number of Containers		Special Instructions/Note:					
2		See OAS Boeing w/lu to zero ug/L, Use Boeing glassware					
1		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/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)

Empty Kit Relinquished by	Date	Method of Shipment
Relinquished by	Date/Time: 1/12/23 14:19	Company
Relinquished by	Date/Time:	Company
Relinquished by	Date/Time:	Company

Cooler Temperature(s) °C and Other Remarks:



CHAIN OF CUSTODY FORM



570-123670 Chain of Custody

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	M/MS/SD	Field Readings	Comments
Outfall008_20230111_Comp		1/11/2023	WM	500 mL Poly	1	HNO ₃	95	No		
			WM	1 L Glass Amber	2	None	110	No		
			WM	500 mL Poly	2	None	130	No		48 hours Holding Time NO ₂ & NO ₃
			WM	500 mL Poly	1	None	155	No		
			WM	500 mL Poly	1	H ₂ SO ₄	160	No		
			WM	500 mL Poly	1	NaOH	220	No		
			WM	2.5 Gal Cube	1	None	225	No		
			WM	1 L Glass Amber	1	None	230	No		
			WM	1 Gal Cube	6	None	235	No		
			WM	1 L Poly	1	None	185	No		
			WM	1 L Poly	1	None	205	No		
			WM	borosilicate vials	1	None	320	No		
			WM	1 L Glass Amber	1	None	110	No		
			WM	500 mL Poly	2	None	130	No		
Outfall008_20230111_Comp_F		1/11/2023	WM	1 L Poly	1	None	185	No		
Outfall008_20230111_Comp_Extra		1/11/2023	WM	500 mL Poly	2	None	130	No		

Legend: EP-Expert Panel, R-Routine	
Received By: <i>[Signature]</i>	Date/Time: 1/11/23 1400 EC
Received By: <i>[Signature]</i>	Date/Time: 1/11/23 1910 EC
Received By: <i>[Signature]</i>	Date/Time: 1/11/23 1910 EC

Client Name/Address: Haley & Aldrich, 5333 Mission Center Rd Suite 300, San Diego, CA 92108
 Project: Boeing-SSFL NPDES Permit 2023, Routine Outfall 008, Outfall 008 Comp
 Project Manager: Katherine Miller (520.289.8606, 520.904.6944), Field Manager: Mark Dominick (978.234.5033, 818.599.0702)

Analyses Required: TSS (160.2 (SM2540D)), Total Dissolved Metals: Mercury (E245.1), Total Recoverable Metals: Mercury (E245.1), Cyanide (SM4500-CNE/E335.2), Ammonia-N (350.2), Chronic Toxicity: Selenium (EPA-821-R-02-019), ABC Labs in Ventura, CA, CS-137 (E901.0 or E901.1), Combined Radium 226 (E903.0 or E903.1) & Tritium (H-3) (E908.0), Sr-90 (E905.0), Total Gross Alpha (E900.0), Gross Beta (E900.0), (E200.7) Ni, Zn, (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl, Total Dissolved Metals: (E200.7) Ni, Zn, (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl, TDS (SM2540C/E160.1), Perchlorate (300), Cl⁻, SO₄, Nitrate-N, Nitrite-N, NO₃+NO₂-N, TCDD (and all congeners) (E1613B), Total Recoverable Metals: (E200.7) Ni, Zn, (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl

Field Readings: TSS (160.2 (SM2540D)), Total Dissolved Metals: Mercury (E245.1), Total Recoverable Metals: Mercury (E245.1), Cyanide (SM4500-CNE/E335.2), Ammonia-N (350.2), Chronic Toxicity: Selenium (EPA-821-R-02-019), ABC Labs in Ventura, CA, CS-137 (E901.0 or E901.1), Combined Radium 226 (E903.0 or E903.1) & Tritium (H-3) (E908.0), Sr-90 (E905.0), Total Gross Alpha (E900.0), Gross Beta (E900.0), (E200.7) Ni, Zn, (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl, Total Dissolved Metals: (E200.7) Ni, Zn, (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl, TDS (SM2540C/E160.1), Perchlorate (300), Cl⁻, SO₄, Nitrate-N, Nitrite-N, NO₃+NO₂-N, TCDD (and all congeners) (E1613B), Total Recoverable Metals: (E200.7) Ni, Zn, (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl

Comments: Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not M/MS/SD. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA. Filler and preserve within 24hrs of receipt at lab. 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, 5 Day, Normal. Sample Integrity: (Check) In tact, On Ice. Data Requirements: (Check) No Level IV, All Level IV, X.

* Hand-delivered to ABC Labs with copy of WOC 2.3/2.3 1.9/1.9 SC11



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:	Carrier Tracking No(s):	COC No:
Client Contact: Virendra Patel, Virendra Patel, Virendra Patel		Phone:	E-Mail: Virendra Patel@et.eurofins.com	State of Origin: California	570-203964.1
Shipping/Receiving:		Accreditations Required (See note): State Program - California		Page: Page 1 of 1	
Company: Eurofins Environment Testing Northern Ca		Due Date Requested: 1/27/2023		Job #: 570-123670-2	
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		TAT Requested (days):		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 - Na2SO3 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:	
PO #: 916-373-5600(Tel) 916-372-1059(Fax)	WO #: 44024446	Project #: 44024446	Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=All)	Analysis Requested	
Email:	Site: Boeing NPDES SSFL - Outfall 008 Comp	SSOW#:	Sample Type (C=Comp, G=grab)	Total Number of Containers	
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Field Filtered Sample (Yes or No)	1613B/1613B_Box_Sep_P (MOD) Standard List w/
Outfall008_20230111_Comp (570-123670-1)	1/11/23	10:35 Pacific	Water	X	Totals
Outfall008_20230111_Comp_Extra (570-123670-3)	1/11/23	10:35 Pacific	Water	X	1613B/1613B_Box_Sep_P (MOD) Standard List w/
Special Instructions/Note:		Preservation Code:		Total Number of Containers	
See OAS, Boeing_wiu to zero, ug/L, Use Boeing glassware.		Water		2	
See OAS, Boeing_wiu to zero, ug/L, Use Boeing glassware.		Water		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/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: 1/12/23 14:19 Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custom Seals Intact: Yes No Custody Seal No.: 3.0C
 Cooler Temperature(s) °C and Other Remarks:



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123670-2

Login Number: 123670

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: 570-123670-2

Login Number: 123670

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 01/13/23 02:43 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 4.4c
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 2/3/2023 11:43:08 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 008 - COMP

JOB NUMBER

570-123670-3

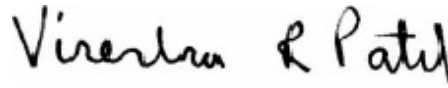
Job Notes

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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 - Outfall 008 - COMP

Job ID: 570-123670-3

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 008 - COMP

Job ID: 570-123670-3

Job ID: 570-123670-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123670-3

Comments

No additional comments.

Receipt

The samples were received on 1/11/2023 7:10 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 1.9° C and 2.3° 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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-3

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123670-1	Outfall008_20230111_Comp	Water	01/11/23 10:35	01/11/23 19:10

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.: Outfall008_20230111_Comp
DATE RECEIVED: 11 Jan - 2023
ABC LAB. NO.: CSE0123.067

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00 %

TST RESULT

GROWTH = PASS % EFFECT = -45.09 %

Yours very truly,


Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 20 Jan-23 16:10 (p 1 of 1)
 Test Code/ID: CSE0123.067 / 09-7499-5235

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 21-1660-1084	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:16	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 11:40	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 15-8865-6048	Code: CSE0123.067	Project: Boeing-SSFL NPDES
Sample Date: 12 Jan-23 13:16	Material: Sample Water	Source: Bioassay Report
Receipt Date: 16 Jan-23 11:40	CAS (PC):	Station: Outfall008_20230111_Comp
Sample Age: --- (6 °C)	Client: Eurofins Calscience	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
01-2968-9071	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			
01-2968-9071	Cell Density	Control CV	0.06034	<<	0.2	Yes	Passes Criteria	
01-2968-9071	Cell Density	Control Resp	1.14E+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	1.136E+6	1.079E+6	1.194E+6	1.033E+6	1.214E+6	2.424E+4	6.857E+4	6.03%	0.00%
100		8	1.649E+6	1.516E+6	1.782E+6	1.438E+6	1.812E+6	5.625E+4	1.591E+5	9.65%	-45.09%

Cell Density Detail

MD5: 9CB35BC6F53620BF9CE54B862A372A4B

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.195E+6	1.033E+6	1.044E+6	1.105E+6	1.214E+6	1.158E+6	1.159E+6	1.184E+6
100		1.448E+6	1.749E+6	1.438E+6	1.555E+6	1.786E+6	1.808E+6	1.596E+6	1.812E+6

CETIS Analytical Report

Report Date: 20 Jan-23 16:09 (p 1 of 2)
 Test Code/ID: CSE0123.067 / 09-7499-5235

Selenastrum Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 01-2968-9071	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 16:08	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Jan-23 16:05	MD5 Hash: 9CB35BC6F53620BF9CE54B862A372A4B	Editor ID: 009-702-627-3
Batch ID: 21-1660-1084	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:16	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 11:40	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 15-8865-6048	Code: CSE0123.067	Project: Boeing-SSFL NPDES
Sample Date: 12 Jan-23 13:16	Material: Sample Water	Source: Bioassay Report
Receipt Date: 16 Jan-23 11:40	CAS (PC):	Station: Outfall008_20230111_Comp
Sample Age: --- (6 °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*	8	13.48	0.7064	CDF	<1.0E-05	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control CV	0.06034	<<	0.2	Yes	Passes Criteria
Control Resp	1.14E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.051E+12	1.051E+12	1	70.01	<1.0E-05	Significant Effect
Error	2.101E+11	1.501E+10	14			
Total	1.261E+12		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	13.75	8.862	0.0023	Unequal Variances
	Mod Levene Equality of Variance Test	10.66	8.862	0.0057	Unequal Variances
	Variance Ratio F Test	5.383	8.885	0.0410	Equal Variances
Distribution	Anderson-Darling A2 Test	0.3049	3.878	0.5977	Normal Distribution
	D'Agostino Skewness Test	0.6599	2.576	0.5093	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1346	0.2471	0.6627	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9482	0.8408	0.4619	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.136E+6	1.079E+6	1.194E+6	1.158E+6	1.033E+6	1.214E+6	2.424E+4	6.03%	0.00%
100		8	1.649E+6	1.516E+6	1.782E+6	1.672E+6	1.438E+6	1.812E+6	5.625E+4	9.65%	-45.09%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.195E+6	1.033E+6	1.044E+6	1.105E+6	1.214E+6	1.158E+6	1.159E+6	1.184E+6
100		1.448E+6	1.749E+6	1.438E+6	1.555E+6	1.786E+6	1.808E+6	1.596E+6	1.812E+6

CETIS Analytical Report

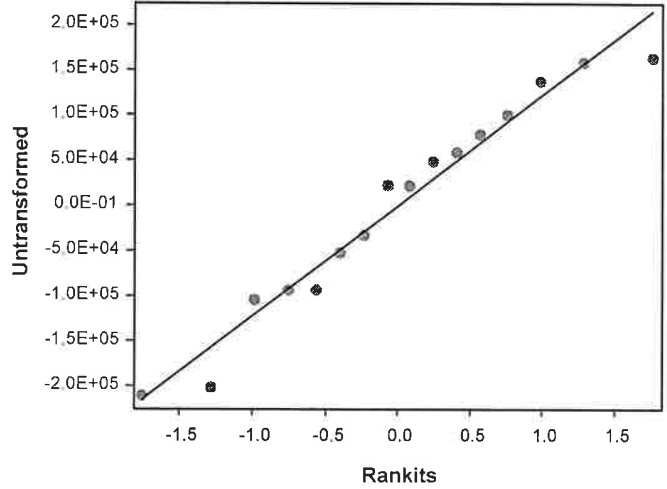
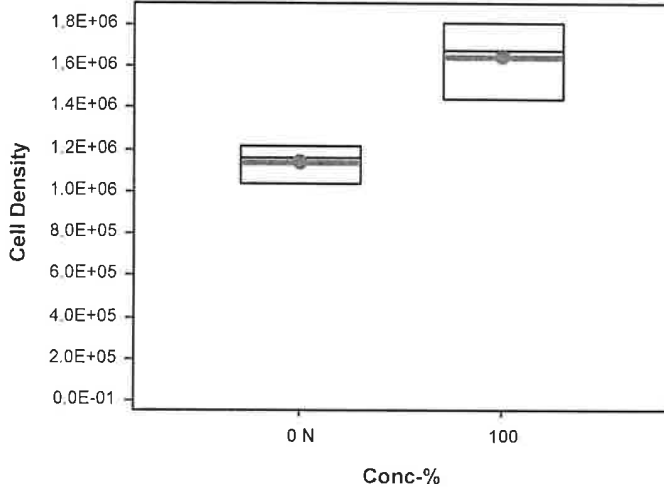
Report Date: 20 Jan-23 16:09 (p 2 of 2)
Test Code/ID: CSE0123.067 / 09-7499-5235

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 01-2968-9071 Endpoint: Cell Density CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 16:08 Analysis: Parametric Bioequivalence-Two Sample Status Level: 1
Edit Date: 20 Jan-23 16:05 MD5 Hash: 9CB35BC6F53620BF9CE54B862A372A4B Editor ID: 009-702-627-3

Graphics



CETIS Measurement Report

Report Date: 20 Jan-23 16:10 (p 1 of 1)
 Test Code/ID: CSE0123.067 / 09-7499-5235

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 21-1660-1084	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:16	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 11:40	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 15-8865-6048	Code: CSE0123.067	Project: Boeing-SSFL NPDES
Sample Date: 12 Jan-23 13:16	Material: Sample Water	Source: Bioassay Report
Receipt Date: 16 Jan-23 11:40	CAS (PC):	Station: Outfall008_20230111_Comp
Sample Age: --- (6 °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	73	---	---	73	73	---	---	---	0
Overall		2	75	49.59	100.4	73	77	2	2.828	3.77%	0 (0%)

Conductivity-µmhos

Conc-%	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
100		5	271.4	263.9	278.9	267	282	1.205	6.025	2.22%	0
Overall		10	384.5	299.1	469.9	267	510	37.76	119.4	31.05%	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	75	---	---	75	75	---	---	---	0
Overall		2	96.5	-176.7	369.7	75	118	21.5	30.41	31.51%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.849	8.071	7.8	8	0.01789	0.08944	1.12%	0
100		5	7.98	7.924	8.036	7.9	8	0.008943	0.04472	0.56%	0
Overall		10	7.97	7.922	8.018	7.8	8	0.02134	0.06749	0.85%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
100		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
Overall		10	25.28	25.13	25.43	25	25.5	0.06464	0.2044	0.81%	0 (0%)

Eurofins Caldecote Irvine

CHAIN OF CUSTODY FORM

Temp. deg. C = 6.0°C
 Chlorine (mg/L) = 1.01

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-S97L NPDES Permit 2023 Routine Outfall (008) Outfall 008 Comp		Project Manager: Katherine Miller 520.289.8506, 520.904.6944 (cell) Field Manager: Mark Domerick 878.234.5033, 818.593.0702 (cell)		ANALYSIS REQUIRED		FIELD READINGS												
Eurofins Caldecote Irvine Contact: Christian Sanchez Irvine CA 92614 Tel: 949-260-3218		Project Manager: Katherine Miller 520.289.8506, 520.904.6944 (cell) Field Manager: Mark Domerick 878.234.5033, 818.593.0702 (cell)		ANALYSIS REQUIRED		FIELD READINGS		Comments												
<p><small>Trademark's services under this CCF shall be performed in accordance with the T1020 Water Sampling Service Agreement 2018-23, available on our website at Haley & Aldrich, Inc., in consultation and relation, and TestMethods Laboratories Inc.</small></p> <p>Sampler: Adrien Mochela</p>																				
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED											
									Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E16138)	Cl ⁻ , SO ₄ , Nitrate-N, Nitrite-N, NO ₃ +NO ₂ -N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	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 (E906.0), X-40, Cs-137 (E901.0 or E901.1)	Chronic Toxicity - Selenastrium (EPA-821-R-02-013) ABC Labs in Ventura, CA	Ammonia-N (360.2)	Cyanide (SM4500-CN-E / E935.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))
Outfall 008	Outfall008_20230111_Comp	1/11/2023	WMI	1 L Glass Amber	1	HNO ₃	96	No	X	X	X	X	X	X	X	X	X	X	X	48 hours holding Time NO ₃ & NO ₂
																				Unlabeled and unapproved analysis, Separate P&ID over existing worksheets, Analysis dependent, not MS/MSD
																				Filter and preservative with 24hrs of receipt at lab
																				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures
																				Hold
																				Hold

* Hand-delivered to ABC Labs with copy of CCF



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%

CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 2 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

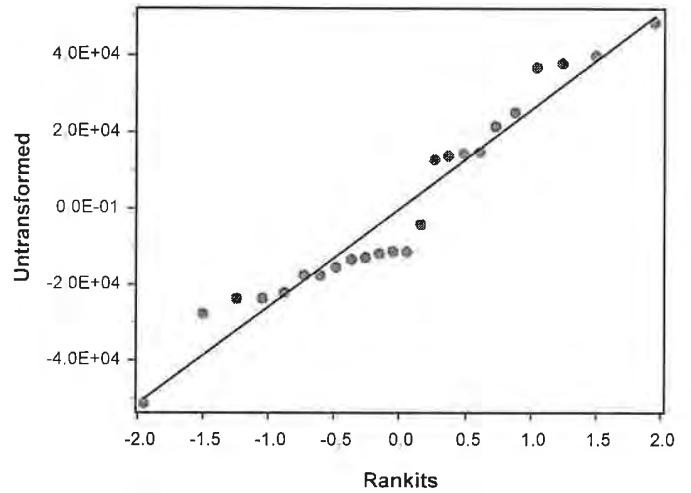
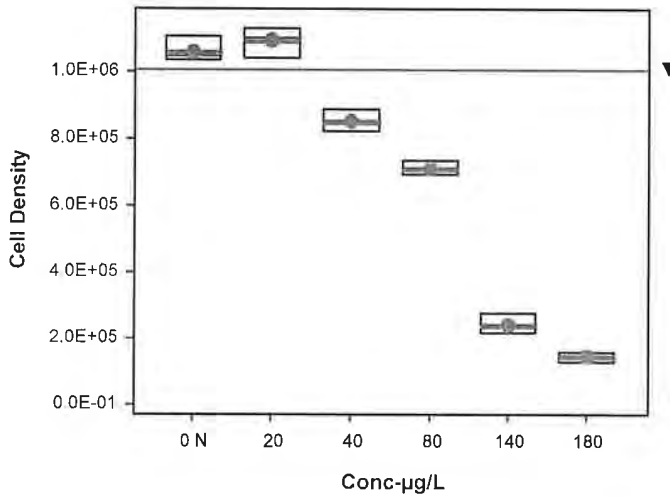
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 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

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			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

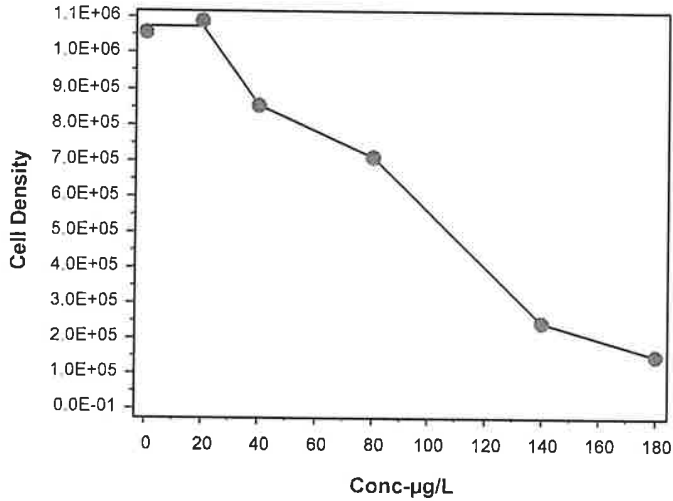
Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

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

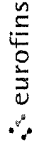
Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler Patel Virendra	Lab P# Patel Virendra	Carrier Tracking No(s) 570-203937 1	COC No 570-203937 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: TestAmerica Laboratories Inc.		Accreditations Required (See note): State P Program - California		Job #: 570-123670-4	Job #: 570-123670-4
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 2/13/2023 TAT Requested (days).		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	
Project Name: Boeing NPDES SSFL - Outfall 008 Comp Site:		Project #: 44024446 SSOW#:		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)	
Sample Identification - Client ID (Lab ID)		Field Filtered Sample (Yes or No)		Special Instructions/Note:	
Outfall008_20230111_Comp (570-123670-1)	Sample Date 1/11/23	Sample Time 10:35 Pacific	Sample Type (C=Comp, G=grab)	Preservation Code: Water	Boeing SSFL, DO NOT FILTER use prep date from preservation
Analysis Requested		Perform MS/MSD (Yes or No)		Total Number of containers	
901_1_Cs/113_Geo_0_K-40 and Csium-137	X	X	X	X	2
A01R_U/ExChrom_Actin Total Uranium	X	X	X	X	
900_0/Evaporation Gross Alpha/Beta	X	X	X	X	
903_0/PreSep_21 Radium-226	X	X	X	X	
904_0/PreSep_0 Radium-228	X	X	X	X	
906_5r90/PreSep_7 Strontium-90	X	X	X	X	
906_0/LSC_Dist_Susp Tritium	X	X	X	X	
Possible Hazard Identification		Date/Time 1/12/23 1312		Company	
Unconfirmed		Date/Time		Company	
Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank 2		Date		Company	
Empty Kit Relinquished by:		Date/Time		Company	
Relinquished by:		Date/Time		Company	
Relinquished by:		Date/Time		Company	
Custody Seals Intact: Δ Yes Δ 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



eurofins

Client Information (Sub Contract Lab)
 Client Contact: Shipping/Receiving
 Eurofins Environment Testing Northern Ca
 Address: 880 Riverside Parkway, West Sacramento CA, 95605
 Phone: 916-373-5600(Tel) 916-372-1059(Fax)
 Email:

Lab P.M. Patel Virendra
 E-Mail: Virendra.Patel@et.eurofins.com
 Accredited to: State of Origin: California

Carrier Tracking No(s): COC No: 570-203964 1
 Page 1 of 1
 Job #: 570-123670-2
 Preservation Codes: M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2SO4, S - H2SO4, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, Other:

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, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Box_Sep_P (MOD) Standard List W	Totals (Hold)	1613B/1613B_Box_Sep_P (MOD) Standard List W	Total Number of Containers	Special Instructions/Note:
Outfall008_20230111_Comp (570-123670-1)	1/11/23	10:35 Pacific	Water	Water	X	X	X				2	See OAS Boeing_wiu to zero ug/L, Use Boeing glassware
Outfall008_20230111_Comp_Extra (570-123670-3)	1/11/23	10:35 Pacific	Water	Water				X			1	See OAS, Boeing_wiu to zero ug/L, Use Boeing glassware

Analysis Requested

Due Date Requested: 1/27/2023
 TAT Requested (days):
 PO #:
 WO #:
 Project #: 44024446
 SSO#:

Special Instructions/Note:
 See OAS Boeing_wiu to zero ug/L, Use Boeing glassware
 See OAS, Boeing_wiu to zero ug/L, Use Boeing glassware

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For Months

Primary Deliverable Rank: 2

Relinquished by: [Signature] Date: 1/12/23 1419 Company: [Company]
 Relinquished by: [Signature] Date/Time: [Blank] Company: [Blank]
 Relinquished by: [Signature] Date/Time: [Blank] Company: [Blank]

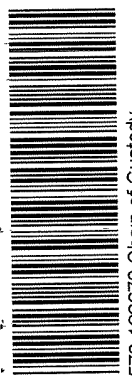
Custody Seals Intact:
 Yes No

Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021



CHAIN OF CUSTODY FORM



Eurolabs Calscience Irvine

570-123670 Chain of Custody

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurolabs Calscience Irvine Contact: Christian Bondoc 17461 Deitan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Project: Boeing-SSL NPDES Permit 2023 Routine Outfall 008 Outfall 008 Comp</p>		<p>Project Manager: Katherine Miller 520.289.8606; 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033; 818.599.0702 (cell)</p>		<p>AMS/MSD ANALYSIS REQUIRED</p>		<p>Field Readings</p>	
<p>Sample ID: Outfall008_20230111_Comp</p>	<p>Sample Matrix: VM</p>	<p>Sampling Date/Time: 1/11/2023 1035</p>	<p>Container Type: 500 mL Poly</p>	<p># of Cont. 1</p>	<p>Preservative: None</p>	<p>Bottle #: 95</p>	<p>AMS/MSD: No</p>	<p>Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl TCDD (and all congeners) (E1613B) Cr, SO₄, Nitrate-N, Nitrite-N, NO₃+NO₂-N, Perchlorate (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E908.0), 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: Selenastrium (EPA-821-R-02-013) ABC Labs in Ventura, CA</p>	<p>Comments: 48 hours Holding Time NO₂ & NO₃</p>
<p>Sample Description: Outfall008_20230111_Comp_F Outfall008_20230111_Comp_Extra</p>	<p>Sample Matrix: VM</p>	<p>Sampling Date/Time: 1/11/2023 1035</p>	<p>Container Type: 1 L Glass Amber</p>	<p># of Cont. 1</p>	<p>Preservative: None</p>	<p>Bottle #: 205</p>	<p>AMS/MSD: No</p>	<p>Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl TCDD (and all congeners) (E1613B) Cr, SO₄, Nitrate-N, Nitrite-N, NO₃+NO₂-N, Perchlorate (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E908.0), 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: Selenastrium (EPA-821-R-02-013) ABC Labs in Ventura, CA</p>	<p>Comments: 48 hours Holding Time NO₂ & NO₃</p>

* hand-delivered to ABC Labs with copy of wcc 2.3/2.3 1.9/1.9 Sc11

Relinquished By: Michelle Dellelah Date/Time: 1/11/23 1400 EC Company: H & A
 Relinquished By: [Signature] Date/Time: 1/11/23 1910 EC Company: [Signature]
 Relinquished By: [Signature] Date/Time: 1/11/23 1910 EC Company: [Signature]



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123670-3

Login Number: 123670

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 2/13/2023 3:13:59 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 008 - COMP

JOB NUMBER

570-123670-4

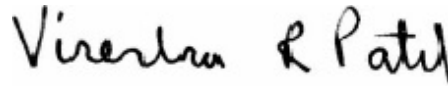
Job Notes

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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
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

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 - Outfall 008 - COMP

Job ID: 570-123670-4

Job ID: 570-123670-4

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-123670-4

Comments

No additional comments.

Receipt

The samples were received on 1/11/2023 7:10 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 1.9° C and 2.3° 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: Outfall008_20230111_Comp (570-123670-1), Outfall008_20230111_Comp_F (570-123670-2) and Outfall008_20230111_Comp_Extra (570-123670-3). 570-123670-K-1. The sample was preserved to the appropriate pH in the laboratory.

RAD

Method 900.0: Gross Alpha and Gross Beta batch 597777

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.

Outfall008_20230111_Comp (570-123670-1), (LCS 160-597777/2-A), (LCSB 160-597777/3-A), (MB 160-597777/1-A), (570-123670-K-1-I DU), (570-123670-K-1-G MS) and (570-123670-K-1-H MSBT)

Method 901.1: Gamma Prep Batch 160-597241

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 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.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Job ID: 570-123670-4 (Continued)

Laboratory: Eurofins Calscience (Continued)

Outfall008_20230111_Comp (570-123670-1), (570-123234-AI-1-D) and (570-123234-AI-1-E DU)

Method 903.0: Radium-226 batch 598605

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.

Outfall008_20230111_Comp (570-123670-1), (LCS 160-597154/2-A), (LCSD 160-597154/3-A) and (MB 160-597154/1-A)

Method 904.0: Radium-228 batch 597175

The LCS recovered at (126%). 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 160-597175/3-A)

Method 904.0: Radium-228 batch 597175

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: Outfall008_20230111_Comp (570-123670-1). Analytical results are reported with the detection limit achieved.

Method 904.0: Radium-228 batch 597175

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

Outfall008_20230111_Comp (570-123670-1), (LCS 160-597175/2-A), (LCSD 160-597175/3-A) and (MB 160-597175/1-A)

Method 905: Strontium-90 batch 597176

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.

Outfall008_20230111_Comp (570-123670-1), (LCS 160-597176/2-A), (LCSD 160-597176/3-A) and (MB 160-597176/1-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. Outfall008_20230111_Comp (570-123670-1), (LCS 160-597488/2-A), (MB 160-597488/1-A), (570-123038-U-2-B), (570-123038-U-2-C DU), (570-123414-Q-1-B) 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.

Outfall008_20230111_Comp (570-123670-1), (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: Outfall008_20230111_Comp (570-123670-1).

Method PrecSep_0: Radium-228 Prep Batch 160-597175

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230111_Comp (570-123670-1). A laboratory control

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Job ID: 570-123670-4 (Continued)

Laboratory: Eurofins Calscience (Continued)

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 160-597154

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230111_Comp (570-123670-1). 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 160-597176

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230111_Comp (570-123670-1). 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:

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 - Outfall 008 - COMP

Job ID: 570-123670-4

Client Sample ID: Outfall008_20230111_Comp

Lab Sample ID: 570-123670-1

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 - Outfall 008 - COMP

Job ID: 570-123670-4

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230111_Comp
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.308	U	0.826	0.827	3.00	1.51	pCi/L	01/23/23 11:47	01/31/23 08:30	1
Gross Beta	2.89		0.779	0.831	4.00	0.935	pCi/L	01/23/23 11:47	01/31/23 08:30	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230111_Comp
 Date Collected: 01/11/23 10:35
 Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	4.23	U	7.96	7.98	20.0	9.73	pCi/L	01/17/23 13:13	02/06/23 19:38	1
Potassium-40	20.4	U	126	126		145	pCi/L	01/17/23 13:13	02/06/23 19:38	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230111_Comp
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0412	U	0.106	0.106	1.00	0.198	pCi/L	01/17/23 10:52	02/08/23 09:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.8		40 - 110					01/17/23 10:52	02/08/23 09:40	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230111_Comp
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.793	U G	0.690	0.694	1.00	1.08	pCi/L	01/17/23 11:26	01/24/23 11:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.8		40 - 110					01/17/23 11:26	01/24/23 11:29	1
Y Carrier	87.5		40 - 110					01/17/23 11:26	01/24/23 11:29	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230111_Comp
 Date Collected: 01/11/23 10:35
 Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0410	U	0.400	0.400	3.00	0.727	pCi/L	01/17/23 11:33	01/26/23 17:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	89.1		40 - 110					01/17/23 11:33	01/26/23 17:48	1
Y Carrier	73.3		40 - 110					01/17/23 11:33	01/26/23 17:48	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230111_Comp
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-15.3	U	162	162	500	297	pCi/L	01/19/23 12:02	01/21/23 01:31	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230111_Comp
Date Collected: 01/11/23 10:35
Date Received: 01/11/23 19:10

Lab Sample ID: 570-123670-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.368		0.310	0.311	1.00	0.331	pCi/L	01/17/23 16:09	01/25/23 14:47	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	81.0		30 - 110					01/17/23 16:09	01/25/23 14:47	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

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)	
570-123670-1	Outfall008_20230111_Comp	81.8	
LCS 160-597154/2-A	Lab Control Sample	87.7	
LCSD 160-597154/3-A	Lab Control Sample Dup	91.3	
MB 160-597154/1-A	Method Blank	94.7	

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)
570-123670-1	Outfall008_20230111_Comp	81.8	87.5
LCS 160-597175/2-A	Lab Control Sample	87.7	82.6
LCSD 160-597175/3-A	Lab Control Sample Dup	91.3	81.9
MB 160-597175/1-A	Method Blank	94.7	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 (40-110)	Y (40-110)
570-123670-1	Outfall008_20230111_Comp	89.1	73.3
LCS 160-597176/2-A	Lab Control Sample	82.2	72.1
LCSD 160-597176/3-A	Lab Control Sample Dup	82.8	70.3
MB 160-597176/1-A	Method Blank	79.4	74.0

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	
570-123670-1	Outfall008_20230111_Comp	81.0	
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-597777/1-A
Matrix: Water
Analysis Batch: 598614

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597777

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.08001	U	0.636	0.636	3.00	1.19	pCi/L	01/23/23 11:47	01/30/23 19:04	1
Gross Beta	-0.2904	U	0.420	0.421	4.00	0.816	pCi/L	01/23/23 11:47	01/30/23 19:04	1

Lab Sample ID: LCS 160-597777/2-A
Matrix: Water
Analysis Batch: 598614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597777

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	51.22		7.48	3.00	2.46	pCi/L	101	75 - 125

Lab Sample ID: LCSB 160-597777/3-A
Matrix: Water
Analysis Batch: 598614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597777

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.7	67.77		7.31	4.00	0.875	pCi/L	92	75 - 125

Lab Sample ID: 570-123670-1 MS
Matrix: Water
Analysis Batch: 598850

Client Sample ID: Outfall008_20230111_Comp
Prep Type: Total/NA
Prep Batch: 597777

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Alpha	0.308	U	50.5	50.97		7.16	3.00	1.38	pCi/L	100	60 - 140

Lab Sample ID: 570-123670-1 MSBT
Matrix: Water
Analysis Batch: 598850

Client Sample ID: Outfall008_20230111_Comp
Prep Type: Total/NA
Prep Batch: 597777

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Beta	2.89		73.7	75.66		8.09	4.00	0.820	pCi/L	99	60 - 140

Lab Sample ID: 570-123670-1 DU
Matrix: Water
Analysis Batch: 598850

Client Sample ID: Outfall008_20230111_Comp
Prep Type: Total/NA
Prep Batch: 597777

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER Limit
					Uncert. (2σ+/-)					
Gross Alpha	0.308	U	1.179	U	0.892	3.00	1.28	pCi/L	0.51	1
Gross Beta	2.89		2.634		0.775	4.00	0.892	pCi/L	0.16	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-597241/1-A
Matrix: Water
Analysis Batch: 599334

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597241

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	-2.826	U	8.51	8.52	20.0	10.3	pCi/L	01/17/23 13:03	02/03/23 22:10	1
Potassium-40	-36.61	U	86.6	86.7		115	pCi/L	01/17/23 13:03	02/03/23 22:10	1

Lab Sample ID: LCS 160-597241/2-A
Matrix: Water
Analysis Batch: 599336

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597241

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	135000	138000		16400		297	pCi/L	102	75 - 125
Cesium-137	41000	42160		5020	20.0	79.9	pCi/L	103	75 - 125
Cobalt-60	18200	18990		2260		44.3	pCi/L	105	75 - 125

Lab Sample ID: 570-123234-AI-1-E DU
Matrix: Water
Analysis Batch: 599354

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597241

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Cesium-137	-5.12	U	-0.5107	U	7.06	20.0	8.40	pCi/L		0.29
Potassium-40	-33.9	U	67.97		68.0		67.4	pCi/L		0.58

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-597154/1-A
Matrix: Water
Analysis Batch: 599671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597154

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.006957	U	0.0458	0.0458	1.00	0.0910	pCi/L	01/17/23 10:52	02/08/23 09:29	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	94.7		40 - 110				01/17/23 10:52	02/08/23 09:29	1	

Lab Sample ID: LCS 160-597154/2-A
Matrix: Water
Analysis Batch: 599671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597154

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	11.79		1.20	1.00	0.0822	pCi/L	104	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	87.7		40 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-597154/3-A
Matrix: Water
Analysis Batch: 599671

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597154

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	RER Limit
									Limits	RER		
Radium-226	11.3	11.35		1.16	1.00	0.0760	pCi/L	100	75 - 125	0.19		1
Carrier		LCS	LCS									
	%Yield	Qualifier	Limits									
Ba Carrier	91.3											
Y Carrier												

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-597175/1-A
Matrix: Water
Analysis Batch: 598066

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597175

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
								Prepared	Analyzed	Prepared	Analyzed	
Radium-228	0.05046	U	0.253	0.253	1.00	0.464	pCi/L	01/17/23 11:26	01/24/23 11:26	01/24/23 11:23		1
Carrier		MB	Limits									
	%Yield	Qualifier	Limits									
Ba Carrier	94.7		40 - 110					01/17/23 11:26	01/24/23 11:26	01/24/23 11:23		1
Y Carrier	84.5		40 - 110					01/17/23 11:26	01/24/23 11:26	01/24/23 11:23		1

Lab Sample ID: LCS 160-597175/2-A
Matrix: Water
Analysis Batch: 598066

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597175

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	RER Limit
									Limits	RER		
Radium-228	8.25	9.815		1.34	1.00	0.590	pCi/L	119	75 - 125			
Carrier		LCS	LCS									
	%Yield	Qualifier	Limits									
Ba Carrier	87.7		40 - 110									
Y Carrier	82.6		40 - 110									

Lab Sample ID: LCSD 160-597175/3-A
Matrix: Water
Analysis Batch: 598066

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597175

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	RER Limit
									Limits	RER		
Radium-228	8.25	10.40		1.37	1.00	0.516	pCi/L	126	75 - 125	0.21		1
Carrier		LCS	LCS									
	%Yield	Qualifier	Limits									
Ba Carrier	91.3		40 - 110									
Y Carrier	81.9		40 - 110									

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-597176/1-A
Matrix: Water
Analysis Batch: 598283

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597176

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	-0.03721	U	0.223	0.223	3.00	0.408	pCi/L	01/17/23 11:33	01/26/23 17:45	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier								
Sr Carrier	79.4		40 - 110		01/17/23 11:33	01/26/23 17:45	1			
Y Carrier	74.0		40 - 110		01/17/23 11:33	01/26/23 17:45	1			

Lab Sample ID: LCS 160-597176/2-A
Matrix: Water
Analysis Batch: 598283

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597176

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Strontium-90	7.38	7.564		0.882	3.00	0.355	pCi/L	103	75 - 125
Carrier	LCS LCS		Limits						
	%Yield	Qualifier							
Sr Carrier	82.2		40 - 110						
Y Carrier	72.1		40 - 110						

Lab Sample ID: LCSD 160-597176/3-A
Matrix: Water
Analysis Batch: 598283

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597176

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Strontium-90	7.38	7.695		0.910	3.00	0.459	pCi/L	104	75 - 125	0.07	1
Carrier	LCSD LCSD		Limits								
	%Yield	Qualifier									
Sr Carrier	82.8		40 - 110								
Y Carrier	70.3		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 Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 570-123414-Q-1-C MS
Matrix: Water
Analysis Batch: 597784

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 597488

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual						
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	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual		Result						
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	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
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	LCS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual						
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	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual		Result						
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

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Prep Batch: 597154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	PrecSep-21	
MB 160-597154/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-597154/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-597154/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 597175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	PrecSep_0	
MB 160-597175/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-597175/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-597175/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 597176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	PrecSep-7	
MB 160-597176/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-597176/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-597176/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 597241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-597241/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-597241/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-123234-AI-1-E DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 597259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_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
570-123670-1	Outfall008_20230111_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-Q-1-C MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
570-123038-U-2-C DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 597777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123670-1	Outfall008_20230111_Comp	Total/NA	Water	Evaporation	
MB 160-597777/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-597777/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSE 160-597777/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-123670-1 MS	Outfall008_20230111_Comp	Total/NA	Water	Evaporation	
570-123670-1 MSBT	Outfall008_20230111_Comp	Total/NA	Water	Evaporation	
570-123670-1 DU	Outfall008_20230111_Comp	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

Client Sample ID: Outfall008_20230111_Comp

Lab Sample ID: 570-123670-1

Date Collected: 01/11/23 10:35

Matrix: Water

Date Received: 01/11/23 19:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			179.99 mL	1.0 g	597777	01/23/23 11:47	MST	EET SL
Total/NA	Analysis	900.0		1			598850	01/31/23 08:30	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	597241	01/17/23 13:13	JML	EET SL
Total/NA	Analysis	901.1		1			599349	02/06/23 19:38	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			499.15 mL	1.0 g	597154	01/17/23 10:52	DJP	EET SL
Total/NA	Analysis	903.0		1			599672	02/08/23 09:40	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			499.15 mL	1.0 g	597175	01/17/23 11:26	DJP	EET SL
Total/NA	Analysis	904.0		1			598066	01/24/23 11:29	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep-7			506.70 mL	1.0 g	597176	01/17/23 11:33	DJP	EET SL
Total/NA	Analysis	905		1			598283	01/26/23 17:48	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			99.55 mL	1.0 g	597488	01/19/23 12:02	ZR	EET SL
Total/NA	Analysis	906.0		1			597784	01/21/23 01:31	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			250.49 mL	1.0 mL	597259	01/17/23 16:09	SAC	EET SL
Total/NA	Analysis	A-01-R		1			598259	01/25/23 14:47	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 - Outfall 008 - COMP

Job ID: 570-123670-4

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-123670-4

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 - Outfall 008 - COMP

Job ID: 570-123670-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123670-1	Outfall008_20230111_Comp	Water	01/11/23 10:35	01/11/23 19:10

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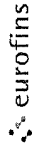
12

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Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel Virendra	Lab PM: Patel Virendra	Carrier Tracking No(s): 570-2039937 1	COC No: 570-2039937 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: TestAmerica Laboratories Inc.		Accreditations Required (See note): State P Program - California		Job #: 570-123670-4	Job #: 570-123670-4
Address: 13715 Rider Trail North, Earth City, MO 63045		Due Date Requested: 2/13/2023		Analysis Requested	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		TAT Requested (days):		A - HCL 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)	
Project Name: Boeing NPDES SSFL - Outfall 008 Comp		PO #: WO #:		H - Ascorbic Acid G - Amchlor F - MeOH E - NaHSO4 D - Nitric Acid C - Zn Acetate B - NaOH A - HCL	
Site: 44024446		Project #: 44024446		I - Ice J - DI Water K - EDTA L - EDA Other:	
SSOW#:		SSOW#:		Other:	
Sample Identification - Client ID (Lab ID)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=air)		Special Instructions/Note:	
Outfall008_20230111_Comp (570-123670-1)	Sample Date: 1/11/23	Sample Time: 10:35 Pacific	Sample Type (C=Comp, G=grab)	Preservation Code: Water	Boeing SSFL, DO NOT FILTER use prep date from preservation
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers	
901_1_Cs/113_Geo_D_K-40 and Csium-137		X		X	
A01R_U/ExChrom_Actin Total Uranium		X		X	
900_0/Evaporation Gross Alpha/Beta		X		X	
903_0/Presep_21 Radium-226		X		X	
904_0/Presep_0 Radium-228		X		X	
906_5r90/Presep_7 Strontium-90		X		X	
906_0/LSC_Dist_Susp Tritium		X		X	
Special Instructions/Requirements		Special Instructions/Requirements		Special Instructions/Requirements	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Return To Client		Return To Client		Return To Client	
Disposal By Lab		Disposal By Lab		Disposal By Lab	
Archive For		Archive For		Archive For	
Months		Months		Months	
Empty Kit Relinquished by:		Empty Kit Relinquished by:		Empty Kit Relinquished by:	
Relinquished by:		Relinquished by:		Relinquished by:	
Date/Time: 1/12/23 1312		Date/Time: 1/12/23 1312		Date/Time: 1/12/23 1312	
Relinquished by:		Relinquished by:		Relinquished by:	
Date/Time:		Date/Time:		Date/Time:	
Custody Seals Intact: Custody Seal No		Custody Seals Intact: Custody Seal No		Custody Seals Intact: Custody Seal No	
Δ Yes Δ No		Δ Yes Δ No		Δ Yes Δ No	
Cooler Temperature(s) °C and Other Remarks:		Cooler Temperature(s) °C and Other Remarks:		Cooler Temperature(s) °C and Other Remarks:	



Chain of Custody Record



Client Information (Sub Contract Lab)			Lab P.M. Patel Virendra	Carrier Tracking No(s):	COC No 570-203964 1					
Client Contact: Shipping/Receiving			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 #: 570-123670-2					
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605			Due Date Requested 1/27/2023	Analysis Requested						
Phone: 916-373-5600(Tel) 916-372-1059(Fax)			TAT Requested (days)							
Email:			PO #:							
Project #: 44024446			WO #:							
Site: Boeing NPDES SSFL - Outfall 008 Comp			Project #: 44024446							
Sample Identification - Client ID (Lab ID)			Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Box_Sop_P (MOD) Standard List W/	Totals	1613B/1613B_Box_Sop_P (MOD) Standard List W/	Totals (Hold)	Total Number of Containers	Special Instructions/Note:
Outfall008_20230111_Comp (570-123670-1)	Sample Date 1/11/23	Sample Time 10:35 Pacific	Sample Type (C=Comp, G=grab)	Preservation Code: Water	<input checked="" type="checkbox"/>	X	X	X	2	See OAS Boeing_wiu to zero ug/L, Use Boeing glassware
Outfall008_20230111_Comp_Extra (570-123670-3)	Sample Date 1/11/23	Sample Time 10:35 Pacific	Sample Type (C=Comp, G=grab)	Preservation Code: Water	<input checked="" type="checkbox"/>	X	X	X	1	See OAS, Boeing_wiu 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>										
<p>Possible Hazard Identification Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months Deliverable Requested I, II, III, IV Other (specify) Primary Deliverable Rank: 2</p>										
Empty Kit Relinquished by:			Date			Method of Shipment:				
Relinquished by:			Date/Time:			Received by:		Company		
Relinquished by:			Date/Time:			Received by:		Company		
Relinquished by:			Date/Time:			Received by:		Company		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No			Cooler Temperature(s) °C and Other Remarks:				



CHAIN OF CUSTODY FORM



570-123670 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Deiran Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 008 Outfall 008 Comp		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		ANALYSIS REQUIRED Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl TCDD (and all congeners) (E1613B) Perchlorate (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E908.0), 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: Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA		Field Readings Comments		
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	M/MS/SD	Field Readings	Comments
Outfall008_20230111_Comp		1/11/2023	WM	500 mL Poly	1	HNO ₃	95	No		
			WM	1 L Glass Amber	2	None	110	No		
			WM	500 mL Poly	2	None	130	No		48 hours Holding Time NO ₂ & NO ₃
			WM	500 mL Poly	1	None	165	No		
			WM	500 mL Poly	1	H ₂ SO ₄	160	No		
			WM	500 mL Poly	1	NaOH	220	No		
			WM	2.5 Gal Cube	1	None	225	No		
			WM	1 L Glass Amber	1	None	230	No		
			WM	1 Gal Cube	6	None	235	No		Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not M/MS/SD.
			WM	1 L Poly	1	None	185	No		Only test if first or second rain events of the year Deliver to ABC Labs in Ventura, CA
			WM	1 L Poly	1	None	205	No		Filler and preserve within 24hrs of receipt at lab
			WM	borosilicate vials	1	None	320	No		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
			WM	1 L Glass Amber	1	None	110	No		Hold
			WM	500 mL Poly	2	None	130	No		Hold

Legend: EP-Expert Panel, R-Routine

Relinquished By: *Michelle Dellelah* Date/Time: 1/11/23 1400 H+A Company: *1400*

Relinquished By: *[Signature]* Date/Time: 1/11/23 1910 EC Company: *1910*

Relinquished By: *[Signature]* Date/Time: 1/11/23 1910 EC Company: *1910*

* Hand-delivered to ABC Labs with copy of WOC 2.3/2.3 1.9/1.9 SC11



Chain of Custody Record

Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Lab PM: Patel, Virendra	Camera Tracking No(s):	570-203937.1																																						
Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	COC No: 570-203937.1																																						
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Page: Page 1 of 1	Job #																																						
Address: 13715 Rider Trail North, .		Due Date Requested: 2/13/2023		Job # 570-123670-4																																							
City: Earth City	State: MO, 63045	PO #:	Analysis Requested																																								
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	WO #:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Analysis Requested</th> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>901_Cs/III_Geo_K40 and Csium-137</th> <th>A01_U/Exchrom_Actin Total Uranium</th> <th>900_Evaporation_Gross Alpha/Beta</th> <th>903_0/PrecSep_21 Radium-226</th> <th>904_0/PrecSep_0 Radium-228</th> <th>905_S90/PrecSep_7 Strontium-90</th> <th>906_0/SC_Disl_Susp Tritium</th> <th>Total Number of containers</th> <th>Special Instructions/Note:</th> </tr> </thead> <tbody> <tr> <td>Project Name: Boeing NPDES SSFL - Outfall 008 Comp</td> <td>Project #: 44024446</td> <td>Sample Date: 1/11/23</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> <td>Boeing SSFL; DO NOT FILTER; use prep date from preservation</td> </tr> <tr> <td>Site:</td> <td>SSOW#:</td> <td>Sample Time: 10:35 Pacific</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> </tr> </tbody> </table>				Analysis Requested	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901_Cs/III_Geo_K40 and Csium-137	A01_U/Exchrom_Actin Total Uranium	900_Evaporation_Gross Alpha/Beta	903_0/PrecSep_21 Radium-226	904_0/PrecSep_0 Radium-228	905_S90/PrecSep_7 Strontium-90	906_0/SC_Disl_Susp Tritium	Total Number of containers	Special Instructions/Note:	Project Name: Boeing NPDES SSFL - Outfall 008 Comp	Project #: 44024446	Sample Date: 1/11/23	X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation	Site:	SSOW#:	Sample Time: 10:35 Pacific	X	X	X	X	X	X	X				
Analysis Requested	Field Filtered Sample (Yes or No)					Perform MS/MSD (Yes or No)	901_Cs/III_Geo_K40 and Csium-137	A01_U/Exchrom_Actin Total Uranium	900_Evaporation_Gross Alpha/Beta	903_0/PrecSep_21 Radium-226	904_0/PrecSep_0 Radium-228	905_S90/PrecSep_7 Strontium-90	906_0/SC_Disl_Susp Tritium	Total Number of containers	Special Instructions/Note:																												
Project Name: Boeing NPDES SSFL - Outfall 008 Comp	Project #: 44024446				Sample Date: 1/11/23	X	X	X	X	X	X	X	2	Boeing SSFL; DO NOT FILTER; use prep date from preservation																													
Site:	SSOW#:	Sample Time: 10:35 Pacific	X	X	X	X	X	X	X																																		
Sample Identification - Client ID (Lab ID): Outfall008_20230111_Comp (570-123670-1)		Sample Date: 1/11/23	Sample Time: 10:35 Pacific	Sample Type (C=Comp, G=grab):	Preservation Code: Water	<p>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 - Na2SO3 G - Anchlor 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)</p> <p>Other:</p>																																					
<p>Sample Identification - Client ID (Lab ID)</p> <p>Outfall008_20230111_Comp (570-123670-1)</p>		Sample Date: 1/11/23	Sample Time: 10:35 Pacific	Sample Type (C=Comp, G=grab):	Preservation Code: Water																																						
<p>Matrix (W=water, S=solid, O=organic, B=tissue, A=air)</p>																																											
<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/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</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2</p>																																											
Empty Kit Relinquished by:				Date:				Time:																																			
Relinquished by: <i>[Signature]</i>				Date/Time: 1/12/23 1312				Company: Fedex																																			
Relinquished by: Fedex				Date/Time: 1/12/23 9:00 AM				Company: ECA57c																																			
Relinquished by: Fedex				Date/Time: 1/12/23 9:00 AM				Company: ECA57c																																			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> 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 <input type="checkbox"/> Disposal By Lab <input type="checkbox"/>				Archive For _____ Months																																			
<p>Special Instructions/QC Requirements:</p>																																											
<p>Method of Shipment:</p>																																											
<p>Received by: Fedex</p>																																											
<p>Received by: <i>[Signature]</i></p>																																											
<p>Received by: <i>[Signature]</i></p>																																											
<p>Date/Time: 1/12/23 9:00 AM</p>																																											
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<p>Date/Time: 1/12/23 9:00 AM</p>																																											



Eurofins Calscience
 28411 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



Client Information (Sub Contract Lab)
 Client Contact: Patel, Virendra
 Shipping/Receiving: Virendra Pate@et.eurofins.com
 Company: TestAmerica Laboratories, Inc.
 Address: 13715 Rider Trail North, State Program - California
 City: Earth City, MO, 63045
 Phone: 314-298-8566(Tel) 314-298-8757(Fax)
 Email:
 Project Name: Boeing NPDES SSFL - Outfall 008 Comp
 Site:

Sample Identification - Client ID (Lab ID)
 Sample Date: 1/11/23
 Sample Time: 10:35 Pacific
 Sample Type (C=Comp, G=Grab):
 Matrix (Water, Wastewater, Other, B1=Blood, A=Air): Water
 Preservation Code:
 Due Date Requested: 2/13/2023
 TAT Requested (days):
 PO #:
 WO #:
 Project #: 44024446
 SSOW#:

Sample ID	Sample Date	Sample Time	Sample Type	Matrix	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Accreditations Required (See note)	Analysis Requested	Carrier Tracking No(s)	Lab PM	State of Origin	COC No	Page
Outfall008_20230111_Comp (570-123670-1)	1/11/23	10:35 Pacific		Water		X	X	901.1, Cs/Fill, Geo, K-40 and Caesium-137	A01R, U/Exchrom, Actin Total Uranium		Patel, Virendra	California	570-203937.1	Page 1 of 1
									900.0/Evaporation Gross Alpha/Beta					
									903.0/PreSep_21 Radium-226					
									904.0/PreSep_0 Radium-226					
									905.5/PreSep_7 Strontium-90					
									906.0/SC_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/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
 Date: 1/12/23
 Received by: [Signature]
 Date/Time: 1/12/23 1312
 Company: FEDEX
 Relinquished by: [Signature]
 Date/Time: 1/13/23 9:00 AM
 Company: ECASTR
 Relinquished by: [Signature]
 Date/Time:
 Company:
 Custody Seals Intact: Custody Seal No.:
 Δ Yes Δ No
 Cooler Temperature(s) °C and Other Remarks:



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123670-4

Login Number: 123670

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: 570-123670-4

Login Number: 123670

List Number: 2

Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis

List Creation: 01/13/23 03:20 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	
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 2/14/2023 1:24:00 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 008 - COMP

JOB NUMBER

570-124233-1

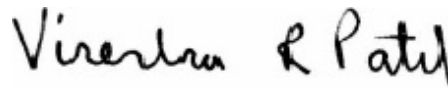
Job Notes

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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
2/14/2023 1:24:00 PM

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



Table of Contents

Cover Page	1
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QC Sample Results	15
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Qualifiers

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

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 - Outfall 008 - COMP

Job ID: 570-124233-1

Job ID: 570-124233-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124233-1

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 2.8° C.

HPLC/IC

Method 300.0: Dilutions were performed for the following samples due to sample matrix properties: Outfall008_20230115_Comp (570-124233-1).

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

Metals

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230115_Comp_F (570-124233-2). 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: Outfall008_20230115_Comp_F (570-124233-2). 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.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Client Sample ID: Outfall008_20230115_Comp

Lab Sample ID: 570-124233-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.5	J,DX	5.0	1.8	mg/L	5		300.0	Total/NA
Nitrate as N	1.4		0.50	0.098	mg/L	5		300.0	Total/NA
Sulfate	4.5	J,DX	5.0	1.2	mg/L	5		300.0	Total/NA
Nitrate Nitrite as N	1.4		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	1.9	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.41	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	1.5	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Zinc	5.0	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	140		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	7.2		2.0	1.7	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall008_20230115_Comp_F

Lab Sample ID: 570-124233-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.7	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Nickel	1.4	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Zinc	3.3	J,DX BU	20	2.8	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 - Outfall 008 - COMP

Job ID: 570-124233-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230115_Comp

Date Collected: 01/15/23 10:10

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.5	J,DX	5.0	1.8	mg/L			01/16/23 23:20	5
Nitrite as N	ND		0.50	0.22	mg/L			01/16/23 23:20	5
Nitrate as N	1.4		0.50	0.098	mg/L			01/16/23 23:20	5
Sulfate	4.5	J,DX	5.0	1.2	mg/L			01/16/23 23:20	5

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230115_Comp
Date Collected: 01/15/23 10:10
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/19/23 22:44	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230115_Comp

Date Collected: 01/15/23 10:10

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.4		0.10	0.020	mg/L			01/17/23 16:16	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

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

Client Sample ID: Outfall008_20230115_Comp

Date Collected: 01/15/23 10:10

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/19/23 09:12	01/19/23 13:41	1
Cadmium	ND		1.0	0.13	ug/L		01/19/23 09:12	01/19/23 13:41	1
Copper	1.9	J,DX	2.0	0.32	ug/L		01/19/23 09:12	01/19/23 13:41	1
Lead	0.41	J,DX	1.0	0.12	ug/L		01/19/23 09:12	01/19/23 13:41	1
Antimony	ND		2.0	0.36	ug/L		01/19/23 09:12	01/19/23 13:41	1
Selenium	ND		2.0	0.52	ug/L		01/19/23 09:12	01/19/23 13:41	1
Thallium	ND		1.0	0.11	ug/L		01/19/23 09:12	01/19/23 13:41	1
Nickel	1.5	J,DX	2.0	0.17	ug/L		01/19/23 09:12	01/19/23 13:41	1
Zinc	5.0	J,DX	20	2.8	ug/L		01/19/23 09:12	01/19/23 13:41	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

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

Client Sample ID: Outfall008_20230115_Comp_F

Date Collected: 01/15/23 10:10

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND	BU	1.0	0.23	ug/L			01/18/23 09:54	1
Cadmium	ND	BU	1.0	0.13	ug/L			01/18/23 09:54	1
Copper	1.7	J,DX BU	2.0	0.32	ug/L			01/18/23 09:54	1
Lead	ND	BU	1.0	0.12	ug/L			01/18/23 09:54	1
Antimony	ND	BU	2.0	0.36	ug/L			01/18/23 09:54	1
Selenium	ND	BU	2.0	0.52	ug/L			01/18/23 09:54	1
Thallium	ND	BU	1.0	0.11	ug/L			01/18/23 09:54	1
Nickel	1.4	J,DX BU	2.0	0.17	ug/L			01/18/23 09:54	1
Zinc	3.3	J,DX BU	20	2.8	ug/L			01/18/23 09:54	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230115_Comp
Date Collected: 01/15/23 10:10
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
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 17:25	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230115_Comp_F
Date Collected: 01/15/23 10:10
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-2
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 18:40	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

General Chemistry

Client Sample ID: Outfall008_20230115_Comp

Date Collected: 01/15/23 10:10

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		01/24/23 10:35	01/24/23 13:15	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/17/23 16:28	1
Total Dissolved Solids (SM 2540C)	140		10	8.7	mg/L			01/18/23 15:24	1
Total Suspended Solids (SM 2540D)	7.2		2.0	1.7	mg/L			01/19/23 14:49	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

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
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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Method: 300.0 - Anions, Ion Chromatography

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 570-297005/7
 Matrix: Water
 Analysis Batch: 297005

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			01/19/23 14:46	1

Lab Sample ID: LCS 570-297005/8
 Matrix: Water
 Analysis Batch: 297005

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	23.2		ug/L		93	85 - 115

Lab Sample ID: LCSD 570-297005/9
 Matrix: Water
 Analysis Batch: 297005

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	23.0		ug/L		92	85 - 115	1	15

Lab Sample ID: 570-124594-D-2 MS
 Matrix: Water
 Analysis Batch: 297005

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	49.7		ug/L		99	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Method: 314.0 - Perchlorate (IC) (Continued)

Lab Sample ID: 570-124594-D-2 MSD
Matrix: Water
Analysis Batch: 297005

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	51.2		ug/L		102	80 - 120	3	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
Silver	ND		1.0	0.23	ug/L		01/19/23 09:12	01/19/23 13:25	1
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
Antimony	ND		2.0	0.36	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
Thallium	ND		1.0	0.11	ug/L		01/19/23 09:12	01/19/23 13:25	1
Nickel	ND		2.0	0.17	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
Silver	80.0	80.1		ug/L		100	85 - 115
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
Antimony	80.0	82.9		ug/L		104	85 - 115
Selenium	80.0	82.6		ug/L		103	85 - 115
Thallium	80.0	79.9		ug/L		100	85 - 115
Nickel	80.0	79.1		ug/L		99	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
Silver	80.0	79.2		ug/L		99	85 - 115	1	20
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
Antimony	80.0	82.1		ug/L		103	85 - 115	1	20
Selenium	80.0	78.4		ug/L		98	85 - 115	5	20
Thallium	80.0	79.9		ug/L		100	85 - 115	0	20
Nickel	80.0	80.4		ug/L		101	85 - 115	2	20
Zinc	80.0	80.6		ug/L		101	85 - 115	0	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

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

Lab Sample ID: 570-124239-D-1-D MS
Matrix: Water
Analysis Batch: 297141

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
Silver	ND		80.0	78.7		ug/L		98	80 - 120
Cadmium	ND		80.0	79.6		ug/L		99	80 - 120
Copper	2.5		80.0	84.1		ug/L		102	80 - 120
Lead	1.5		80.0	81.9		ug/L		101	80 - 120
Antimony	1.5	J,DX	80.0	84.4		ug/L		104	80 - 120
Selenium	ND		80.0	79.1		ug/L		99	80 - 120
Thallium	ND		80.0	80.3		ug/L		100	80 - 120
Nickel	1.7	J,DX	80.0	81.5		ug/L		100	80 - 120
Zinc	8.3	J,DX	80.0	87.7		ug/L		99	80 - 120

Lab Sample ID: 570-124239-D-1-E MSD
Matrix: Water
Analysis Batch: 297141

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
Silver	ND		80.0	79.3		ug/L		99	80 - 120	1	20
Cadmium	ND		80.0	80.3		ug/L		100	80 - 120	1	20
Copper	2.5		80.0	83.7		ug/L		101	80 - 120	1	20
Lead	1.5		80.0	81.2		ug/L		100	80 - 120	1	20
Antimony	1.5	J,DX	80.0	84.9		ug/L		104	80 - 120	1	20
Selenium	ND		80.0	79.8		ug/L		100	80 - 120	1	20
Thallium	ND		80.0	80.4		ug/L		100	80 - 120	0	20
Nickel	1.7	J,DX	80.0	81.2		ug/L		99	80 - 120	0	20
Zinc	8.3	J,DX	80.0	87.1		ug/L		98	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
Silver	ND		1.0	0.23	ug/L			01/18/23 10:06	1
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
Antimony	ND		2.0	0.36	ug/L			01/18/23 10:06	1
Selenium	ND		2.0	0.52	ug/L			01/18/23 10:06	1
Thallium	ND		1.0	0.11	ug/L			01/18/23 10:06	1
Nickel	ND		2.0	0.17	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
Silver	80.0	73.1		ug/L		91	85 - 115
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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

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

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
Antimony	80.0	74.4		ug/L		93	85 - 115
Selenium	80.0	72.7		ug/L		91	85 - 115
Thallium	80.0	74.6		ug/L		93	85 - 115
Nickel	80.0	75.3		ug/L		94	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
Silver	80.0	75.5		ug/L		94	85 - 115	3	20
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
Antimony	80.0	76.7		ug/L		96	85 - 115	3	20
Selenium	80.0	73.1		ug/L		91	85 - 115	1	20
Thallium	80.0	76.2		ug/L		95	85 - 115	2	20
Nickel	80.0	76.9		ug/L		96	85 - 115	2	20
Zinc	80.0	74.9		ug/L		94	85 - 115	1	20

Lab Sample ID: 570-123653-C-2-B MS
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		80.0	75.5		ug/L		94	80 - 120
Cadmium	ND		80.0	76.6		ug/L		96	80 - 120
Copper	2.4		80.0	81.1		ug/L		98	80 - 120
Lead	0.27	J,DX	80.0	78.3		ug/L		98	80 - 120
Antimony	0.46	J,DX	80.0	78.4		ug/L		97	80 - 120
Selenium	ND		80.0	77.0		ug/L		96	80 - 120
Thallium	ND		80.0	77.4		ug/L		97	80 - 120
Nickel	1.1	J,DX	80.0	78.8		ug/L		97	80 - 120
Zinc	4.2	J,DX	80.0	80.7		ug/L		96	80 - 120

Lab Sample ID: 570-123653-C-2-C MSD
Matrix: Water
Analysis Batch: 296754

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
Silver	ND		80.0	75.1		ug/L		94	80 - 120	1	20
Cadmium	ND		80.0	75.6		ug/L		95	80 - 120	1	20
Copper	2.4		80.0	80.8		ug/L		98	80 - 120	0	20
Lead	0.27	J,DX	80.0	78.9		ug/L		98	80 - 120	1	20
Antimony	0.46	J,DX	80.0	77.9		ug/L		97	80 - 120	1	20
Selenium	ND		80.0	77.7		ug/L		97	80 - 120	1	20
Thallium	ND		80.0	77.5		ug/L		97	80 - 120	0	20
Nickel	1.1	J,DX	80.0	77.7		ug/L		96	80 - 120	1	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

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

Lab Sample ID: 570-123653-C-2-C MSD
 Matrix: Water
 Analysis Batch: 296754

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
Zinc	4.2	J,DX	80.0	79.0		ug/L		93	80 - 120	2	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

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Method: 245.1 - Mercury (CVAA) (Continued)

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 570-298179/5-A
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298179

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		01/24/23 10:35	01/24/23 13:00	1

Lab Sample ID: LCS 570-298179/6-A
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298179

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.515		mg/L		103	90 - 110

Lab Sample ID: LCSD 570-298179/7-A
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298179

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.504		mg/L		101	90 - 110	2	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 570-123823-G-1-D MS
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 298179

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.033	J,DX	0.500	0.581		mg/L		110	90 - 110

Lab Sample ID: 570-123823-G-1-E MSD
Matrix: Water
Analysis Batch: 298207

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 298179

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.033	J,DX	0.500	0.568		mg/L		107	90 - 110	2	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	RPD Limit
Cyanide, Total	250	229		ug/L		92	90 - 110	6	20

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

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

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 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-H-1 DU
 Matrix: Water
 Analysis Batch: 296842

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	260		253		mg/L		0.8	10

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

Lab Sample ID: MB 570-297140/1
 Matrix: Water
 Analysis Batch: 297140

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 14:49	1

Lab Sample ID: LCS 570-297140/2
 Matrix: Water
 Analysis Batch: 297140

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

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

Lab Sample ID: LCSD 570-297140/3
Matrix: Water
Analysis Batch: 297140

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	88.0		mg/L		88	77 - 116	3	10

Lab Sample ID: 570-124243-U-1 DU
Matrix: Water
Analysis Batch: 297140

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	43		45.0		mg/L		5	10

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

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

HPLC/IC

Analysis Batch: 295972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1	Outfall008_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
570-124233-1	Outfall008_20230115_Comp	Total/NA	Water	300.0	
MB 570-295973/5	Method Blank	Total/NA	Water	300.0	
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
570-124233-1	Outfall008_20230115_Comp	Total/NA	Water	NO2NO3 Calc	

Analysis Batch: 297005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1	Outfall008_20230115_Comp	Total/NA	Water	314.0	
MB 570-297005/7	Method Blank	Total/NA	Water	314.0	
LCS 570-297005/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-297005/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-124594-D-2 MS	Matrix Spike	Total/NA	Water	314.0	
570-124594-D-2 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
570-124233-2	Outfall008_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	
570-123653-C-2-B MS	Matrix Spike	Dissolved	Water	Filtration	
570-123653-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
570-124233-2	Outfall008_20230115_Comp_F	Dissolved	Water	200.8	296510
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
570-123653-C-2-B MS	Matrix Spike	Dissolved	Water	200.8	296510
570-123653-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	296510

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Metals

Prep Batch: 296898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1	Outfall008_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	

Filtration Batch: 296900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-2	Outfall008_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
570-124233-2	Outfall008_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
570-124233-1	Outfall008_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	
570-124239-D-1-D MS	Matrix Spike	Total Recoverable	Water	200.8	
570-124239-D-1-E MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	

Analysis Batch: 297141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1	Outfall008_20230115_Comp	Total Recoverable	Water	200.8	297004
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
570-124239-D-1-D MS	Matrix Spike	Total Recoverable	Water	200.8	297004
570-124239-D-1-E 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
570-124233-1	Outfall008_20230115_Comp	Total/NA	Water	245.1	296898
570-124233-2	Outfall008_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

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Metals (Continued)

Analysis Batch: 297225 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
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

General Chemistry

Analysis Batch: 296559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1	Outfall008_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
570-124233-1	Outfall008_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-H-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 297140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1	Outfall008_20230115_Comp	Total/NA	Water	SM 2540D	
MB 570-297140/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-297140/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-297140/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-124243-U-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Prep Batch: 298179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1	Outfall008_20230115_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-298179/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-298179/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-298179/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
570-123823-G-1-D MS	Matrix Spike	Total/NA	Water	Distill/Ammonia	
570-123823-G-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 298207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1	Outfall008_20230115_Comp	Total/NA	Water	350.1	298179
MB 570-298179/5-A	Method Blank	Total/NA	Water	350.1	298179
LCS 570-298179/6-A	Lab Control Sample	Total/NA	Water	350.1	298179
LCSD 570-298179/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	298179
570-123823-G-1-D MS	Matrix Spike	Total/NA	Water	350.1	298179

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

General Chemistry (Continued)

Analysis Batch: 298207 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123823-G-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	298179

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Client Sample ID: Outfall008_20230115_Comp

Lab Sample ID: 570-124233-1

Date Collected: 01/15/23 10:10

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	300.0		5	4 mL	4 mL	295972	01/16/23 23:20	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	300.0		5	4 mL	4 mL	295973	01/16/23 23:20	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	314.0		1	4 mL	4 mL	297005	01/19/23 22:44	PS	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			297141	01/19/23 13:41	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
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 17:25	C0YH	EET CAL 4
	Instrument ID: HG8									
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	298179	01/24/23 10:35	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	298207	01/24/23 13:15	UXCH	EET CAL 4
	Instrument ID: ACA2									
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	296559	01/17/23 16:28	GG0B	EET CAL 4
	Instrument ID: LCHAT01									
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	500 mL	1000 mL	297140	01/19/23 14:49	BDH9	EET CAL 4
	Instrument ID: NOEQUIP									

Client Sample ID: Outfall008_20230115_Comp_F

Lab Sample ID: 570-124233-2

Date Collected: 01/15/23 10:10

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			296754	01/18/23 09:54	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
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 18:40	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 - Outfall 008 - COMP

Job ID: 570-124233-1

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-1

Method	Method Description	Protocol	Laboratory
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	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 - Outfall 008 - COMP

Job ID: 570-124233-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124233-1	Outfall008_20230115_Comp	Water	01/15/23 10:10	01/16/23 17:00
570-124233-2	Outfall008_20230115_Comp_F	Water	01/15/23 10:10	01/16/23 17:00

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124233

CHAIN OF CUSTODY FORM

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

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

Project:
 Boeing-SSFL NPODES
 Permit 2023
 Routine Outfall (008)
 Outfall 008
 Comp

Project Manager: Katherine Miller
 520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
 978.294.5033, 818.599.0702 (cell)

TetraAmerica's services under the CoC must be performed in accordance with the TACs with Standard Service Agreement 2016-25, TetraAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TetraAmerica Laboratories, Inc.

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD
Outfall008_20230115_Comp		1/15/2023	WM	500 mL Poly	1	HNO ₃	95	No
			WM	1 L Glass Amber	2	None	110	No
			WM	500 mL Poly	2	None	130	No
			WM	500 mL Poly	1	None	155	No
			WM	500 mL Poly	1	H ₂ SO ₄	160	No
			WM	500 mL Poly	1	NaOH	220	No
			WM	2.5 Gal Cite	1	None	225	No
			WM	1 L Glass Amber	1	None	230	No
			WM	1 L Glass Amber	1	None	235	No
			WM	1 L Poly	1	None	185	No
			WM	1 L Poly	1	None	205	No
			WM	Econalicate vials	1	None	320	No
			WM	1 L Glass Amber	2	None	110	No
			WM	500 mL Poly	2	None	130	No

Legend: EP=Expert Panel, R=Routine

Relinquished By: *[Signature]* Date/Time: 1-16-2023/14:00 H:A Company: EC

Relinquished By: *[Signature]* Date/Time: 1-16-23 17:00 EC Company: EC

Relinquished By: *[Signature]* Date/Time: 08/08 28/2-8 5C11 Company: EC

Received By: *[Signature]* Date/Time: 1-16-23 14:30 Company: EC

Received By: *[Signature]* Date/Time: 1-16-23 17:00 Company: EC

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

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

Chronic toxicity not collected and not submitted. Removed from COC (MD 2/1/2023)



570-124233 Chain of Custody



124233

CHAIN OF CUSTODY FORM

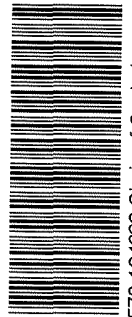
<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Comp</p>		<p>Field Readings</p>											
<p>Eurofins Calscience Irvine Contact: Christian Bonabac 17461 Denan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.294.5033, 918.599.0702 (cell)</p>		<p>Comments</p>											
<p><small>TestAmerica's services under this CoC shall be performed in accordance with the T&Cs with Blanket Service Agreement 2016-23, TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</small></p>															
<p>Sampler: Adrian Mobeka</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>Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti</p>	<p>TDD (and all congeners) (E1613B) Cr- SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (500)</p>	<p>TDS (SM2540C/E160.1)</p>	<p>Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti</p>	<p>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 Selenium (EPA-81-R-02-019) AEC Labs in Ventura, CA</p>	<p>Ammonia-N (E350.2) Cyanide (SM4500-CN-E / E335.2) Total Recoverable Metals, Mercury (E245.1) Total Dissolved Metals, Mercury (E245.1) TSS (E60.2 (SM2540D))</p>	<p>48 hours Holding Time NO₃ & NO₂</p>
<p>Outfall008_20230115_Comp</p>	<p>11/5/2023</p>	<p>11/5/2023</p>	<p>WM</p>	<p>500 mL Poly</p>	<p>1</p>	<p>HNO₃</p>	<p>95</p>	<p>No</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>Unfiltered and unpreserved analysis, Separate RAD for other workload. Analyze duplicate, not MS/MSD. Only test if first or second rain events of the year Deliver to ABC Labs in Ventura, CA</p>	
<p>Outfall008_20230115_Comp_F</p>	<p>11/5/2023</p>	<p>11/5/2023</p>	<p>WM</p>	<p>1 L Glass Amber</p>	<p>2</p>	<p>None</p>	<p>110</p>	<p>No</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>Filler and preserve w/in 24hrs of receipt at lab Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.</p>		
<p>Outfall008_20230115_Comp_Extra</p>	<p>11/5/2023</p>	<p>11/5/2023</p>	<p>WM</p>	<p>500 mL Poly</p>	<p>2</p>	<p>None</p>	<p>130</p>	<p>No</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>Hold Hold</p>		

Relinquished By: *[Signature]* Date/Time: 1-16-2023/14:30
 Relinquished By: *[Signature]* Date/Time: 1-16-23 17:00
 Relinquished By: *[Signature]* Date/Time: 08/08 28/2-8 5C11

Legend EP=Expert Panel, R=Routine
 Received By: *[Signature]* Date/Time: EC 1-16-23 14:30
 Received By: *[Signature]* Date/Time: EC 1-16-23 17:00
 Received By: *[Signature]* Date/Time: EC 1-16-23 17:00

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)
 No Level IV ___ All Level IV: ___ X ___



570-124233 Chain of Custody



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124233-1

Login Number: 124233

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.	False	Refer to Job Narrative for details.
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 - Outfall 008 - COMP

JOB NUMBER

570-124233-2

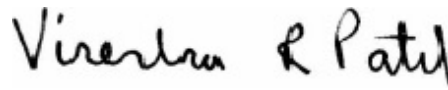
Job Notes

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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 1:26:51 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 - Outfall 008 - COMP

Job ID: 570-124233-2

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 - Outfall 008 - COMP

Job ID: 570-124233-2

Job ID: 570-124233-2

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-124233-2**

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 2.8° 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: Outfall008_20230115_Comp (570-124233-1), (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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

Client Sample ID: Outfall008_20230115_Comp

Lab Sample ID: 570-124233-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDD	0.00000047	J,DX MB q	0.000049	0.0000003	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8-PeCDF	0.00000043	J,DX MB q	0.000049	0.0000001	ug/L	1		1613B	Total/NA
				8					
2,3,4,7,8-PeCDF	0.00000056	J,DX MB	0.000049	0.0000002	ug/L	1		1613B	Total/NA
				7					
1,2,3,4,7,8-HxCDD	0.00000025	J,DX MB	0.000049	0.0000003	ug/L	1		1613B	Total/NA
				1					
1,2,3,6,7,8-HxCDD	0.00000078	J,DX MB	0.000049	0.0000002	ug/L	1		1613B	Total/NA
				8					
1,2,3,7,8,9-HxCDD	0.00000010	J,DX MB	0.000049	0.0000002	ug/L	1		1613B	Total/NA
				6					
1,2,3,4,7,8-HxCDF	0.00000071	J,DX MB q	0.000049	0.0000002	ug/L	1		1613B	Total/NA
				3					
1,2,3,6,7,8-HxCDF	0.00000059	J,DX MB	0.000049	0.0000002	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8,9-HxCDF	0.00000077	J,DX MB	0.000049	0.0000001	ug/L	1		1613B	Total/NA
				6					
2,3,4,6,7,8-HxCDF	0.00000042	J,DX MB q	0.000049	0.0000001	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,6,7,8-HpCDD	0.00000044	J,DX MB	0.000049	0.0000002	ug/L	1		1613B	Total/NA
				8					
1,2,3,4,6,7,8-HpCDF	0.00000022	J,DX MB	0.000049	0.0000003	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,7,8,9-HpCDF	0.00000062	J,DX MB	0.000049	0.0000003	ug/L	1		1613B	Total/NA
				2					
OCDD	0.00000032	J,DX MB	0.000097	0.0000005	ug/L	1		1613B	Total/NA
				8					
OCDF	0.00000028	J,DX MB	0.000097	0.0000002	ug/L	1		1613B	Total/NA
				8					
Total TCDD	0.00000022	J,DX MB q	0.000097	0.0000003	ug/L	1		1613B	Total/NA
				2					
Total TCDF	0.00000049	J,DX MB	0.000097	0.0000001	ug/L	1		1613B	Total/NA
				8					
Total PeCDD	0.00000047	J,DX MB q	0.000049	0.0000003	ug/L	1		1613B	Total/NA
				0					
Total PeCDF	0.00000099	J,DX MB q	0.000049	0.0000001	ug/L	1		1613B	Total/NA
				8					
Total HxCDD	0.00000070	J,DX MB q	0.000049	0.0000002	ug/L	1		1613B	Total/NA
				6					
Total HxCDF	0.00000025	J,DX MB q	0.000049	0.0000001	ug/L	1		1613B	Total/NA
				5					
Total HpCDD	0.00000092	J,DX MB	0.000049	0.0000002	ug/L	1		1613B	Total/NA
				8					
Total HpCDF	0.00000035	J,DX MB q	0.000049	0.0000003	ug/L	1		1613B	Total/NA
				2					

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230115_Comp

Date Collected: 01/15/23 10:10

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000097	0.0000003	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,7,8-PeCDD	0.00000047	J,DX MB q	0.000049	0.0000003	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,7,8-PeCDF	0.00000043	J,DX MB q	0.000049	0.0000001	ug/L		02/01/23 06:04	02/06/23 17:29	1
2,3,4,7,8-PeCDF	0.00000056	J,DX MB	0.000049	0.0000002	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,4,7,8-HxCDD	0.00000025	J,DX MB	0.000049	0.0000003	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,6,7,8-HxCDD	0.00000078	J,DX MB	0.000049	0.0000002	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,7,8,9-HxCDD	0.0000010	J,DX MB	0.000049	0.0000002	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,4,7,8-HxCDF	0.00000071	J,DX MB q	0.000049	0.0000002	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,6,7,8-HxCDF	0.00000059	J,DX MB	0.000049	0.0000002	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,7,8,9-HxCDF	0.00000077	J,DX MB	0.000049	0.0000001	ug/L		02/01/23 06:04	02/06/23 17:29	1
2,3,4,6,7,8-HxCDF	0.00000042	J,DX MB q	0.000049	0.0000001	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,4,6,7,8-HpCDD	0.00000044	J,DX MB	0.000049	0.0000002	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,4,6,7,8-HpCDF	0.00000022	J,DX MB	0.000049	0.0000003	ug/L		02/01/23 06:04	02/06/23 17:29	1
1,2,3,4,7,8,9-HpCDF	0.00000062	J,DX MB	0.000049	0.0000003	ug/L		02/01/23 06:04	02/06/23 17:29	1
OCDD	0.000032	J,DX MB	0.000097	0.0000005	ug/L		02/01/23 06:04	02/06/23 17:29	1
OCDF	0.0000028	J,DX MB	0.000097	0.0000002	ug/L		02/01/23 06:04	02/06/23 17:29	1
Total TCDD	0.0000022	J,DX MB q	0.0000097	0.0000003	ug/L		02/01/23 06:04	02/06/23 17:29	1
Total TCDF	0.00000049	J,DX MB	0.0000097	0.0000001	ug/L		02/01/23 06:04	02/06/23 17:29	1
Total PeCDD	0.00000047	J,DX MB q	0.000049	0.0000003	ug/L		02/01/23 06:04	02/06/23 17:29	1
Total PeCDF	0.00000099	J,DX MB q	0.000049	0.0000001	ug/L		02/01/23 06:04	02/06/23 17:29	1
Total HxCDD	0.00000070	J,DX MB q	0.000049	0.0000002	ug/L		02/01/23 06:04	02/06/23 17:29	1
Total HxCDF	0.00000025	J,DX MB q	0.000049	0.0000001	ug/L		02/01/23 06:04	02/06/23 17:29	1
Total HpCDD	0.00000092	J,DX MB	0.000049	0.0000002	ug/L		02/01/23 06:04	02/06/23 17:29	1
Total HpCDF	0.00000035	J,DX MB q	0.000049	0.0000003	ug/L		02/01/23 06:04	02/06/23 17:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	58		25 - 164				02/01/23 06:04	02/06/23 17:29	1
13C-2,3,7,8-TCDF	57		24 - 169				02/01/23 06:04	02/06/23 17:29	1
13C-1,2,3,7,8-PeCDD	56		25 - 181				02/01/23 06:04	02/06/23 17:29	1
13C-1,2,3,7,8-PeCDF	57		24 - 185				02/01/23 06:04	02/06/23 17:29	1
13C-2,3,4,7,8-PeCDF	45		21 - 178				02/01/23 06:04	02/06/23 17:29	1
13C-1,2,3,4,7,8-HxCDD	42		32 - 141				02/01/23 06:04	02/06/23 17:29	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230115_Comp
Date Collected: 01/15/23 10:10
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
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	50		28 - 130	02/01/23 06:04	02/06/23 17:29	1
13C-1,2,3,4,7,8-HxCDF	40		26 - 152	02/01/23 06:04	02/06/23 17:29	1
13C-1,2,3,6,7,8-HxCDF	49		26 - 123	02/01/23 06:04	02/06/23 17:29	1
13C-1,2,3,7,8,9-HxCDF	66		29 - 147	02/01/23 06:04	02/06/23 17:29	1
13C-2,3,4,6,7,8-HxCDF	63		28 - 136	02/01/23 06:04	02/06/23 17:29	1
13C-1,2,3,4,6,7,8-HpCDD	60		23 - 140	02/01/23 06:04	02/06/23 17:29	1
13C-1,2,3,4,6,7,8-HpCDF	49		28 - 143	02/01/23 06:04	02/06/23 17:29	1
13C-1,2,3,4,7,8,9-HpCDF	62		26 - 138	02/01/23 06:04	02/06/23 17:29	1
13C-OCDD	59		17 - 157	02/01/23 06:04	02/06/23 17:29	1
13C-OCDF	59		17 - 157	02/01/23 06:04	02/06/23 17:29	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	02/01/23 06:04	02/06/23 17:29	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall008_20230115_Comp
Date Collected: 01/15/23 10:10
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.0000097	0.0000005	ug/L	-	02/01/23 06:04	02/07/23 14:27	1
				1					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	54		24 - 169				02/01/23 06:04	02/07/23 14:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	92		35 - 197				02/01/23 06:04	02/07/23 14:27	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

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)
570-124233-1	Outfall008_20230115_Comp	80
570-124233-1 - RA	Outfall008_20230115_Comp	92
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

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)
570-124233-1	Outfall008_20230115_Comp	58	57	56	57	45	42	50	40
570-124233-1 - RA	Outfall008_20230115_Comp		54						
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)
570-124233-1	Outfall008_20230115_Comp	49	66	63	60	49	62	59	59
570-124233-1 - RA	Outfall008_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: 570-124233-2

Project/Site: Boeing NPDES SSFL - Outfall 008 - 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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

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

Analyte	MB	MB	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,3,7,8-TCDD	0.000000844	J,DX q	0.000010	0.0000003	ug/L		02/01/23 06:04	02/06/23 14:23	1
				4					
2,3,7,8-TCDF	0.000000804	J,DX q	0.000010	0.0000001	ug/L		02/01/23 06:04	02/06/23 14:23	1
				8					
1,2,3,7,8-PeCDD	0.00000133	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				8					
1,2,3,7,8-PeCDF	0.00000141	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				6					
2,3,4,7,8-PeCDF	0.00000105	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				8					
1,2,3,4,7,8-HxCDD	0.00000333	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				7					
1,2,3,6,7,8-HxCDD	0.00000177	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				8					
1,2,3,7,8,9-HxCDD	0.00000192	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				4					
1,2,3,4,7,8-HxCDF	0.00000144	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				5					
1,2,3,6,7,8-HxCDF	0.00000140	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				2					
1,2,3,7,8,9-HxCDF	0.00000126	J,DX q	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				4					
2,3,4,6,7,8-HxCDF	0.000000852	J,DX q	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				1					
1,2,3,4,6,7,8-HpCDD	0.00000347	J,DX q	0.000050	0.0000001	ug/L		02/01/23 06:04	02/06/23 14:23	1
				9					
1,2,3,4,6,7,8-HpCDF	0.00000196	J,DX q	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				3					
1,2,3,4,7,8,9-HpCDF	0.00000202	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				6					
OCDD	0.0000106	J,DX	0.00010	0.0000003	ug/L		02/01/23 06:04	02/06/23 14:23	1
				6					
OCDF	0.00000474	J,DX	0.00010	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				4					
Total TCDD	0.00000670	J,DX q	0.000010	0.0000003	ug/L		02/01/23 06:04	02/06/23 14:23	1
				4					
Total TCDF	0.000000804	J,DX q	0.000010	0.0000001	ug/L		02/01/23 06:04	02/06/23 14:23	1
				8					
Total PeCDD	0.00000176	J,DX q	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				8					
Total PeCDF	0.00000246	J,DX	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				6					
Total HxCDD	0.00000809	J,DX q	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				4					
Total HxCDF	0.00000495	J,DX q	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				1					
Total HpCDD	0.00000606	J,DX q	0.000050	0.0000001	ug/L		02/01/23 06:04	02/06/23 14:23	1
				9					
Total HpCDF	0.00000398	J,DX q	0.000050	0.0000002	ug/L		02/01/23 06:04	02/06/23 14:23	1
				3					

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,7,8-TCDD	61		25 - 164	02/01/23 06:04	02/06/23 14:23	1
13C-2,3,7,8-TCDF	60		24 - 169	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,7,8-PeCDD	63		25 - 181	02/01/23 06:04	02/06/23 14:23	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

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	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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

Specialty Organics

Prep Batch: 650862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1 - RA	Outfall008_20230115_Comp	Total/NA	Water	1613B	
570-124233-1	Outfall008_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
570-124233-1	Outfall008_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
570-124233-1 - RA	Outfall008_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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

Client Sample ID: Outfall008_20230115_Comp

Lab Sample ID: 570-124233-1

Date Collected: 01/15/23 10:10

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		1029.5 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 14:27	DB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1029.5 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 17:29	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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-2

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 - Outfall 008 - COMP

Job ID: 570-124233-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124233-1	Outfall008_20230115_Comp	Water	01/15/23 10:10	01/16/23 17:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

124233

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 Bortoc
 17461 Denan Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project:
 Boeing-SSFL NPDES
 Permit 2023
 Routine Outfall [008]
 Outfall 008
 Comp

Project Manager: Katherine Miller
 520.289.8606, 520.904.6944 (cell)
Field Manager: Mark Dominick
 978.294.5033, 918.599.0702 (cell)

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs with Blanket Service Agreements 2016-22, TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler: Adrian Mobeka

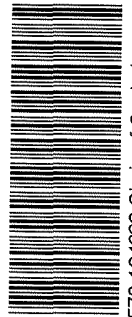
Sample Description	Sample Matrix	Sampling Date/Time	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Field Readings
Outfall008_20230115_Comp	WM	11/5/2023	500 mL Poly	1	HNO ₃	95	No	
	WM		1 L Glass Amber	2	None	110	No	
	WM		500 mL Poly	2	None	130	No	
	WM		500 mL Poly	1	None	155	No	
	WM		500 mL Poly	1	H ₂ SO ₄	160	No	
	WM		500 mL Poly	1	NaOH	220	No	
	WM		2.5 Gal Cube	1	None	225	No	
	WM		1 L Glass Amber	1	None	230	No	
	WM		1 Gal Cube	6	None	235	No	
	WM		1 L Poly	1	None	185	No	
	WM		1 L Poly	1	None	205	No	
Outfall008_20230115_Comp_F	WM	11/5/2023	Ice/silicate vials	1	None	320	No	
Outfall008_20230115_Comp_Extra	WM	11/5/2023	1 L Glass Amber	2	None	110	No	
	WM		500 mL Poly	2	None	130	No	

Legend EP=Expert-Panel, R=Routine

Relinquished By: [Signature] **Date/Time:** 1-16-2023/1430 H:A **Company:** ECL
Relinquished By: [Signature] **Date/Time:** 1-16-23 17:00 ECL **Company:** ECL
Relinquished By: [Signature] **Date/Time:** 08/08 28/2-8 5C11 **Company:** ECL

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

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



Chain of Custody Record



Client Information (Sub Contract Lab)			Lab PM: Patel, Virendra	Carrier Tracking No(s): 570-204372.1												
Client Contact: Shipping/Receiving			E-Mail: Virendra.Patel@et.eurofins.com	Page: Page 1 of 1												
Company: Eurofins Environment Testing Northern Ca			Accreditations Required (See note): State Program - California	Job #: 570-124233-2												
Address: 880 Riverside Parkway, West Sacramento State, Zip: CA, 95605			Due Date Requested: 2/3/2023	Analysis Requested <table border="1"> <tr> <td colspan="2">Perform MS/MSD (Yes or No)</td> <td colspan="2">Total Number of Containers</td> </tr> <tr> <td colspan="2">Field Filtered Sample (Yes or No)</td> <td colspan="2">3</td> </tr> <tr> <td colspan="2">Special Instructions/Note:</td> <td colspan="2">See OAS, Boeing_wtu to zero, ugli; Use Boeing glassware.</td> </tr> </table>	Perform MS/MSD (Yes or No)		Total Number of Containers		Field Filtered Sample (Yes or No)		3		Special Instructions/Note:		See OAS, Boeing_wtu to zero, ugli; Use Boeing glassware.	
Perform MS/MSD (Yes or No)		Total Number of Containers														
Field Filtered Sample (Yes or No)		3														
Special Instructions/Note:		See OAS, Boeing_wtu to zero, ugli; Use Boeing glassware.														
Phone: 916-373-5600(Tel) 916-372-1059(Fax)			TAT Requested (days):													
Email:			PO #:													
Project Name: Boeing NPDES SSFL - Outfall 008 Comp			WO #:													
Site:			Project #: 44024446	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Niinc Acid R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify)												
Sample Identification - Client ID (Lab ID) Outfall008_20230115_Comp (570-124233-1)			SSOW#:	Other:												
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, On-wash, Oil, Air)	Preservation Code:												
1/15/23	10:10 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/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.</p>																
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, IV, Other (specify)																
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: _____ Relinquished by: _____ Date/Time: 01/17/23 13:00 Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____																
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: 1.9c																



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124233-2

Login Number: 124233

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.	False	Refer to Job Narrative for details.
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: 570-124233-2

Login Number: 124233

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 2:44:51 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 008 - COMP

JOB NUMBER

570-124233-4

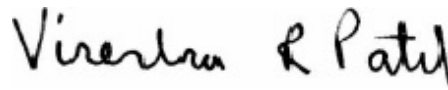
Job Notes

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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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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

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 - Outfall 008 - COMP

Job ID: 570-124233-4

Job ID: 570-124233-4

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124233-4

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 2.8° 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

The number of containers for the following sample did not match the information listed on the Chain-of-Custody (COC):
Outfall008_20230115_Comp (570-124233-1). Received 16 containers, while the COC lists 17.

RAD

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.

Outfall008_20230115_Comp (570-124233-1), (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
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Job ID: 570-124233-4 (Continued)

Laboratory: Eurofins Calscience (Continued)

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.

Outfall008_20230115_Comp (570-124233-1), (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. Outfall008_20230115_Comp (570-124233-1), (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: Outfall008_20230115_Comp (570-124233-1). 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.

Outfall008_20230115_Comp (570-124233-1), (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. Outfall008_20230115_Comp (570-124233-1), (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 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. Outfall008_20230115_Comp (570-124233-1), (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)

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Job ID: 570-124233-4 (Continued)

Laboratory: Eurofins Calscience (Continued)

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.

Outfall008_20230115_Comp (570-124233-1), (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: Outfall008_20230115_Comp (570-124233-1).

Method PrecSep_0: Radium-228 Prep Batch 160-597487

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230115_Comp (570-124233-1). 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: Outfall008_20230115_Comp (570-124233-1). 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: Outfall008_20230115_Comp (570-124233-1). 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 - Outfall 008 - COMP

Job ID: 570-124233-4

Client Sample ID: Outfall008_20230115_Comp

Lab Sample ID: 570-124233-1

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 - Outfall 008 - COMP

Job ID: 570-124233-4

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230115_Comp
 Date Collected: 01/15/23 10:10
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.637	U	1.14	1.14	3.00	1.97	pCi/L	01/25/23 14:57	02/10/23 14:51	1
Gross Beta	2.27		0.730	0.764	4.00	0.966	pCi/L	01/25/23 14:57	02/10/23 14:51	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230115_Comp
Date Collected: 01/15/23 10:10
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.932	U	6.56	6.56	20.0	8.23	pCi/L	01/19/23 15:59	02/16/23 20:50	1
Potassium-40	-1.15	U	79.3	79.3		116	pCi/L	01/19/23 15:59	02/16/23 20:50	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230115_Comp
 Date Collected: 01/15/23 10:10
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0583	U	0.0949	0.0950	1.00	0.167	pCi/L	01/19/23 11:31	02/10/23 07:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110					01/19/23 11:31	02/10/23 07:37	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230115_Comp
 Date Collected: 01/15/23 10:10
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.984	U G	0.732	0.738	1.00	1.12	pCi/L	01/19/23 12:00	01/25/23 12:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110					01/19/23 12:00	01/25/23 12:06	1
Y Carrier	82.2		40 - 110					01/19/23 12:00	01/25/23 12:06	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230115_Comp
Date Collected: 01/15/23 10:10
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.444	U	0.386	0.388	3.00	0.614	pCi/L	01/19/23 09:10	01/27/23 18:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	86.6		40 - 110					01/19/23 09:10	01/27/23 18:27	1
Y Carrier	82.2		40 - 110					01/19/23 09:10	01/27/23 18:27	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230115_Comp
 Date Collected: 01/15/23 10:10
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	199	U	166	167	500	263	pCi/L	01/26/23 08:47	02/01/23 16:51	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230115_Comp
Date Collected: 01/15/23 10:10
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124233-1
Matrix: Water

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.0880	U	0.192	0.192	1.00	0.348	pCi/L	01/19/23 14:12	01/30/23 21:43	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	77.4		30 - 110					01/19/23 14:12	01/30/23 21:43	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

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)	
570-124233-1	Outfall008_20230115_Comp	84.6	
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)
570-124233-1	Outfall008_20230115_Comp	84.6	82.2
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)
570-124233-1	Outfall008_20230115_Comp	86.6	82.2
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	
570-124233-1	Outfall008_20230115_Comp	77.4	
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

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		RER	Limit
											Limits	RER		
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	Limit
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
								Start	End	Start	End	
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	RER
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	Limit
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

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	MB 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		Prepared	Analyzed	Dil Fac		
Ba Carrier	84.6		40 - 110					01/19/23 11:31	02/10/23 07:35

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 Limit
				Uncert. (2σ+/-)							
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		Prepared	Analyzed	Dil Fac				
Ba Carrier	85.1		40 - 110					01/19/23 12:00	01/25/23 17:30	1	

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	MB 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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

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	
									75	125
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
									75	125	0.20	1
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			
											Strontium-90	0.007801	U
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	
									75	125
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

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 Limits		RER	RER Limit
									75 - 125	0.45	1	
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	
									75 - 125	
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	
											60 - 140	
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
										0.14
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

<i>Tracer</i>	<i>MB</i> <i>%Yield</i>	<i>MB</i> <i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	80.4		30 - 110	01/19/23 14:12	01/30/23 21:45	1

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</i> <i>Added</i>	<i>LCS</i> <i>Result</i>	<i>LCS</i> <i>Qual</i>	<i>Total</i> <i>Uncert.</i> <i>(2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>%Rec</i>	<i>%Rec</i> <i>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</i> <i>%Yield</i>	<i>LCS</i> <i>Qualifier</i>	<i>Limits</i>
Uranium-232	80.5		30 - 110

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</i> <i>Result</i>	<i>Sample</i> <i>Qual</i>	<i>DU</i> <i>Result</i>	<i>DU</i> <i>Qual</i>	<i>Total</i> <i>Uncert.</i> <i>(2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>RER</i>	<i>RER</i> <i>Limit</i>
Total Uranium	1.09		1.050		0.326	1.00	0.143	pCi/L	0.06	1

<i>Tracer</i>	<i>DU</i> <i>%Yield</i>	<i>DU</i> <i>Qualifier</i>	<i>Limits</i>
Uranium-232	92.9		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Rad

Prep Batch: 597465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124233-1	Outfall008_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
570-124233-1	Outfall008_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
570-124233-1	Outfall008_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
570-124233-1	Outfall008_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
570-124233-1	Outfall008_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
570-124233-1	Outfall008_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
570-124233-1	Outfall008_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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

Client Sample ID: Outfall008_20230115_Comp

Lab Sample ID: 570-124233-1

Date Collected: 01/15/23 10:10

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			200.00 mL	1.0 g	598185	01/25/23 14:57	MST	EET SL
Total/NA	Analysis	900.0		1			600017	02/10/23 14:51	FLC	EET SL
Instrument ID: GFPCPURPLE										
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			600544	02/16/23 20:50	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			500.45 mL	1.0 g	597480	01/19/23 11:31	DJP	EET SL
Total/NA	Analysis	903.0		1			600015	02/10/23 07:37	SCB	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			500.45 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 12:06	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			494.66 mL	1.0 g	597465	01/19/23 09:10	DJP	EET SL
Total/NA	Analysis	905		1			598536	01/27/23 18:27	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			103.01 mL	1.0 g	598269	01/26/23 08:47	SEH	EET SL
Total/NA	Analysis	906.0		1			599474	02/01/23 16:51	REV	EET SL
Instrument ID: LSCBROWN										
Total/NA	Prep	ExtChrom			250.81 mL	1.0 mL	597538	01/19/23 14:12	SAC	EET SL
Total/NA	Analysis	A-01-R		1			598736	01/30/23 21:43	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 - Outfall 008 - COMP

Job ID: 570-124233-4

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124233-4

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 - Outfall 008 - COMP

Job ID: 570-124233-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124233-1	Outfall008_20230115_Comp	Water	01/15/23 10:10	01/16/23 17:00

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Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s)	COC No:		
Shipping/Receiving Company TestAmerica Laboratories, Inc.		Patel, Virendra	Patel, Virendra	State of Origin California	570-204388-1		
Address 13715 Rider Trail North,		Phone	E-Mail: Virendra.Patel@et.eurofins.com	Page Page 1 of 1	Job # 570-124233-4		
City Earth City	State, Zip MO, 63045	Due Date Requested: 2/20/2023	Accreditations Required (See note) State Program - California	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 X - EDTA Y - Trizma Z - other (specify)			
Phone 314-298-8566(Tel) 314-298-8757(Fax)	FO #	TAT Requested (days):	Analysis Requested				
Email	WO #		901_1_Ca/Fill_Geo_0_K-40 and Cesium-137	900_0/Evaporation_Gross Alpha/Beta	903_0/PreSep_21 Radium-226		
Project Name Boeing NPDES SSFL - Outfall 008 Comp	Project # 44024446		A01R_UEXChrom_Actin Total Uranium	905_0/PreSep_0 Radium-228	906_0/LSC_Diet_Susp Tritium		
Site	SSOW#		Perform MS/MSD (Yes or No)	909_0/PreSep_7 Strontium-90			
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Other)	Preservation Code:	Total Number of containers	Special Instructions/Note:
Outfall008_20230115_Comp (570-124233-1)	1/15/23	10:10 Pacific	Water	Water		1	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/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		<p>Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months</p> <p>Special Instructions/QC Requirements:</p>					
Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2		<p>Received by: <i>FEDEX</i> Date/Time: 1/18/23 9:50 AM Received by: <i>Brianna Sharkey - Sharkey</i> Date/Time: 1/18/23 9:50 AM Received by: _____ Date/Time: _____</p>					
Empty Kit Relinquished by: _____ Date/Time: _____		<p>Method of Shipment: _____ Date/Time: _____</p>					
Relinquished by: <i>FEDEX</i> Date/Time: _____		<p>Cooler Temperature(s) °C and Other Remarks: _____</p>					
Relinquished by: _____ Date/Time: _____		<p>Custody Seal No. Δ Yes Δ No</p>					

ICOC No:
570-204388

Containers

Count
1

Preservative
None

Container Type
Plastic 2.5 Gallon



ICOC No:
570-204388

Containers

<u>Count</u>	<u>Container Type</u>
3	Amber Glass 1 liter - unpreserved
3	Plastic 2.5 Gallon

Preservative

None
None



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124233-4

Login Number: 124233

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.	False	Refer to Job Narrative for details.
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: 570-124233-4

Login Number: 124233

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 \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 1/23/2023 4:08:33 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 008 - GRAB

JOB NUMBER

570-124236-1

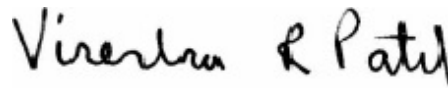
Job Notes

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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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1/23/2023 4:08:33 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 - Outfall 008 - GRAB

Job ID: 570-124236-1

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 NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124236-1

Job ID: 570-124236-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-124236-1

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 1.9° C.

GC Semi VOA

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 570-296702.

Method: 1664.

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 - Outfall 008 - GRAB

Job ID: 570-124236-1

Client Sample ID: Outfall008_20230114_Grab

Lab Sample ID: 570-124236-1

No Detections.

- 1
- 2
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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 - Outfall 008 - GRAB

Job ID: 570-124236-1

General Chemistry

Client Sample ID: Outfall008_20230114_Grab

Date Collected: 01/14/23 11:55

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124236-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		1.0	0.51	mg/L		01/18/23 10:11	01/18/23 19:27	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124236-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-296702/1-A
Matrix: Water
Analysis Batch: 296912

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296702

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		01/18/23 10:11	01/18/23 19:27	1

Lab Sample ID: LCS 570-296702/2-A
Matrix: Water
Analysis Batch: 296912

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296702

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	37.1		mg/L		93	78 - 114

Lab Sample ID: LCSD 570-296702/3-A
Matrix: Water
Analysis Batch: 296912

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296702

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

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124236-1

General Chemistry

Prep Batch: 296702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124236-1	Outfall008_20230114_Grab	Total/NA	Water	1664A	
MB 570-296702/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-296702/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-296702/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 296912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124236-1	Outfall008_20230114_Grab	Total/NA	Water	1664A	296702
MB 570-296702/1-A	Method Blank	Total/NA	Water	1664A	296702
LCS 570-296702/2-A	Lab Control Sample	Total/NA	Water	1664A	296702
LCSD 570-296702/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	296702

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124236-1

Client Sample ID: Outfall008_20230114_Grab

Lab Sample ID: 570-124236-1

Date Collected: 01/14/23 11:55

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	1664A			1005 mL	1000 mL	296702	01/18/23 10:11	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			296912	01/18/23 19:27	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

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 008 - GRAB

Job ID: 570-124236-1

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.

Eurofins Calscience



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124236-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

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 - Outfall 008 - GRAB

Job ID: 570-124236-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124236-1	Outfall008_20230114_Grab	Water	01/14/23 11:55	01/16/23 17:00

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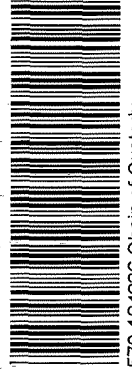
124236

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

TRAEFT9R

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Deiran Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Grab		Field Readings (Include units) Time of Readings: 1155 pH 7.53 pH unit Temp 51.0 °C/F Field readings QC Checked by: [Signature] Date/Time: 1-14-23 14:55				
Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Oil & Grease (E1694-HEM)				
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD
Outfall 008	Outfall008_20230114_Grab	1/14/2023 14:30	WM	1 L Glass Amber	2	H ₂ SO ₄	15	No
	Outfall008_20230114_Grab_Extra	1/14/2023 17:00	WM	1 L Glass Amber	2	H ₂ SO ₄	15	No
Sampler: Adrian Mobeka								
Legend: R-Routine Received By: [Signature] Date/Time: 1-16-23 14:30 Received By: [Signature] Date/Time: 1-16-23 17:00 Received By: [Signature] Date/Time: 1-9/1.9 9C11								



570-124236 Chain of Custody



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124236-1

Login Number: 124236

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 3:40:10 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 008 - GRAB

JOB NUMBER

570-124870-1

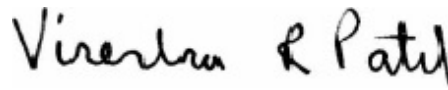
Job Notes

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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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2/3/2023 3:40:10 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 - Outfall 008 - GRAB

Job ID: 570-124870-1

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 NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124870-1

Job ID: 570-124870-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-124870-1

Comments

No additional comments.

Receipt

The sample was received on 1/20/2023 6:30 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

GC Semi VOA

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 570-298543.

Method: 1664.

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 - Outfall 008 - GRAB

Job ID: 570-124870-1

Client Sample ID: Outfall008_20230120_Grab

Lab Sample ID: 570-124870-1

No Detections.

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- 2
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- 13
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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 - Outfall 008 - GRAB

Job ID: 570-124870-1

General Chemistry

Client Sample ID: Outfall008_20230120_Grab
Date Collected: 01/20/23 10:50
Date Received: 01/20/23 18:30

Lab Sample ID: 570-124870-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.96	0.49	mg/L		01/25/23 13:07	01/25/23 20:05	1

- 1
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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124870-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-298543/1-A
Matrix: Water
Analysis Batch: 298672

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298543

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		01/25/23 13:07	01/25/23 20:05	1

Lab Sample ID: LCS 570-298543/2-A
Matrix: Water
Analysis Batch: 298672

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298543

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	38.1		mg/L		95	78 - 114

Lab Sample ID: LCSD 570-298543/3-A
Matrix: Water
Analysis Batch: 298672

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298543

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.6		mg/L		97	78 - 114	1	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124870-1

General Chemistry

Prep Batch: 298543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124870-1	Outfall008_20230120_Grab	Total/NA	Water	1664A	
MB 570-298543/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-298543/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-298543/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 298672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124870-1	Outfall008_20230120_Grab	Total/NA	Water	1664A	298543
MB 570-298543/1-A	Method Blank	Total/NA	Water	1664A	298543
LCS 570-298543/2-A	Lab Control Sample	Total/NA	Water	1664A	298543
LCSD 570-298543/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	298543



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124870-1

Client Sample ID: Outfall008_20230120_Grab

Lab Sample ID: 570-124870-1

Date Collected: 01/20/23 10:50

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	Prep	1664A			1043 mL	1000 mL	298543	01/25/23 13:07	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			298672	01/25/23 20:05	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

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 008 - GRAB

Job ID: 570-124870-1

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 NPDES SSFL - Outfall 008 - GRAB

Job ID: 570-124870-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

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 008 - GRAB

Job ID: 570-124870-1


Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124870-1	Outfall008_20230120_Grab	Water	01/20/23 10:50	01/20/23 18:30

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CHAIN OF CUSTODY FORM

EuroTms Calscience Irvine

TIR AEST93

Client Name/Address: Halev & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 EuroTms Calscience Irvine Contact: Christian Bondoc 1746 Derian Ave Suite #100 Irvine CA 92614 Tel: 549-260-3218		Project: Eoing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Grab		Field Readings: Meter serial # Field Readings: (Include units) Time of Readings: 1050 pH 7.99 pH unit Temp 46.4 °C/F Field readings QC Checked by: <i>W.Dominick</i> Date/Time: 1-20-23/1105	
Project Manager: Katherine Mills 520.219.8606, 520.904.6944 (cel)		ANALYSIS REQUIRED			
Field Manager: Mark Dominick 978.224.5033, 818.399.0702 (cel)		Oil & Grease (E1664A-HEM) X			
Sample I.D. Outfall008_2230120_Grab	Sample Matrix WM	Container Type 1 L Glass Amber	# of Con 2	Preservative HCl	MS/MSD No
Sampling Date/Time 1/20/2023 1105	Both # 1E	Comments Extra-Bottles-Runs			
 <p>570-124870 Chain of Custody</p>					
Legend (R-Routine)					
Receiving By: <i>W.Dominick</i> Date/Time: 1-20-2023/1310 Company:	Received By: <i>W.Dominick</i> Date/Time: 1/20/23 1310 EC	Receiving By: <i>W.Dominick</i> Date/Time: 1/20/23 1830 Company:	Received By: <i>W.Dominick</i> Date/Time: 1/20/23 1830	Tu 4-hour time: (Check) 24 Hour _____ 72 Hour _____ 10 Day _____ X 48 Hour _____ 5 Day _____ Normal _____	Sample Integrity (Check) Int act: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: _____ X

21/2-1 5011



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124870-1

Login Number: 124870

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 - Outfall 008 - COMP

JOB NUMBER

570-124890-1

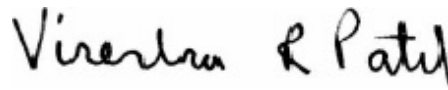
Job Notes

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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 3:22:52 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 - Outfall 008 - COMP

Job ID: 570-124890-1

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
LN	MS and/or MSD below 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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Job ID: 570-124890-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124890-1

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 1.6° C and 2.1° C.

HPLC/IC

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

Metals

Method 200.7 Rev 4.4: The method blank for preparation batch 570-298060 and analytical batch 570-298305 contained Nickel above the method detection limit. This target analyte concentration was less than the reporting limit (RL) or greater than 10X the value found in the method blank; 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 570-298550 and analytical batch 570-298597 were outside control limits for Antimony. 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 570-298550 and analytical batch 570-298597 contained Nickel 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 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 samples were not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230121_Comp_F (570-124890-2), (570-124890-C-2 MS) and (570-124890-C-2 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.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Client Sample ID: Outfall008_20230121_Comp

Lab Sample ID: 570-124890-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.7		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrite as N	0.12		0.10	0.043	mg/L	1		300.0	Total/NA
Nitrate as N	1.5		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate	6.6		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	1.6		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
Antimony	0.80	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Nickel	1.4	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	150		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall008_20230121_Comp_F

Lab Sample ID: 570-124890-2

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
Antimony	0.91	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Nickel	1.2	J,DX BU MB	2.0	0.17	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 - Outfall 008 - COMP

Job ID: 570-124890-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230121_Comp

Date Collected: 01/21/23 08:55

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.7		1.0	0.36	mg/L			01/21/23 12:42	1
Nitrite as N	0.12		0.10	0.043	mg/L			01/21/23 12:42	1
Nitrate as N	1.5		0.10	0.020	mg/L			01/21/23 12:42	1
Sulfate	6.6		1.0	0.24	mg/L			01/21/23 12:42	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230121_Comp
Date Collected: 01/21/23 08:55
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/27/23 05:36	1

- 1
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230121_Comp

Date Collected: 01/21/23 08:55

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.6		0.10	0.020	mg/L			01/24/23 12:20	1

- 1
- 2
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

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

Client Sample ID: Outfall008_20230121_Comp

Date Collected: 01/21/23 08:55

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/24/23 09:53	01/24/23 13:26	1
Cadmium	ND		1.0	0.13	ug/L		01/24/23 09:53	01/24/23 13:26	1
Copper	1.4	J,DX	2.0	0.32	ug/L		01/24/23 09:53	01/24/23 13:26	1
Lead	ND		1.0	0.12	ug/L		01/24/23 09:53	01/24/23 13:26	1
Antimony	0.80	J,DX	2.0	0.36	ug/L		01/24/23 09:53	01/24/23 13:26	1
Selenium	ND		2.0	0.52	ug/L		01/24/23 09:53	01/24/23 13:26	1
Thallium	ND		1.0	0.11	ug/L		01/24/23 09:53	01/24/23 13:26	1
Nickel	1.4	J,DX	2.0	0.17	ug/L		01/24/23 09:53	01/24/23 13:26	1
Zinc	ND		20	2.8	ug/L		01/24/23 09:53	01/24/23 13:26	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

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

Client Sample ID: Outfall008_20230121_Comp_F

Date Collected: 01/21/23 08:55

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND	BU	1.0	0.23	ug/L			01/25/23 14:48	1
Cadmium	ND	BU	1.0	0.13	ug/L			01/25/23 14:48	1
Copper	1.3	J,DX BU	2.0	0.32	ug/L			01/25/23 14:48	1
Lead	ND	BU	1.0	0.12	ug/L			01/25/23 14:48	1
Antimony	0.91	J,DX BU	2.0	0.36	ug/L			01/25/23 14:48	1
Selenium	ND	BU	2.0	0.52	ug/L			01/25/23 14:48	1
Thallium	ND	BU	1.0	0.11	ug/L			01/25/23 14:48	1
Nickel	1.2	J,DX BU MB	2.0	0.17	ug/L			01/25/23 14:48	1
Zinc	ND	BU	20	2.8	ug/L			01/25/23 14:48	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230121_Comp
Date Collected: 01/21/23 08:55
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
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 16:04	1

- 1
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230121_Comp_F
Date Collected: 01/21/23 08:55
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-2
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 15:33	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

General Chemistry

Client Sample ID: Outfall008_20230121_Comp

Date Collected: 01/21/23 08:55

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		01/30/23 12:27	01/30/23 14:36	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/23/23 15:18	1
Total Dissolved Solids (SM 2540C)	150		10	8.7	mg/L			01/27/23 14:51	1
Total Suspended Solids (SM 2540D)	ND		1.0	0.83	mg/L			01/23/23 13:32	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

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
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Method: 300.0 - Anions, Ion Chromatography

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

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Method: 314.0 - Perchlorate (IC) (Continued)

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
Silver	ND		1.0	0.23	ug/L		01/24/23 09:53	01/24/23 13:19	1
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
Lead	0.142	J,DX	1.0	0.12	ug/L		01/24/23 09:53	01/24/23 13:19	1
Antimony	ND		2.0	0.36	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
Thallium	ND		1.0	0.11	ug/L		01/24/23 09:53	01/24/23 13:19	1
Nickel	ND		2.0	0.17	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
Silver	80.0	80.3		ug/L		100	85 - 115
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
Antimony	80.0	73.8		ug/L		92	85 - 115
Selenium	80.0	80.1		ug/L		100	85 - 115
Thallium	80.0	80.7		ug/L		101	85 - 115
Nickel	80.0	79.3		ug/L		99	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	RPD Limit
Silver	80.0	80.3		ug/L		100	85 - 115	0	20
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
Antimony	80.0	74.1		ug/L		93	85 - 115	0	20
Selenium	80.0	77.8		ug/L		97	85 - 115	3	20
Thallium	80.0	81.1		ug/L		101	85 - 115	1	20
Nickel	80.0	79.1		ug/L		99	85 - 115	0	20
Zinc	80.0	79.8		ug/L		100	85 - 115	0	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

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

Lab Sample ID: 570-124890-1 MS
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Outfall008_20230121_Comp
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		80.0	79.9		ug/L		100	80 - 120
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
Antimony	0.80	J,DX	80.0	87.5		ug/L		108	80 - 120
Selenium	ND		80.0	78.3		ug/L		98	80 - 120
Thallium	ND		80.0	81.2		ug/L		102	80 - 120
Nickel	1.4	J,DX	80.0	79.5		ug/L		98	80 - 120
Zinc	ND		80.0	81.4		ug/L		102	80 - 120

Lab Sample ID: 570-124890-1 MSD
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Outfall008_20230121_Comp
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
Silver	ND		80.0	80.8		ug/L		101	80 - 120	1	20
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
Antimony	0.80	J,DX	80.0	87.6		ug/L		108	80 - 120	0	20
Selenium	ND		80.0	79.0		ug/L		99	80 - 120	1	20
Thallium	ND		80.0	82.8		ug/L		103	80 - 120	2	20
Nickel	1.4	J,DX	80.0	82.0		ug/L		101	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
Silver	ND		1.0	0.23	ug/L			01/25/23 14:41	1
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
Antimony	ND		2.0	0.36	ug/L			01/25/23 14:41	1
Selenium	ND		2.0	0.52	ug/L			01/25/23 14:41	1
Thallium	ND		1.0	0.11	ug/L			01/25/23 14:41	1
Nickel	0.339	J,DX	2.0	0.17	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
Silver	80.0	77.7		ug/L		97	85 - 115
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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

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

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
Antimony	80.0	86.6		ug/L		108	85 - 115
Selenium	80.0	77.7		ug/L		97	85 - 115
Thallium	80.0	77.7		ug/L		97	85 - 115
Nickel	80.0	73.3		ug/L		92	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
Silver	80.0	78.0		ug/L		98	85 - 115	0	20
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
Antimony	80.0	91.3		ug/L		114	85 - 115	5	20
Selenium	80.0	74.9		ug/L		94	85 - 115	4	20
Thallium	80.0	77.2		ug/L		97	85 - 115	1	20
Nickel	80.0	74.0		ug/L		92	85 - 115	1	20
Zinc	80.0	75.4		ug/L		94	85 - 115	1	20

Lab Sample ID: 570-124890-2 MS
Matrix: Water
Analysis Batch: 298597

Client Sample ID: Outfall008_20230121_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND	BU	80.0	73.7		ug/L		92	80 - 120
Cadmium	ND	BU	80.0	75.5		ug/L		94	80 - 120
Copper	1.3	J,DX BU	80.0	74.2		ug/L		91	80 - 120
Lead	ND	BU	80.0	75.5		ug/L		94	80 - 120
Antimony	0.91	J,DX BU	80.0	62.5	LN	ug/L		77	80 - 120
Selenium	ND	BU	80.0	82.0		ug/L		103	80 - 120
Thallium	ND	BU	80.0	74.9		ug/L		94	80 - 120
Nickel	1.2	J,DX BU	80.0	73.1		ug/L		90	80 - 120
Zinc	ND	BU	80.0	77.0		ug/L		96	80 - 120

Lab Sample ID: 570-124890-2 MSD
Matrix: Water
Analysis Batch: 298597

Client Sample ID: Outfall008_20230121_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	ND	BU	80.0	72.2		ug/L		90	80 - 120	2	20
Cadmium	ND	BU	80.0	74.2		ug/L		93	80 - 120	2	20
Copper	1.3	J,DX BU	80.0	73.3		ug/L		90	80 - 120	1	20
Lead	ND	BU	80.0	75.3		ug/L		94	80 - 120	0	20
Antimony	0.91	J,DX BU	80.0	63.5	LN	ug/L		78	80 - 120	2	20
Selenium	ND	BU	80.0	78.7		ug/L		98	80 - 120	4	20
Thallium	ND	BU	80.0	74.8		ug/L		93	80 - 120	0	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

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

Lab Sample ID: 570-124890-2 MSD
 Matrix: Water
 Analysis Batch: 298597

Client Sample ID: Outfall008_20230121_Comp_F
 Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nickel	1.2	J,DX BU	80.0	72.6		ug/L		89	80 - 120	1	20
Zinc	ND	BU	80.0	74.7		ug/L		93	80 - 120	3	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

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Method: 245.1 - Mercury (CVAA) (Continued)

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	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

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	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	Limit
Ammonia	0.500	0.482		mg/L		96	90 - 110	1	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

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	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

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	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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

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

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 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-299241/1
 Matrix: Water
 Analysis Batch: 299241

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			01/27/23 14:51	1

Lab Sample ID: LCS 570-299241/2
 Matrix: Water
 Analysis Batch: 299241

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 570-299241/3
 Matrix: Water
 Analysis Batch: 299241

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

Lab Sample ID: 570-125088-I-1 DU
 Matrix: Water
 Analysis Batch: 299241

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	8300		8030		mg/L		3	10

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

Lab Sample ID: MB 570-297872/1
 Matrix: Water
 Analysis Batch: 297872

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 13:32	1

Lab Sample ID: LCS 570-297872/2
 Matrix: Water
 Analysis Batch: 297872

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	86.0		mg/L		86	77 - 116

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

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

Lab Sample ID: LCSD 570-297872/3
Matrix: Water
Analysis Batch: 297872

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	82.0		mg/L		82	77 - 116	5	10

Lab Sample ID: 590-19659-A-1 DU
Matrix: Water
Analysis Batch: 297872

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	84		82.3		mg/L		2	10

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

HPLC/IC

Analysis Batch: 297605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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	

Analysis Batch: 298163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_20230121_Comp	Total/NA	Water	NO2NO3 Calc	

Analysis Batch: 298791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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	
570-124890-1 MS	Outfall008_20230121_Comp	Total Recoverable	Water	200.8	
570-124890-1 MSD	Outfall008_20230121_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 298201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_20230121_Comp	Total Recoverable	Water	200.8	298096
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
570-124890-1 MS	Outfall008_20230121_Comp	Total Recoverable	Water	200.8	298096
570-124890-1 MSD	Outfall008_20230121_Comp	Total Recoverable	Water	200.8	298096

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Metals

Filtration Batch: 298285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-2	Outfall008_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	

Prep Batch: 298287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-2	Outfall008_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
570-124890-1	Outfall008_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
570-124890-2	Outfall008_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	
570-124890-2 MS	Outfall008_20230121_Comp_F	Dissolved	Water	Filtration	
570-124890-2 MSD	Outfall008_20230121_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 298597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-2	Outfall008_20230121_Comp_F	Dissolved	Water	200.8	298550
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
570-124890-2 MS	Outfall008_20230121_Comp_F	Dissolved	Water	200.8	298550
570-124890-2 MSD	Outfall008_20230121_Comp_F	Dissolved	Water	200.8	298550

Analysis Batch: 298644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_20230121_Comp	Total/NA	Water	245.1	298289
570-124890-2	Outfall008_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

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Metals (Continued)

Analysis Batch: 298644 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
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

General Chemistry

Analysis Batch: 297872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_20230121_Comp	Total/NA	Water	SM 2540D	
MB 570-297872/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-297872/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-297872/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
590-19659-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 297946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_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: 299241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_20230121_Comp	Total/NA	Water	SM 2540C	
MB 570-299241/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-299241/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-299241/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-125088-I-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Prep Batch: 299646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

General Chemistry (Continued)

Analysis Batch: 299684 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124924-X-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	299646

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Client Sample ID: Outfall008_20230121_Comp

Lab Sample ID: 570-124890-1

Date Collected: 01/21/23 08:55

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	Analysis	300.0		1	4 mL	4 mL	297605	01/21/23 12:42	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	300.0		1	4 mL	4 mL	297606	01/21/23 12:42	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	314.0		1	4 mL	4 mL	298791	01/27/23 05:36	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			298201	01/24/23 13:26	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
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 16:04	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 14:36	UXCH	EET CAL 4
	Instrument ID: ACA2									
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	297946	01/23/23 15:18	GG0B	EET CAL 4
	Instrument ID: LCHAT01									
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	299241	01/27/23 14:51	ZL7L	EET CAL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	297872	01/23/23 13:32	UWCT	EET CAL 4
	Instrument ID: BAL71									

Client Sample ID: Outfall008_20230121_Comp_F

Lab Sample ID: 570-124890-2

Date Collected: 01/21/23 08:55

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			298597	01/25/23 14:48	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
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 15:33	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 - Outfall 008 - COMP

Job ID: 570-124890-1

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-1

Method	Method Description	Protocol	Laboratory
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	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 - Outfall 008 - COMP

Job ID: 570-124890-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124890-1	Outfall008_20230121_Comp	Water	01/21/23 08:55	01/21/23 11:40
570-124890-2	Outfall008_20230121_Comp_F	Water	01/21/23 08:55	01/21/23 11:40

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CHAIN OF CUSTODY FORM



Loc: 570
124890

570-124890 Chain of Custody

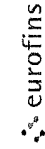
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Co. Baliner Type	# of Cont.	Preservative	Bottle #	ANALYSIS REQUIRED										Field Readings
								TSS (160.2) (SM2540D))	Total Dissolved Metals: Mercury (E245.1)	Cyanide (SM4500-CN-E / E335.2)	Ammonia-N (350.2)	Chronic Toxicity Selenium (EPA 821-R-02-013) ABC Labs in Ventura, CA	CS-137 (E901.0 or E901.1) Radium 226 (E904.0), Uranium (E904.1) & Total (E904.2)	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (E900.3), Sr-90 (E905.0), Total (E905.1) & (E200.8): Ag, Cd, Cu, Pb, Sb, Se, TI	Total Dissolved Metals: (E200.7): Ni, Zn	TDS (SM2540C/E160.1) Perchlorate (300)	TCDD (and all congeners) (E1613B) (E200.7): Ag, Cd, Cu, Pb, Sb, Se, TI	
Project: Boeing SSFL NPDES Permit 2023 Routine: Outfall 008 Contact: Christian Bondoc Irvine, CA 92614 Tel: 949-260-3218 Project Manager: Katharine Miller 520.289.8803; 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033; 818.599.0702 (cell)								Project: Boeing SSFL NPDES Permit 2023 Routine: Outfall 008 Contact: Christian Bondoc Irvine, CA 92614 Tel: 949-260-3218										
1	Outfall008_20230121_Comp	12/1/2023 10:55	WM	5/10 mL Poly	1	HNO ₃	95	No	No	X	X	X	X	X	X			
2	Outfall008_20231121_Comp_F	12/1/2023 10:55	WM	1L Glass Amber	2	None	110	No	No									
3	Outfall008_20230121_Comp_Extra	12/1/2023 10:55	WM	5/10 mL Poly	2	None	130	No	No									
			WM	5/10 mL Poly	1	None	155	No	No	X	X	X	X	X	X			
			WM	5/10 mL Poly	1	H ₂ SO ₄	160	No	No									
			WM	5/10 mL Poly	1	NaOH	220	No	No									
			WM	2.5 Gal Cube	1	None	225	No	No									
			WM	1L Glass Amber	1	None	230	No	No									
			WM	1 Gal Cube	6	None	285	No	No									
			WM	1L Poly	1	None	185	No	No	X	X	X	X	X	X			
			WM	1L Poly	1	None	205	No	No									
			WM	borellicate vials	1	None	320	No	No									
			WM	1L Glass Amber	2	None	110	No	No	H	H	H	H	H	H			
			WM	5/10 mL Poly	2	None	130	No	No									

Releas. Date/Time: 12-23/140 Company: HELEN SCHUER	Legend: EP-Expert Panel, Re-Routine Received By: EC Date/Time: 12-23 11:40	Turn-around time: (Check) 24 Hour ____ 72 Hour ____ 10 Day ____ X ____ 48 Hour ____ 5 Day ____ Normal: ____
Releas. Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Sample Integrity (Check) Intact: _____ On Ice: _____ Data Requirements: (Check) No Level IV: _____ All Level IV: ____ X ____

Handwritten notes: 12/2-1, 12/16 SC11



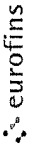
Chain of Custody Record



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		570-204884 1			
Company: TestAmerica Laboratories, Inc.		E-Mail: Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	Page 1 of 1		Page #:			
Address: 13715 Rider Trail North		Accreditations Required (See note): State Program - California		Job #:		570-124890-3			
City: Earth City	Due Date Requested: 2/24/2023	Analysis Requested				Preservation Codes			
State, Zip: MO, 63045	TAT Requested (days)					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 #:					Perform MS/MSD (Yes or No)		Total Number of containers	
Email:	WO #:					Field Filtered Sample (Yes or No)		Boeing SSFL, DO NOT FILTER, use prep date from preservation	
Project Name: Boeing NPDES SSFL - Outfall 008 - COMP	Project #: 44024446	Sample Date	Sample Time	Sample Type (C-Comp, G-grab)	Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air)	Special Instructions/Note:			
Site:	SSOW#:	1/21/23	08 55 Pacific		Water				
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)	Special Instructions/Note:			
Outfall008_20230121_Comp (570-124890-1)		1/21/23	08 55 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/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: Δ Yes Δ No									
Custody Seal 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: Shipping/Receiving			Phone:			Patel Virendra			State of Origin: California			570-204885 1		
Company: Eurofins Environment Testing Northern Ca			E-Mail: Virendra.Patel@et.eurofins.com			Virendra Patel@et.eurofins.com			Page: Page 1 of 1			Job #: 570-124890-2		
Address: 880 Riverside Parkway, West Sacramento State: Zn: CA, 95605			Due Date Requested 2/9/2023			TAT Requested (days)			Accreditations Required (See note) State Program - California			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 - Trizina Z - other (specify)		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)			PO #:											
Email:			WO #:											
Project Name: Boeing NPDES SSFL - Outfall 008 - COMP			Project #: 44024446											
Site:			SSOW#:											
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Totals 1613B/1613B_Sox_Sep_P (MOD) Standard List W	Totals 1613B/1613B_Sox_Sep_P (MOD) Standard List W	Totals (Hold)	Analysis Requested	Special Instructions/Note:			
Outfall008_20230121_Comp (570-124890-1)	1/21/23	08 55 Pacific	Water	Water	X	X				See OAS Boeing_wiu to zero ug/L, Use Boeing glassware				
Outfall008_20230121_Comp_Extra (570-124890-3)	1/21/23	08 55 Pacific	Water	Water			X			See OAS Boeing_wiu 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														
Empty Kit Relinquished by _____ Relinquished by _____ Relinquished by _____ Relinquished by _____ Custody Seals Intact: _____ Δ Yes Δ No Cooler Temperature(s) °C and Other Remarks: _____														



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124890-1

Login Number: 124890

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 NPDES SSFL - Outfall 008 - COMP

JOB NUMBER

570-124890-2

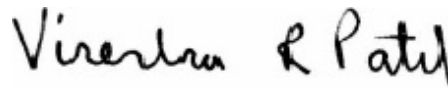
Job Notes

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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 3:23:43 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.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

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 - Outfall 008 - COMP

Job ID: 570-124890-2

Job ID: 570-124890-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-124890-2

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 1.6° C and 2.1° 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: Outfall008_20230121_Comp (570-124890-1) and (CCV 320-652595/2). 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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

Client Sample ID: Outfall008_20230121_Comp

Lab Sample ID: 570-124890-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.0000027	J,DX MB q	0.000048	0.0000016	ug/L	1		1613B	Total/NA
1,2,3,4,7,8-HxCDD	0.0000021	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDD	0.0000046	J,DX MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDD	0.0000036	J,DX MB q	0.000048	0.0000002	ug/L	1		1613B	Total/NA
1,2,3,4,7,8-HxCDF	0.0000052	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDF	0.0000037	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDF	0.0000051	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
2,3,4,6,7,8-HxCDF	0.0000025	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.0000013	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.0000073	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
1,2,3,4,7,8,9-HpCDF	0.0000041	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
OCDD	0.0000059	J,DX MB	0.000095	0.0000002	ug/L	1		1613B	Total/NA
OCDF	0.0000014	J,DX MB	0.000095	0.0000002	ug/L	1		1613B	Total/NA
Total TCDF	0.0000047	J,DX	0.0000095	0.0000001	ug/L	1		1613B	Total/NA
Total PeCDD	0.0000040	J,DX q	0.000048	0.0000003	ug/L	1		1613B	Total/NA
Total PeCDF	0.0000027	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
Total HxCDD	0.0000035	J,DX MB q	0.000048	0.0000002	ug/L	1		1613B	Total/NA
Total HxCDF	0.0000017	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
Total HpCDD	0.0000028	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
Total HpCDF	0.0000014	J,DX MB q	0.000048	0.0000001	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 - Outfall 008 - COMP

Job ID: 570-124890-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230121_Comp

Date Collected: 01/21/23 08:55

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000005	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000003	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,7,8-PeCDF	0.00000027	J,DX MB q	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,4,7,8-HxCDD	0.00000021	J,DX MB	0.000048	0.0000002	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,6,7,8-HxCDD	0.00000046	J,DX MB	0.000048	0.0000002	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,7,8,9-HxCDD	0.00000036	J,DX MB q	0.000048	0.0000002	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,4,7,8-HxCDF	0.00000052	J,DX MB q	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,6,7,8-HxCDF	0.00000037	J,DX MB	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,7,8,9-HxCDF	0.00000051	J,DX MB q	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
2,3,4,6,7,8-HxCDF	0.00000025	J,DX MB	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,4,6,7,8-HpCDD	0.00000013	J,DX MB	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,4,6,7,8-HpCDF	0.00000073	J,DX MB	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
1,2,3,4,7,8,9-HpCDF	0.00000041	J,DX MB	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
OCDD	0.00000059	J,DX MB	0.000095	0.0000002	ug/L		02/03/23 10:06	02/07/23 21:37	1
OCDF	0.00000014	J,DX MB	0.000095	0.0000002	ug/L		02/03/23 10:06	02/07/23 21:37	1
Total TCDD	ND		0.0000095	0.0000005	ug/L		02/03/23 10:06	02/07/23 21:37	1
Total TCDF	0.00000047	J,DX	0.0000095	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
Total PeCDD	0.00000040	J,DX q	0.000048	0.0000003	ug/L		02/03/23 10:06	02/07/23 21:37	1
Total PeCDF	0.00000027	J,DX MB q	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
Total HxCDD	0.00000035	J,DX MB q	0.000048	0.0000002	ug/L		02/03/23 10:06	02/07/23 21:37	1
Total HxCDF	0.00000017	J,DX MB q	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
Total HpCDD	0.00000028	J,DX MB	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
Total HpCDF	0.00000014	J,DX MB q	0.000048	0.0000001	ug/L		02/03/23 10:06	02/07/23 21:37	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	75		25 - 164				02/03/23 10:06	02/07/23 21:37	1
13C-2,3,7,8-TCDF	73		24 - 169				02/03/23 10:06	02/07/23 21:37	1
13C-1,2,3,7,8-PeCDD	77		25 - 181				02/03/23 10:06	02/07/23 21:37	1
13C-1,2,3,7,8-PeCDF	76		24 - 185				02/03/23 10:06	02/07/23 21:37	1
13C-2,3,4,7,8-PeCDF	69		21 - 178				02/03/23 10:06	02/07/23 21:37	1
13C-1,2,3,4,7,8-HxCDD	70		32 - 141				02/03/23 10:06	02/07/23 21:37	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230121_Comp
Date Collected: 01/21/23 08:55
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
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	73		28 - 130	02/03/23 10:06	02/07/23 21:37	1
13C-1,2,3,4,7,8-HxCDF	63		26 - 152	02/03/23 10:06	02/07/23 21:37	1
13C-1,2,3,6,7,8-HxCDF	75		26 - 123	02/03/23 10:06	02/07/23 21:37	1
13C-1,2,3,7,8,9-HxCDF	83		29 - 147	02/03/23 10:06	02/07/23 21:37	1
13C-2,3,4,6,7,8-HxCDF	83		28 - 136	02/03/23 10:06	02/07/23 21:37	1
13C-1,2,3,4,6,7,8-HpCDD	76		23 - 140	02/03/23 10:06	02/07/23 21:37	1
13C-1,2,3,4,6,7,8-HpCDF	69		28 - 143	02/03/23 10:06	02/07/23 21:37	1
13C-1,2,3,4,7,8,9-HpCDF	77		26 - 138	02/03/23 10:06	02/07/23 21:37	1
13C-OCDD	75		17 - 157	02/03/23 10:06	02/07/23 21:37	1
13C-OCDF	73		17 - 157	02/03/23 10:06	02/07/23 21:37	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	02/03/23 10:06	02/07/23 21:37	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall008_20230121_Comp

Date Collected: 01/21/23 08:55

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.0000095	0.0000006	ug/L		02/03/23 10:06	02/08/23 21:47	1
				8					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	69		24 - 169				02/03/23 10:06	02/08/23 21:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	104		35 - 197				02/03/23 10:06	02/08/23 21:47	1

- 1
- 2
- 3
- 4
- 5
- 6
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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

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)
570-124890-1	Outfall008_20230121_Comp	88
570-124890-1 - RA	Outfall008_20230121_Comp	104
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

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)
570-124890-1	Outfall008_20230121_Comp	75	73	77	76	69	70	73	63
570-124890-1 - RA	Outfall008_20230121_Comp		69						
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)
570-124890-1	Outfall008_20230121_Comp	75	83	83	76	69	77	75	73
570-124890-1 - RA	Outfall008_20230121_Comp								
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

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Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-124890-2

Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

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 - Outfall 008 - COMP

Job ID: 570-124890-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

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

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000011	ug/L		02/03/23 10:06	02/07/23 14:39	1
2,3,7,8-TCDF	ND		0.000010	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,7,8-PeCDD	ND		0.000050	0.0000004	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,7,8-PeCDF	0.000000524	J,DX	0.000050	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,4,7,8-HxCDD	0.00000235	J,DX	0.000050	0.0000003	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,6,7,8-HxCDD	0.000000472	J,DX	0.000050	0.0000003	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,7,8,9-HxCDD	0.000000555	J,DX q	0.000050	0.0000003	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,4,7,8-HxCDF	0.000000363	J,DX q	0.000050	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,6,7,8-HxCDF	0.000000299	J,DX q	0.000050	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,7,8,9-HxCDF	0.000000640	J,DX	0.000050	0.0000001	ug/L		02/03/23 10:06	02/07/23 14:39	1
2,3,4,6,7,8-HxCDF	0.000000315	J,DX q	0.000050	0.0000001	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,4,6,7,8-HpCDD	0.00000160	J,DX	0.000050	0.0000001	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,4,6,7,8-HpCDF	0.00000125	J,DX q	0.000050	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
1,2,3,4,7,8,9-HpCDF	0.000000762	J,DX	0.000050	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
OCDD	0.00000491	J,DX	0.00010	0.0000003	ug/L		02/03/23 10:06	02/07/23 14:39	1
OCDF	0.00000107	J,DX q	0.00010	0.0000005	ug/L		02/03/23 10:06	02/07/23 14:39	1
Total TCDD	ND		0.000010	0.0000011	ug/L		02/03/23 10:06	02/07/23 14:39	1
Total TCDF	ND		0.000010	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
Total PeCDD	ND		0.000050	0.0000004	ug/L		02/03/23 10:06	02/07/23 14:39	1
Total PeCDF	0.000000524	J,DX	0.000050	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
Total HxCDD	0.00000337	J,DX q	0.000050	0.0000003	ug/L		02/03/23 10:06	02/07/23 14:39	1
Total HxCDF	0.00000162	J,DX q	0.000050	0.0000001	ug/L		02/03/23 10:06	02/07/23 14:39	1
Total HpCDD	0.00000368	J,DX	0.000050	0.0000001	ug/L		02/03/23 10:06	02/07/23 14:39	1
Total HpCDF	0.00000201	J,DX q	0.000050	0.0000002	ug/L		02/03/23 10:06	02/07/23 14:39	1
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	71		25 - 164				02/03/23 10:06	02/07/23 14:39	1
13C-2,3,7,8-TCDF	69		24 - 169				02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,7,8-PeCDD	72		25 - 181				02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,7,8-PeCDF	72		24 - 185				02/03/23 10:06	02/07/23 14:39	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

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
LCS LCS			
Surrogate	%Recovery	Qualifier	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 LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

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>	<i>LCSD LCSD</i>		<u>Limits</u>
	<i>%Recovery</i>	<i>Qualifier</i>	
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>	<i>LCSD LCSD</i>		<u>Limits</u>
	<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.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

Specialty Organics

Prep Batch: 651610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1 - RA	Outfall008_20230121_Comp	Total/NA	Water	1613B	
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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

Analysis Batch: 652595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1 - RA	Outfall008_20230121_Comp	Total/NA	Water	1613B	651610

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

Client Sample ID: Outfall008_20230121_Comp

Lab Sample ID: 570-124890-1

Date Collected: 01/21/23 08:55

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	RA		1050.8 mL	20.0 uL	651610	02/03/23 10:06	CGB	EET SAC
Total/NA	Analysis	1613B	RA	1	1 uL	1 uL	652595	02/08/23 21:47	DB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1050.8 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 21:37	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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

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



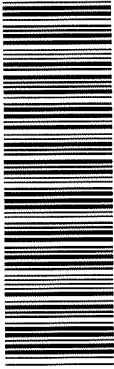
Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124890-1	Outfall008_20230121_Comp	Water	01/21/23 08:55	01/21/23 11:40

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16



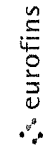
570-124890 Chain of Custody

Client Name/Address: Haley & Aldrich 53333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 1746* Deitan Ave Suite #100 Irvine CA 92614 Tel 919-260-3218		Project: Boeing SSFLINPDES Permit 2023 Routing: Outfall 008 Outfall 008 Comp		Project Manager: Katherine Miller 520.289.8603; 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033; 818.599.0702 (cell)		<table border="1"> <thead> <tr> <th>Sample Desc/ID</th> <th>Sample I.D.</th> <th>Sampling Date/Time</th> <th>Sample Matrix</th> <th>Co. Baliner Type</th> <th># of Cont.</th> <th>Preservative</th> <th>Bottle #</th> <th>MSMSD</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Outfall008_20230121_Comp</td> <td>12/1/2023 10:55</td> <td>WM</td> <td>5/10 mL Poly</td> <td>1</td> <td>HNO₃</td> <td>95</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>1 L Glass Amber</td> <td>2</td> <td>None</td> <td>110</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>5/10 mL Poly</td> <td>2</td> <td>None</td> <td>130</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>5/10 mL Poly</td> <td>1</td> <td>None</td> <td>155</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>5/10 mL Poly</td> <td>1</td> <td>H₂SO₄</td> <td>160</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>5/10 mL Poly</td> <td>1</td> <td>NaOH</td> <td>220</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>2.5 Gal Cube</td> <td>1</td> <td>None</td> <td>225</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>1 L Glass Amber</td> <td>1</td> <td>None</td> <td>230</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>1 Gal Cube</td> <td>6</td> <td>None</td> <td>285</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>1 L Poly</td> <td>1</td> <td>None</td> <td>185</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>1 L Poly</td> <td>1</td> <td>None</td> <td>205</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>bottle/cate vials</td> <td>1</td> <td>None</td> <td>320</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>1 L Glass Amber</td> <td>2</td> <td>None</td> <td>110</td> <td>No</td> </tr> <tr> <td></td> <td></td> <td></td> <td>WM</td> <td>5/10 mL Poly</td> <td>2</td> <td>None</td> <td>130</td> <td>No</td> </tr> </tbody> </table>		Sample Desc/ID	Sample I.D.	Sampling Date/Time	Sample Matrix	Co. Baliner Type	# of Cont.	Preservative	Bottle #	MSMSD	1	Outfall008_20230121_Comp	12/1/2023 10:55	WM	5/10 mL Poly	1	HNO ₃	95	No				WM	1 L Glass Amber	2	None	110	No				WM	5/10 mL Poly	2	None	130	No				WM	5/10 mL Poly	1	None	155	No				WM	5/10 mL Poly	1	H ₂ SO ₄	160	No				WM	5/10 mL Poly	1	NaOH	220	No				WM	2.5 Gal Cube	1	None	225	No				WM	1 L Glass Amber	1	None	230	No				WM	1 Gal Cube	6	None	285	No				WM	1 L Poly	1	None	185	No				WM	1 L Poly	1	None	205	No				WM	bottle/cate vials	1	None	320	No				WM	1 L Glass Amber	2	None	110	No				WM	5/10 mL Poly	2	None	130	No	<p>TESTAMERICA'S SERVICE UNDER THIS COC SHALL BE PERFORMED IN ACCORDANCE WITH THE TSCAs WITH BLANKET SERVICE AGREEMENTS 2019-22 TESTAMERICA BY AND BETWEEN HALEY & A. DRICH, INC. ITS SUBSIDIARIES AND AFFILIATES, AND TESTAMERICA LABORATORIES INC.</p> <p>Sampler: Adrian Mobeka</p>		<p>ANALYSIS REQUIRED</p> <p>Total Recoverable Metals: (E200.7); Ag, Cd, Cu, Pb, Sb, Se, Tl X</p> <p>TCDD (and all congeners) (E1613B) X</p> <p>Perchlorate (300) X</p> <p>TDS (SM2540C/E160.1) X</p> <p>Total Dissolved Metals: (E200.7); Ni, Zn X</p> <p>Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (T-3) (E908.0), Sr-90 (E905.0), Total Radium 226 (E903.0 or E903.1) & CS-137 (E901.0 or E901.1) X</p> <p>Chronic Toxicity Selenium (EPA-821-R-02-013) X</p> <p>ABC Labs in Ventura, CA X</p> <p>Ammonia-N (350.2) X</p> <p>Cyanide (SM4500-CN-E / E335.2) X</p> <p>Total Dissolved Metals: Mercury (E245.1) X</p> <p>TSS (160.2) (SM2540D) X</p>		<p>Field Readings</p> <p>Comments</p> <p>48 hours Holding Time NO_x & NO₂</p> <p>Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MSMSD.</p> <p>Only test if first or second rain events of the year in Denver or 72PC Labs in Ventura, CA</p> <p>Filler and preserve within 24hrs of receipt at lab Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedure s.</p> <p>Hold</p> <p>Hold</p>	
Sample Desc/ID	Sample I.D.	Sampling Date/Time	Sample Matrix	Co. Baliner Type	# of Cont.	Preservative	Bottle #	MSMSD																																																																																																																																												
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			WM	5/10 mL Poly	2	None	130	No																																																																																																																																												
<p>Relinquished By: SEATEL SCHULER Date/Time: 1-21-23/1140 Company: HALEY ALDRICH</p>		<p>Received By: [Signature] Date/Time: EC 1-21-23 11:40 Company: [Signature]</p>		<p>Legend: EP=Expert Panel, R=Routine</p> <p>Received By: [Signature] Date/Time: [Signature]</p>		<p>Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X 48 Hour ___ 5 Day ___ Normal: ___</p> <p>Sample Integrity (Check) Intact: ___ On Ice: ___ Store samples for 6 months. Data Requirements: (Check) No Level IV ___ All Level IV ___ X</p>																																																																																																																																														

21/2-1, 18/16 SC11



Chain of Custody Record



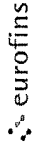
Client Information (Sub Contract Lab)			Lab PM Patel, Virendra	Carrier Tracking No(s): 570-204884 1
Client Contact: Shipping/Receiving			E-Mail: Virendra.Patel@et.eurofins.com	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.			State of Origin: California	COC No: 570-124890-3
Address: 13715 Rider 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	Job #: 570-124890-3
Project Name: Boeing NPDES SSFL - Outfall 008 - COMP Site:			Due Date Requested: 2/24/2023 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
PO #: WO #: Project #: 44024446 SSOW#:			Analysis Requested	Special Instructions/Note: Boeing SSFL, DO NOT FILTER, use prep date from preservation
Sample Identification - Client ID (Lab ID) Outfall008_20230121_Comp (570-124890-1)			Perform MS/MSD (Yes or No) Field Filtered Sample (Yes or No)	Total Number of containers 2
Sample Date 1/21/23	Sample Time 08 55 Pacific	Sample Type (C=Comp, G=grab) Preservation Code: Water	901_Cs/Fill_Geo_0-K-40 and CsUm-137 A01R_U/ExChrom_Actin Total Uranium 900_0/Evaporation Gross Alpha/Beta 903_0/PreSep_21 Radium-226 904_0/PreSep_0 Radium-228 905_Sr90/PreSep_7 Strontium-90 906_0/LSC_Dist_Susp Tritium	
<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/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 Date/Time: 1/23/23 1400				
Relinquished by Date/Time: 1/23/23 1400				
Relinquished by Date/Time:				
Custody Seals Intact: Δ Yes Δ 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

Method of Shipment:
Received by: _____ Company
Date/Time: _____
Received by: _____ Company
Date/Time: _____
Received by: _____ Company
Date/Time: _____
Cooler Temperature(s) °C and Other Remarks:



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel Virendra	Lab PM: Patel Virendra	Carrier Tracking No(s): 570-204885 1	COC No: 570-204885 1
Client Contact: Shipping/Receiving		Phone: Virendra Patel@ret.eurofins.com	E-Mail: Virendra Patel@ret.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 #: 570-124890-2	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)
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		Due Date Requested: 2/9/2023	Analysis Requested		
City: West Sacramento		TAT Requested (days):	M - 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: CA, Zip: CA, 95605		PO #:	Total Number of containers		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		WO #:	1		
Email:		Project #: 44024446	Special Instructions/Note:		
Project Name: Boeing NPDES SSFL - Outfall 008 - COMP		SSOW#:	See OAS Boeing_wiu to zero ug/L, Use Boeing glassware		
Site:			See OAS Boeing_wiu to zero ug/L, Use Boeing glassware		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)
Outfall008_20230121_Comp (570-124890-1)	1/21/23	08 55 Pacific	Water		Water
Outfall008_20230121_Comp_Extra (570-124890-3)	1/21/23	08 55 Pacific	Water		Water
Perform MS/MSD (Yes or No)		Field Filtered Sample (Yes or No)		Totals	
1613B/1613B_Sox_Sep_P (MOD) Standard List w/		1613B/1613B_Sox_Sep_P (MOD) Standard List w/		Totals (Hold)	
X		X		X	
<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 Unconfirmed Deliverable Requested I, II, III, IV Other (specify) Primary Deliverable Rank 2</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>					
Empty Kit Relinquished by		Date:		Method of Shipment:	
Relinquished by		Date/Time: 1/23/23 1412		Received by	
Relinquished by		Date/Time:		Received by	
Relinquished by		Date/Time:		Received by	
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



Client Information (Sub Contract Lab)		Sampler: Lab PM: Patel, Virendra		COC No: 570-204885.1	
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 # 570-124890-2	
Due Date Requested: 2/9/2023		TAT Requested (days):		Preservation Codes: A - HCL B - NaOH C - AsNaO2 D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
PO #:		WO #:		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)	
Project #: 44024446		SSOW#:		Total Number of containers	
Site: Boeing NPDES SSFL - Outfall 008 - COMP		Matrix (Water, Spill, Oil, BT-Tissue, A-Air)		Special Instructions/Note:	
Sample Identification - Client ID (Lab ID)		Sample Type (C=Comp, G=grab)		See QAS, Boeing, w/u to zero, ug/L; Use Boeing glassware.	
Sample Date		Sample Time		See QAS, Boeing, w/u to zero, ug/L; Use Boeing glassware.	
1/21/23		08:55 Pacific		2	
1/21/23		08:55 Pacific		2	
Field Filtered Sample (Yes or No)		Preservation Code:			
Perform MS/MSD (Yes or No)		Water			
1613B/1613B_Sox_Sep_P (MOD) Standard List W		Water			
Totals					
1613B/1613B_Sox_Sep_P (MOD) Standard List W					
Totals					
Analysis Requested					
Accreditations Required (See note): State Program - California					
Gamer Tracking No(s):					
State of Origin: California					

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
 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: _____ Method of Shipment: _____
 Relinquished by: *MP Patel* Date/Time: 1/23/23 1412 Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seal Intact: Yes No Custody Seal No.: *See 1* Cooler Temperature(s) °C and Other Remarks: *18*



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124890-2

Login Number: 124890

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: 570-124890-2

Login Number: 124890

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 NPDES SSFL - Outfall 008 - COMP

JOB NUMBER

570-124890-3

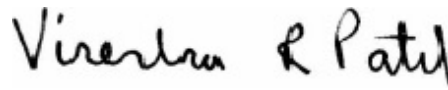
Job Notes

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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 - Outfall 008 - COMP

Job ID: 570-124890-3

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Job ID: 570-124890-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124890-3

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 1.6° C and 2.1° 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.

Outfall008_20230121_Comp (570-124890-1), (LCS 160-598963/2-A), (LCSB 160-598963/3-A), (MB 160-598963/1-A), (570-124887-R-1-G), (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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Job ID: 570-124890-3 (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.

Outfall008_20230121_Comp (570-124890-1), (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. Outfall008_20230121_Comp (570-124890-1), (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. Outfall008_20230121_Comp (570-124890-1), (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. Outfall008_20230121_Comp (570-124890-1)

Methods 900.0, 905: Gross Alpha Beta prep batch 160-598892:

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. (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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Job ID: 570-124890-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

applied as the Activity Reference Date. Outfall008_20230121_Comp (570-124890-1), (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 applied as the Activity Reference Date.

Outfall008_20230121_Comp (570-124890-1), (LCS 160-598317/2-A), (MB 160-598317/1-A), (570-124898-R-1-C) and (570-124898-R-1-D DU)

Method ExtChrom: Uranium Prep Batch 160-598317:

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall008_20230121_Comp (570-124890-1).

Method PrecSep_0: Radium-228 Prep Batch 160-598275

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230121_Comp (570-124890-1). 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: Outfall008_20230121_Comp (570-124890-1). 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: Outfall008_20230121_Comp (570-124890-1). 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: Outfall008_20230121_Comp (570-124890-1). 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: Outfall008_20230121_Comp (570-124890-1). 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

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230121_Comp (570-124890-1). 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 - Outfall 008 - COMP

Job ID: 570-124890-3

Client Sample ID: Outfall008_20230121_Comp

Lab Sample ID: 570-124890-1

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 - Outfall 008 - COMP

Job ID: 570-124890-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230121_Comp
 Date Collected: 01/21/23 08:55
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.35	U	1.17	1.18	3.00	1.83	pCi/L	02/02/23 12:38	02/14/23 20:02	1
Gross Beta	0.919		0.574	0.581	4.00	0.842	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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230121_Comp
 Date Collected: 01/21/23 08:55
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	3.36	U	6.11	6.12	20.0	7.06	pCi/L	01/27/23 16:27	02/22/23 13:45	1
Potassium-40	47.4	U	78.0	78.3		78.5	pCi/L	01/27/23 16:27	02/22/23 13:45	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230121_Comp
 Date Collected: 01/21/23 08:55
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0972	U	0.0793	0.0798	1.00	0.119	pCi/L	01/26/23 09:36	02/21/23 17:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.0		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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230121_Comp
Date Collected: 01/21/23 08:55
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0336	U	0.451	0.451	1.00	0.833	pCi/L	01/26/23 09:50	02/01/23 12:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.0		30 - 110					01/26/23 09:50	02/01/23 12:08	1
Y Carrier	82.6		30 - 110					01/26/23 09:50	02/01/23 12:08	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230121_Comp
Date Collected: 01/21/23 08:55
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.249	U	0.406	0.407	3.00	0.685	pCi/L	01/27/23 12:54	02/08/23 16:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	89.5		30 - 110					01/27/23 12:54	02/08/23 16:03	1
Y Carrier	83.7		30 - 110					01/27/23 12:54	02/08/23 16:03	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230121_Comp
Date Collected: 01/21/23 08:55
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-21.6	U	153	153	500	283	pCi/L	01/31/23 12:11	02/02/23 03:11	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230121_Comp
Date Collected: 01/21/23 08:55
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124890-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.199	U	0.183	0.183	1.00	0.240	pCi/L	01/26/23 16:02	02/13/23 13:57	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	84.6		30 - 110					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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

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)	
570-124890-1	Outfall008_20230121_Comp	96.0	
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)
570-124890-1	Outfall008_20230121_Comp	96.0	82.6
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)
570-124890-1	Outfall008_20230121_Comp	89.5	83.7
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)	
570-124890-1	Outfall008_20230121_Comp	84.6	
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

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-R-1-H MS
Matrix: Water
Analysis Batch: 600333

Client Sample ID: Matrix Spike
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-R-1-I MSBT
Matrix: Water
Analysis Batch: 600333

Client Sample ID: Matrix Spike
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-R-1-J DU
Matrix: Water
Analysis Batch: 600334

Client Sample ID: Duplicate
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

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
Potassium-40	35.2	U	-70.31	U	114		149	pCi/L		0.59

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

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	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									
<i>Ba Carrier</i>		<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>								
		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								
<i>Ba Carrier</i>		<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
		96.9		30 - 110				01/26/23 09:50	02/01/23 12:04	1
<i>Y Carrier</i>		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							
<i>Ba Carrier</i>		<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>						
		101		30 - 110						
<i>Y Carrier</i>		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	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									
<i>Ba Carrier</i>		<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>								
		105		30 - 110								
<i>Y Carrier</i>		86.4		30 - 110								

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

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 MB		Limits		Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier								
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 LCS		Limits						
	%Yield	Qualifier							
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 LCSD		Limits								
	%Yield	Qualifier									
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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

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 Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
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 Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
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 Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
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
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	86.3		30 - 110					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 Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
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 Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Total Uranium	0.0800	U	0.1269	U	0.138	1.00	0.198	pCi/L	0.20	1
Tracer	DU %Yield	DU Qualifier	Limits							
Uranium-232	83.0		30 - 110							

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Rad

Prep Batch: 598272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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
570-124890-1	Outfall008_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-R-1-H MS	Matrix Spike	Total/NA	Water	Evaporation	
570-124887-R-1-I MSBT	Matrix Spike	Total/NA	Water	Evaporation	
570-124887-R-1-J DU	Duplicate	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

Client Sample ID: Outfall008_20230121_Comp

Lab Sample ID: 570-124890-1

Date Collected: 01/21/23 08:55

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			601380	02/22/23 13:45	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			758.22 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			758.22 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			501.12 mL	1.0 g	598546	01/27/23 12:54	DJP	EET SL
Total/NA	Analysis	905		1			599672	02/08/23 16:03	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			102.64 mL	1.0 g	598717	01/31/23 12:11	SEH	EET SL
Total/NA	Analysis	906.0		1			599486	02/02/23 03:11	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			355.30 mL	1.0 mL	598317	01/26/23 16:02	MAL	EET SL
Total/NA	Analysis	A-01-R		1			600246	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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

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 NPDES SSFL - Outfall 008 - COMP

Job ID: 570-124890-3

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 - Outfall 008 - COMP

Job ID: 570-124890-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124890-1	Outfall008_20230121_Comp	Water	01/21/23 08:55	01/21/23 11:40

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570-124890 Chain of Custody

Client Name/Address	Project	ANALYSIS REQUIRED		Field Readings
Halley & Aldrich 53333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17465 DeLain Ave Suite #100 Irvine CA 92614 Tel 949-260-3218	Boeing SSFLINPDES Permit 2023 Routine: Outfall 008 Outfall 008 Comp	Project Manager: Katherine Miller 520.289.8603; 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033; 818.599.0702 (cell)		Comments 48 hours Holding Time NO _x & NO _y
Sample Description Outfall008_20230121_Comp	Sample Matrix WM	Sampling Date/Time 12/12/2023 <i>1055</i>	Co. Baliner Type 5/10 mL Poly	Total Recoverable Metals: (E200.7); Ni, Zn (E200.8); Ag, Cd, Cu, Pb, Sb, Se, Tl TCDD (and all congeners) (E1613B) Perchlorate (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.7); Ni, Zn (E200.8); Ag, Cd, Cu, Pb, Sb, Se, Tl Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (T-3) (E908.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E900.1) & CS-137 (E901.0 or E901.1) Chronic Toxicity Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA
Sample ID Outfall008_20230121_Comp_F	Sample Matrix WM	Sampling Date/Time 12/12/2023 <i>1055</i>	Co. Baliner Type 1 L Glass Amber	Cyanide (SM4500-CN-E / E335.2) Ammonia-N (350.2)
Sample ID Outfall008_20230121_Comp_Extra	Sample Matrix WM	Sampling Date/Time 12/12/2023 <i>1055</i>	Co. Baliner Type 5/10 mL Poly	Total Dissolved Mercury (E245.1) Total Dissolved Metals: Mercury (E245.1)
Field Readings 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				

Handwritten notes: 21/2-1, 10/16, 11:40, EC 1-21-23

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 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 NPDES SSFL - Outfall 008 - COMP Site:		Patel, Virendra E-Mail: Virendra.Patel@et.eurofins.com State of Origin: California	570-204884 1 Page: Page 1 of 1 Job #: 570-124890-3	570-204884 1 Page: Page 1 of 1 Job #: 570-124890-3	570-204884 1 Page: Page 1 of 1 Job #: 570-124890-3
Due Date Requested: 2/24/2023 TAT Requested (days):		Analysis Requested Accreditations Required (See note): State Program - California			
PO #: WO #: Project #: SOW#:	901_Cs/Fill_Geo_0_K-40 and CsUm-137 A01R_U/ExChrom_Actin Total Uranium 900_0/Evaporation Gross Alpha/Beta 903_0/PreSep_21 Radium-226 904_0/PreSep_0 Radium-228 905_Sr90/PreSep_7 Strontium-90 906_0/LSC_Dist_Susp Tritium	Perform MS/MSD (Yes or No) Field Filtered Sample (Yes or No)	Total Number of Containers	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:	Special Instructions/Note: Boeing SSFL, DO NOT FILTER, use prep date from preservation
Sample Date: 1/21/23 Sample Time: 08:55 Pacific Sample Type (C=Comp, G=grab): Matrix (W=water, S=solid, O=wastewat, BT=tissue, A=air): Water	Sample Date: 1/21/23 Sample Time: 08:55 Pacific Sample Type (C=Comp, G=grab): Matrix (W=water, S=solid, O=wastewat, BT=tissue, A=air): Water	Sample Date: 1/21/23 Sample Time: 08:55 Pacific Sample Type (C=Comp, G=grab): Matrix (W=water, S=solid, O=wastewat, BT=tissue, A=air): Water	Sample Date: 1/21/23 Sample Time: 08:55 Pacific Sample Type (C=Comp, G=grab): Matrix (W=water, S=solid, O=wastewat, BT=tissue, A=air): Water	Sample Date: 1/21/23 Sample Time: 08:55 Pacific Sample Type (C=Comp, G=grab): Matrix (W=water, S=solid, O=wastewat, BT=tissue, A=air): Water	Sample Date: 1/21/23 Sample Time: 08:55 Pacific Sample Type (C=Comp, G=grab): Matrix (W=water, S=solid, O=wastewat, BT=tissue, A=air): Water
Sample Identification - Client ID (Lab ID) Outfall008_20230121_Comp (570-124890-1)		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/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:		Method of Shipment:			
Relinquished by:		Received by:			
Relinquished by:		Received by:			
Relinquished by:		Received by:			
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:			



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler Patel Virendra		Carrier Tracking No(s) 570-204885 1	
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note) State Program - California		Job #: 570-124890-2	
Address: 880 Riverside Parkway, City: West Sacramento State: Zn: CA, 95605		Due Date Requested 2/9/2023		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 Z - other (specify)	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		TAT Requested (days)		Other:	
Email:		PO #:			
Project #: 44024446		WO #:			
Project Name: Boeing NPDES SSFL - Outfall 008 - COMP		Project #: 44024446			
Site:		SSOW#:			
Sample Identification - Client ID (Lab ID)		Sample Date		Field Filtered Sample (Yes or No)	
Outfall008_20230121_Comp (570-124890-1)		1/21/23		X	
Outfall008_20230121_Comp_Extra (570-124890-3)		1/21/23		X	
Sample Type (C=Comp, G=grab)		Sample Time		Perform MS/MSD (Yes or No)	
Water		08 55 Pacific		X	
Water		08 55 Pacific		X	
Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Sample Time		Totals	
Water		08 55 Pacific		1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
Water		08 55 Pacific		1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
				Totals (Hold)	
				1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
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				Totals	
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				Totals (Hold)	
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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		570-204884.1
Company: TestAmerica Laboratories, Inc.		Phone:	E-Mail: Virendra.Patel@et.eurofins.com	Page #		Page 1 of 1
Address: 13715 Rider Trail North,		Accreditations Required (See note): State Program - California		Job #		570-124890-3
City: Earth City	Due Date Requested: 2/24/2023	Analysis Requested				
State, Zip: MO, 63045	TAT Requested (days):	Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:	Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>				
Email:	WO #:	Preservation Code: Water				
Project Name: Boeing NPDES SSFL - Outfall 008 - COMP	Project #: 44024446	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	MATRIX (W=water, S=solid, O=wast/oil, BT=Tissue, A=Air)	
Site:	SSOW#:	1/21/23	08:55 Pacific			
Sample Identification - Client ID (Lab ID)		Special Instructions/Note:				
Outfall008_20230121_Comp (570-124890-1)	Boeing SSFL; DO NOT FILTER; use prep date from preservation					
Total Number of containers		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/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) _____ Months
 Primary Deliverable Rank: 2
 Special Instructions/QC Requirements: _____

Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____
 Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____

Custody Seal Intact: _____ Custody Seal No.: _____
 Δ Yes Δ No

Received by: *FEDEX*
 Received by: *Benana Samir Awaj - Long Beach 1/24/23 8:50am*
 Received by: _____ Date/Time: _____
 Cooler Temperature(s) °C and Other Remarks



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124890-3

Login Number: 124890

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: 570-124890-3

Login Number: 124890

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 </= 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 NPDES SSFL - Routine Outfall 008 - Grab

JOB NUMBER

570-129008-1

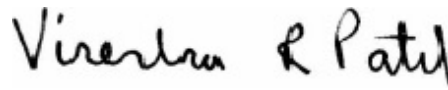
Job Notes

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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: 570-129008-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - 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 008 - Grab

Job ID: 570-129008-1

Job ID: 570-129008-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129008-1

Comments

No additional comments.

Receipt

The samples were received on 2/27/2023 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 2.6° C.

GC Semi VOA

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 570-308085.

Method: 1664.

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 008 - Grat

Job ID: 570-129008-1

Client Sample ID: Outfall008_20230225_Grab

Lab Sample ID: 570-129008-1

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 008 - Grat

Job ID: 570-129008-1

General Chemistry

Client Sample ID: Outfall008_20230225_Grab
Date Collected: 02/25/23 08:20
Date Received: 02/27/23 18:00

Lab Sample ID: 570-129008-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		1.0	0.51	mg/L		03/01/23 14:04	03/02/23 12:27	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129008-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-308085/1-A
Matrix: Water
Analysis Batch: 308437

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308085

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		03/01/23 14:04	03/02/23 12:27	1

Lab Sample ID: LCS 570-308085/2-A
Matrix: Water
Analysis Batch: 308437

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308085

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	36.6		mg/L		92	78 - 114

Lab Sample ID: LCSD 570-308085/3-A
Matrix: Water
Analysis Batch: 308437

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308085

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	37.1		mg/L		93	78 - 114	1	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129008-1

General Chemistry

Prep Batch: 308085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129008-1	Outfall008_20230225_Grab	Total/NA	Water	1664A	
MB 570-308085/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-308085/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-308085/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 308437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129008-1	Outfall008_20230225_Grab	Total/NA	Water	1664A	308085
MB 570-308085/1-A	Method Blank	Total/NA	Water	1664A	308085
LCS 570-308085/2-A	Lab Control Sample	Total/NA	Water	1664A	308085
LCSD 570-308085/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	308085

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129008-1

Client Sample ID: Outfall008_20230225_Grab

Lab Sample ID: 570-129008-1

Date Collected: 02/25/23 08:20

Matrix: Water

Date Received: 02/27/23 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	1664A			1005 mL	1000 mL	308085	03/01/23 14:04	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			308437	03/02/23 12:27	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

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 008 - Grat

Job ID: 570-129008-1

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 008 - Grat

Job ID: 570-129008-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

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 008 -
Grab

Job ID: 570-129008-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129008-1	Outfall008_20230225_Grab	Water	02/25/23 08:20	02/27/23 18:00

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129008

CHAIN OF CUSTODY FORM

570-129008 Chain of Custody

LAB POUX



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 008 Outfall 008 Grab		Field Readings (Include units) Time of Readings: 0820 pH 8.42 pH unit Temp 44.5 °C/F		Meter serial #							
Eurofins Calscience Project Manager - Virendra Patel Tustin, CA 92780 Tel 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606 520.904.6944 (cell)		Field Readings QC Checked by: [Signature] Date/Time: 2-25-2023/0820		Comments							
Eurofins Calscience Project Manager - Virendra Patel Tustin, CA 92780 Tel 714-895-5494 ECI Project #57013187		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Extra Bottles									
Sample Description		Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Oil & Grease (E1694-HEM)	ANALYSIS REQUIRED	Field Readings	
Outfall 008	Outfall008_20230225_Grab	0820	2/25/2023	VM	1 L Glass Amber	2	HCl	15	No	X			
	Outfall008_20230225_Grab_Extra	0929	2/25/2023	VM	1 L Glass Amber	2	HCl	15	No	H			
Sampler: Adrian Mobeka													
Legend R=Routine													
Relinquished By: [Signature]		Date/Time: 2-27-2023/1120		Company: ECI		Received By: [Signature]		Date/Time: 2/27/23 1120		Company: ECI		Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X 48 Hour ___ 5 Day ___ Normal ___	
Relinquished By: [Signature]		Date/Time: 2/27/23 1800		Company: ECI		Received By: [Signature]		Date/Time: 2/27/23 1800		Company: ECI		Sample integrity: (Check) Intact: ___ On Ice: ___ Store samples for 6 months. Data Requirements: (Check) No Level IV: ___ All Level IV: ___ X	

27/2-26 SC12
H



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129008-1

Login Number: 129008

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 008 - Comp

JOB NUMBER

570-129009-1

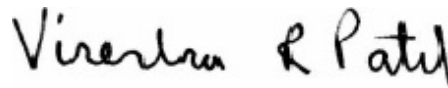
Job Notes

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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 1:10:12 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: 570-129009-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired
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
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.
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 008 - Comp

Job ID: 570-129009-1

Job ID: 570-129009-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-129009-1**

Comments

No additional comments.

Receipt

The samples were received on 2/27/2023 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 1.5° C and 1.9° C.

HPLC/IC

Method 300.0: The following sample was received outside of holding time: Outfall008_20230225_Comp (570-129009-1).

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

Metals

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-308039 and analytical batch 570-308100 were outside control limits for Antimony. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230225_Comp_F (570-129009-2), (570-129009-C-2 MS) and (570-129009-C-2 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: Outfall008_20230225_Comp_F (570-129009-2). 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.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129009-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.9		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrite as N	0.091	J,DX BU	0.10	0.043	mg/L	1		300.0	Total/NA
Nitrate as N	0.47	BU BV	0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate	3.1		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.56		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	1.8	J,DX	2.0	0.36	ug/L	1		200.8	Total
Cadmium	0.14	J,DX	1.0	0.13	ug/L	1		200.8	Recoverable Total
Copper	3.5		2.0	0.32	ug/L	1		200.8	Recoverable Total
Lead	1.4		1.0	0.12	ug/L	1		200.8	Recoverable Total
Nickel	2.1		2.0	0.17	ug/L	1		200.8	Recoverable Total
Silver	0.30	J,DX	1.0	0.23	ug/L	1		200.8	Recoverable Total
Thallium	0.12	J,DX	1.0	0.11	ug/L	1		200.8	Recoverable Total
Zinc	8.4	J,DX	20	2.8	ug/L	1		200.8	Recoverable Total
Total Dissolved Solids	110		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

Client Sample ID: Outfall008_20230225_Comp_F

Lab Sample ID: 570-129009-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	3.0	BU	2.0	0.36	ug/L	1		200.8	Dissolved
Cadmium	0.27	J,DX BU	1.0	0.13	ug/L	1		200.8	Dissolved
Copper	2.0	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.35	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Nickel	1.1	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Selenium	0.53	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Silver	0.51	J,DX BU	1.0	0.23	ug/L	1		200.8	Dissolved
Thallium	0.27	J,DX BU	1.0	0.11	ug/L	1		200.8	Dissolved
Zinc	3.5	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.

Job ID: 570-129009-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.9		1.0	0.36	mg/L			02/28/23 06:24	1
Nitrite as N	0.091	J,DX BU BV	0.10	0.043	mg/L			02/28/23 06:24	1
Nitrate as N	0.47	BU BV	0.10	0.020	mg/L			02/28/23 06:24	1
Sulfate	3.1		1.0	0.24	mg/L			02/28/23 06:24	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129009-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230225_Comp

Date Collected: 02/25/23 08:35

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			02/28/23 22:14	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129009-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.56		0.10	0.020	mg/L			03/03/23 14:06	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-129009-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

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

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.8	J,DX	2.0	0.36	ug/L		02/28/23 06:53	02/28/23 10:49	1
Cadmium	0.14	J,DX	1.0	0.13	ug/L		02/28/23 06:53	02/28/23 10:49	1
Copper	3.5		2.0	0.32	ug/L		02/28/23 06:53	02/28/23 10:49	1
Lead	1.4		1.0	0.12	ug/L		02/28/23 06:53	02/28/23 10:49	1
Nickel	2.1		2.0	0.17	ug/L		02/28/23 06:53	02/28/23 10:49	1
Selenium	ND		2.0	0.52	ug/L		02/28/23 06:53	02/28/23 10:49	1
Silver	0.30	J,DX	1.0	0.23	ug/L		02/28/23 06:53	02/28/23 10:49	1
Thallium	0.12	J,DX	1.0	0.11	ug/L		02/28/23 06:53	02/28/23 10:49	1
Zinc	8.4	J,DX	20	2.8	ug/L		02/28/23 06:53	02/28/23 10:49	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-129009-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

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

Client Sample ID: Outfall008_20230225_Comp_F

Lab Sample ID: 570-129009-2

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.0	BU	2.0	0.36	ug/L			03/01/23 14:23	1
Cadmium	0.27	J,DX BU	1.0	0.13	ug/L			03/01/23 14:23	1
Copper	2.0	BU	2.0	0.32	ug/L			03/01/23 14:23	1
Lead	0.35	J,DX BU	1.0	0.12	ug/L			03/01/23 14:23	1
Nickel	1.1	J,DX BU	2.0	0.17	ug/L			03/01/23 14:23	1
Selenium	0.53	J,DX BU	2.0	0.52	ug/L			03/01/23 14:23	1
Silver	0.51	J,DX BU	1.0	0.23	ug/L			03/01/23 14:23	1
Thallium	0.27	J,DX BU	1.0	0.11	ug/L			03/01/23 14:23	1
Zinc	3.5	J,DX BU	20	2.8	ug/L			03/01/23 14:23	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129009-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230225_Comp

Date Collected: 02/25/23 08:35

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/03/23 09:45	03/03/23 13:45	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129009-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230225_Comp_F

Date Collected: 02/25/23 08:35

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-2

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 13:41	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129009-1

General Chemistry

Client Sample ID: Outfall008_20230225_Comp

Date Collected: 02/25/23 08:35

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	ND		0.075	0.032	mg/L		03/08/23 09:40	03/08/23 11:49	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/03/23 20:26	1
Total Dissolved Solids (SM 2540C)	110		10	8.7	mg/L			03/02/23 16:19	1
Total Suspended Solids (SM 2540D)	23		2.0	1.7	mg/L			03/03/23 18:43	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-307534/5
Matrix: Water
Analysis Batch: 307534

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			02/28/23 04:07	1
Nitrate as N	ND		0.10	0.020	mg/L			02/28/23 04:07	1

Lab Sample ID: LCS 570-307534/6
Matrix: Water
Analysis Batch: 307534

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		103	90 - 110
Nitrate as N	5.00	5.05		mg/L		101	90 - 110

Lab Sample ID: LCSD 570-307534/7
Matrix: Water
Analysis Batch: 307534

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		103	90 - 110	0	15
Nitrate as N	5.00	5.02		mg/L		100	90 - 110	0	15

Lab Sample ID: MB 570-307535/5
Matrix: Water
Analysis Batch: 307535

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			02/28/23 04:07	1
Sulfate	ND		1.0	0.24	mg/L			02/28/23 04:07	1

Lab Sample ID: LCS 570-307535/6
Matrix: Water
Analysis Batch: 307535

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	50.2		mg/L		100	90 - 110
Sulfate	50.0	49.7		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-307535/7
Matrix: Water
Analysis Batch: 307535

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	50.2		mg/L		100	90 - 110	0	15
Sulfate	50.0	49.6		mg/L		99	90 - 110	0	15

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

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 570-307551/1-A
Matrix: Water
Analysis Batch: 307680

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 307551

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		02/28/23 06:53	02/28/23 10:41	1
Cadmium	ND		1.0	0.13	ug/L		02/28/23 06:53	02/28/23 10:41	1
Copper	ND		2.0	0.32	ug/L		02/28/23 06:53	02/28/23 10:41	1
Lead	ND		1.0	0.12	ug/L		02/28/23 06:53	02/28/23 10:41	1
Nickel	ND		2.0	0.17	ug/L		02/28/23 06:53	02/28/23 10:41	1
Selenium	ND		2.0	0.52	ug/L		02/28/23 06:53	02/28/23 10:41	1
Silver	ND		1.0	0.23	ug/L		02/28/23 06:53	02/28/23 10:41	1
Thallium	ND		1.0	0.11	ug/L		02/28/23 06:53	02/28/23 10:41	1
Zinc	ND		20	2.8	ug/L		02/28/23 06:53	02/28/23 10:41	1

Lab Sample ID: LCS 570-307551/2-A
Matrix: Water
Analysis Batch: 307680

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 307551

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	77.7		ug/L		97	85 - 115
Cadmium	80.0	76.5		ug/L		96	85 - 115
Copper	80.0	73.9		ug/L		92	85 - 115
Lead	80.0	76.9		ug/L		96	85 - 115
Nickel	80.0	74.6		ug/L		93	85 - 115
Selenium	80.0	77.0		ug/L		96	85 - 115
Silver	80.0	76.1		ug/L		95	85 - 115
Thallium	80.0	76.6		ug/L		96	85 - 115
Zinc	80.0	76.3		ug/L		95	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

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

Lab Sample ID: LCSD 570-307551/3-A
Matrix: Water
Analysis Batch: 307680

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 307551

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Antimony	80.0	81.9		ug/L		102	85 - 115	5	20	
Cadmium	80.0	77.5		ug/L		97	85 - 115	1	20	
Copper	80.0	75.6		ug/L		94	85 - 115	2	20	
Lead	80.0	77.6		ug/L		97	85 - 115	1	20	
Nickel	80.0	76.0		ug/L		95	85 - 115	2	20	
Selenium	80.0	78.1		ug/L		98	85 - 115	2	20	
Silver	80.0	76.7		ug/L		96	85 - 115	1	20	
Thallium	80.0	76.2		ug/L		95	85 - 115	1	20	
Zinc	80.0	76.5		ug/L		96	85 - 115	0	20	

Lab Sample ID: 570-129009-1 MS
Matrix: Water
Analysis Batch: 307680

Client Sample ID: Outfall008_20230225_Comp
Prep Type: Total Recoverable
Prep Batch: 307551

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	1.8	J,DX	80.0	80.1		ug/L		98	80 - 120			
Cadmium	0.14	J,DX	80.0	77.5		ug/L		97	80 - 120			
Copper	3.5		80.0	77.1		ug/L		92	80 - 120			
Lead	1.4		80.0	77.8		ug/L		96	80 - 120			
Nickel	2.1		80.0	76.4		ug/L		93	80 - 120			
Selenium	ND		80.0	75.8		ug/L		95	80 - 120			
Silver	0.30	J,DX	80.0	75.9		ug/L		94	80 - 120			
Thallium	0.12	J,DX	80.0	76.4		ug/L		95	80 - 120			
Zinc	8.4	J,DX	80.0	83.4		ug/L		94	80 - 120			

Lab Sample ID: 570-129009-1 MSD
Matrix: Water
Analysis Batch: 307680

Client Sample ID: Outfall008_20230225_Comp
Prep Type: Total Recoverable
Prep Batch: 307551

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	1.8	J,DX	80.0	80.9		ug/L		99	80 - 120	1	20	
Cadmium	0.14	J,DX	80.0	77.5		ug/L		97	80 - 120	0	20	
Copper	3.5		80.0	77.5		ug/L		93	80 - 120	1	20	
Lead	1.4		80.0	78.3		ug/L		96	80 - 120	1	20	
Nickel	2.1		80.0	77.4		ug/L		94	80 - 120	1	20	
Selenium	ND		80.0	78.0		ug/L		97	80 - 120	3	20	
Silver	0.30	J,DX	80.0	76.4		ug/L		95	80 - 120	1	20	
Thallium	0.12	J,DX	80.0	76.2		ug/L		95	80 - 120	0	20	
Zinc	8.4	J,DX	80.0	84.5		ug/L		95	80 - 120	1	20	

Lab Sample ID: MB 570-308039/1-A
Matrix: Water
Analysis Batch: 308100

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		03/01/23 14:16		1	
Copper	ND		2.0	0.32	ug/L		03/01/23 14:16		1	

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

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

Lab Sample ID: MB 570-308039/1-A
Matrix: Water
Analysis Batch: 308100

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.0	0.12	ug/L			03/01/23 14:16	1
Nickel	ND		2.0	0.17	ug/L			03/01/23 14:16	1
Selenium	ND		2.0	0.52	ug/L			03/01/23 14:16	1
Silver	ND		1.0	0.23	ug/L			03/01/23 14:16	1
Thallium	ND		1.0	0.11	ug/L			03/01/23 14:16	1
Zinc	ND		20	2.8	ug/L			03/01/23 14:16	1

Lab Sample ID: LCS 570-308039/2-A
Matrix: Water
Analysis Batch: 308100

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	79.8		ug/L		100	85 - 115
Cadmium	80.0	80.0		ug/L		100	85 - 115
Copper	80.0	77.6		ug/L		97	85 - 115
Lead	80.0	80.3		ug/L		100	85 - 115
Nickel	80.0	78.1		ug/L		98	85 - 115
Selenium	80.0	82.2		ug/L		103	85 - 115
Silver	80.0	79.7		ug/L		100	85 - 115
Thallium	80.0	80.5		ug/L		101	85 - 115
Zinc	80.0	78.5		ug/L		98	85 - 115

Lab Sample ID: LCSD 570-308039/3-A
Matrix: Water
Analysis Batch: 308100

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	82.8		ug/L		103	85 - 115	4	20
Cadmium	80.0	80.5		ug/L		101	85 - 115	1	20
Copper	80.0	78.2		ug/L		98	85 - 115	1	20
Lead	80.0	80.5		ug/L		101	85 - 115	0	20
Nickel	80.0	78.2		ug/L		98	85 - 115	0	20
Selenium	80.0	83.1		ug/L		104	85 - 115	1	20
Silver	80.0	79.8		ug/L		100	85 - 115	0	20
Thallium	80.0	80.5		ug/L		101	85 - 115	0	20
Zinc	80.0	81.1		ug/L		101	85 - 115	3	20

Lab Sample ID: 570-129009-2 MS
Matrix: Water
Analysis Batch: 308100

Client Sample ID: Outfall008_20230225_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	3.0	BU	80.0	63.8	LN	ug/L		76	80 - 120
Cadmium	0.27	J,DX BU	80.0	67.5		ug/L		84	80 - 120
Copper	2.0	BU	80.0	67.4		ug/L		82	80 - 120
Lead	0.35	J,DX BU	80.0	68.1		ug/L		85	80 - 120
Nickel	1.1	J,DX BU	80.0	67.0		ug/L		82	80 - 120
Selenium	0.53	J,DX BU	80.0	71.8		ug/L		89	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

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

Lab Sample ID: 570-129009-2 MS
Matrix: Water
Analysis Batch: 308100

Client Sample ID: Outfall008_20230225_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	0.51	J,DX BU	80.0	66.8		ug/L		83	80 - 120
Thallium	0.27	J,DX BU	80.0	68.5		ug/L		85	80 - 120
Zinc	3.5	J,DX BU	80.0	69.4		ug/L		82	80 - 120

Lab Sample ID: 570-129009-2 MSD
Matrix: Water
Analysis Batch: 308100

Client Sample ID: Outfall008_20230225_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	3.0	BU	80.0	70.7		ug/L		85	80 - 120	10	20
Cadmium	0.27	J,DX BU	80.0	71.3		ug/L		89	80 - 120	5	20
Copper	2.0	BU	80.0	72.6		ug/L		88	80 - 120	7	20
Lead	0.35	J,DX BU	80.0	71.9		ug/L		89	80 - 120	5	20
Nickel	1.1	J,DX BU	80.0	71.4		ug/L		88	80 - 120	6	20
Selenium	0.53	J,DX BU	80.0	76.3		ug/L		95	80 - 120	6	20
Silver	0.51	J,DX BU	80.0	71.4		ug/L		89	80 - 120	7	20
Thallium	0.27	J,DX BU	80.0	71.8		ug/L		89	80 - 120	5	20
Zinc	3.5	J,DX BU	80.0	72.4		ug/L		86	80 - 120	4	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-308182/1-A
Matrix: Water
Analysis Batch: 308434

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308182

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/01/23 18:22	03/02/23 11:55	1

Lab Sample ID: LCS 570-308182/2-A
Matrix: Water
Analysis Batch: 308434

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308182

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 570-308182/3-A
Matrix: Water
Analysis Batch: 308434

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308182

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.08		ug/L		101	85 - 115	1	10

Lab Sample ID: MB 570-308521/1-A
Matrix: Water
Analysis Batch: 308860

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308521

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/03/23 09:45	03/03/23 13:30	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-308521/2-A
Matrix: Water
Analysis Batch: 308860

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308521

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 570-308521/3-A
Matrix: Water
Analysis Batch: 308860

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308521

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: MB 570-309367/1-B
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 309368

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/06/23 18:07	03/07/23 13:11	1

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

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 570-309909/5-A
Matrix: Water
Analysis Batch: 309958

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 309909

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.075	0.032	mg/L		03/08/23 09:40	03/08/23 11:21	1

Lab Sample ID: LCS 570-309909/6-A
Matrix: Water
Analysis Batch: 309958

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 309909

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	0.500	0.483		mg/L		97	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCSD 570-309909/7-A
Matrix: Water
Analysis Batch: 309958

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 309909

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	0.500	0.488		mg/L		98	90 - 110	1	20

Lab Sample ID: 570-129009-1 MS
Matrix: Water
Analysis Batch: 309958

Client Sample ID: Outfall008_20230225_Comp
Prep Type: Total/NA
Prep Batch: 309909

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	ND		0.500	0.485		mg/L		97	90 - 110

Lab Sample ID: 570-129009-1 MSD
Matrix: Water
Analysis Batch: 309958

Client Sample ID: Outfall008_20230225_Comp
Prep Type: Total/NA
Prep Batch: 309909

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	ND		0.500	0.499		mg/L		100	90 - 110	3	25

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

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

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

Lab Sample ID: MB 570-308912/1
Matrix: Water
Analysis Batch: 308912

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			03/03/23 18:43	1

Lab Sample ID: LCS 570-308912/2
Matrix: Water
Analysis Batch: 308912

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	96.0		mg/L		96	77 - 116

Lab Sample ID: LCSD 570-308912/3
Matrix: Water
Analysis Batch: 308912

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	0	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

HPLC/IC

Analysis Batch: 307534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	300.0	
MB 570-307534/5	Method Blank	Total/NA	Water	300.0	
LCS 570-307534/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-307534/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 307535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	300.0	
MB 570-307535/5	Method Blank	Total/NA	Water	300.0	
LCS 570-307535/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-307535/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 307808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_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: 308826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Prep Batch: 307551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total Recoverable	Water	200.8	
MB 570-307551/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-307551/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-307551/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-129009-1 MS	Outfall008_20230225_Comp	Total Recoverable	Water	200.8	
570-129009-1 MSD	Outfall008_20230225_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 307680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total Recoverable	Water	200.8	307551
MB 570-307551/1-A	Method Blank	Total Recoverable	Water	200.8	307551
LCS 570-307551/2-A	Lab Control Sample	Total Recoverable	Water	200.8	307551
LCSD 570-307551/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	307551
570-129009-1 MS	Outfall008_20230225_Comp	Total Recoverable	Water	200.8	307551
570-129009-1 MSD	Outfall008_20230225_Comp	Total Recoverable	Water	200.8	307551

Filtration Batch: 308039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-2	Outfall008_20230225_Comp_F	Dissolved	Water	Filtration	
MB 570-308039/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-308039/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-308039/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-129009-2 MS	Outfall008_20230225_Comp_F	Dissolved	Water	Filtration	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

Metals (Continued)

Filtration Batch: 308039 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-2 MSD	Outfall008_20230225_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 308100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-2	Outfall008_20230225_Comp_F	Dissolved	Water	200.8	308039
MB 570-308039/1-A	Method Blank	Dissolved	Water	200.8	308039
LCS 570-308039/2-A	Lab Control Sample	Dissolved	Water	200.8	308039
LCSD 570-308039/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	308039
570-129009-2 MS	Outfall008_20230225_Comp_F	Dissolved	Water	200.8	308039
570-129009-2 MSD	Outfall008_20230225_Comp_F	Dissolved	Water	200.8	308039

Prep Batch: 308182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-308182/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-308182/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-308182/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	

Analysis Batch: 308434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-308182/1-A	Method Blank	Total/NA	Water	245.1	308182
LCS 570-308182/2-A	Lab Control Sample	Total/NA	Water	245.1	308182
LCSD 570-308182/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	308182

Prep Batch: 308521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	245.1	
MB 570-308521/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-308521/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-308521/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	

Analysis Batch: 308860

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	245.1	308521
MB 570-308521/1-A	Method Blank	Total/NA	Water	245.1	308521
LCS 570-308521/2-A	Lab Control Sample	Total/NA	Water	245.1	308521
LCSD 570-308521/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	308521

Filtration Batch: 309367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-2	Outfall008_20230225_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	

Prep Batch: 309368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-2	Outfall008_20230225_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

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

Metals

Analysis Batch: 309665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-2	Outfall008_20230225_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

General Chemistry

Analysis Batch: 308507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_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	

Analysis Batch: 308912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	SM 2540D	
MB 570-308912/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-308912/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-308912/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 309199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_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: 309909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	Distill/Ammonia	
MB 570-309909/5-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 570-309909/6-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 570-309909/7-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
570-129009-1 MS	Outfall008_20230225_Comp	Total/NA	Water	Distill/Ammonia	
570-129009-1 MSD	Outfall008_20230225_Comp	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 309958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	350.1	309909
MB 570-309909/5-A	Method Blank	Total/NA	Water	350.1	309909
LCS 570-309909/6-A	Lab Control Sample	Total/NA	Water	350.1	309909
LCSD 570-309909/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	309909
570-129009-1 MS	Outfall008_20230225_Comp	Total/NA	Water	350.1	309909
570-129009-1 MSD	Outfall008_20230225_Comp	Total/NA	Water	350.1	309909

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-1

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 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	300.0		1	4 mL	4 mL	307534	02/28/23 06:24	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	300.0		1	4 mL	4 mL	307535	02/28/23 06:24	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	314.0		1	4 mL	4 mL	307808	02/28/23 22:14	PS	EET CAL 4
	Instrument ID: IC8									
Total/NA	Analysis	NO2NO3 Calc		1			308826	03/03/23 14:06	WH6J	EET CAL 4
	Instrument ID: NOEQUIP									
Total Recoverable	Prep	200.8			50 mL	50 mL	307551	02/28/23 06:53	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			307680	02/28/23 10:49	Y2WS	EET CAL 4
	Instrument ID: ICPMS09									
Total/NA	Prep	245.1			25 mL	50 mL	308521	03/03/23 09:45	C0YH	EET CAL 4
Total/NA	Analysis	245.1		1			308860	03/03/23 13:45	C0YH	EET CAL 4
	Instrument ID: HG8									
Total/NA	Prep	Distill/Ammonia			5 mL	5 mL	309909	03/08/23 09:40	UXCH	EET CAL 4
Total/NA	Analysis	350.1		1	5 mL	5 mL	309958	03/08/23 11:49	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 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	500 mL	1000 mL	308912	03/03/23 18:43	BDH9	EET CAL 4
	Instrument ID: BAL71									

Client Sample ID: Outfall008_20230225_Comp_F

Lab Sample ID: 570-129009-2

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 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	308039	03/01/23 12:58	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			308100	03/01/23 14:23	Y2WS	EET CAL 4
	Instrument ID: ICPMS09									
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 13:41	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 008 -
Comp

Job ID: 570-129009-1

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: 570-129009-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Method	Method Description	Protocol	Laboratory
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	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 008 -
Comp

Job ID: 570-129009-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129009-1	Outfall008_20230225_Comp	Water	02/25/23 08:35	02/27/23 18:00
570-129009-2	Outfall008_20230225_Comp_F	Water	02/25/23 08:35	02/27/23 18:00

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129009

CHAIN OF CUSTODY FORM



570-129009 Chain of Custody

Eurofins Calscience Irvine

Sample ID	Sample Description	Sample Matrix	Sampling Date/Time	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Field Readings	Comments
		WM		500 mL Poly	1	HNO ₃	95	Yes		
		WM		1 L Glass Amber	2	None	110	No		
		WM		500 mL Poly	2	None	130	No		
		WM		500 mL Poly	1	None	155	No		
		WM		500 mL Poly	1	H ₂ SO ₄	160	No		
		WM		500 mL Poly	1	NaOH	220	No		
		WM		2.5 Gal Cube	1	None	225	No		
		WM		1 L Glass Amber	1	None	230	No		
		WM		1 L Poly	1	None	185	No		
		WM		1 L Poly	1	None	205	Yes		
		WM		borosilicate vials	1	None	320	No		
		WM		1 L Glass Amber	2	None	110	No		
		WM		500 mL Poly	2	None	130	No		

ANALYSIS REQUIRED

Ammonia-N (35.2)	
Cyanide (SM4500-CN-E / E335.2)	
Total Dissolved Metals: Mercury (E245.1)	
Total Recoverable Metals: Mercury (E245.1)	X
Total Dissolved Metals: (E200.8): Ni, Zn	
TDS (SM2540C/E160.1)	
Cr- SO ₄ , Nitrate-N, Nitrite-N, NO ₃ +NO ₂ -N, Perchlorate (300)	X
TCDD (and all congeners) (E161B)	
Total Recoverable Metals: (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	X
Total Dissolved Metals: (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	
Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Combined Reading 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, Cs-137 (E901.0 or E901.1)	X

Project: Boeing-SSL NPDES Permit 2023 Routine Outfall 008 Outfall 008 Comp	Project Manager: Katherine Miller 520.289.8606; 520.904.6944 (cell)
Field Manager: Mark Dominick 978.234.5033; 818.599.0702 (cell)	

Legend EP=Expert Panel, R=Routine

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 _____

Received By: *[Signature]* Date/Time: 2/27/23 11:20 EC
 Received By: *[Signature]* Date/Time: 2/27/23 1800 EC
 Received By: *[Signature]* Date/Time: 2/27/23 1800 EC

Company: *[Signature]* Company: *[Signature]* Company: *[Signature]*

[Signature] 2019, 16/15 SC12

3/22/2020 Rainy Season Version 2

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129009-1

Login Number: 129009

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 11:15:34 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 008 - Comp

JOB NUMBER

570-129009-2

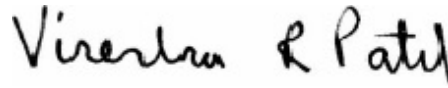
Job Notes

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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 008 -
Comp

Job ID: 570-129009-2

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 008 - Comp

Job ID: 570-129009-2

Job ID: 570-129009-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129009-2

Comments

No additional comments.

Receipt

The samples were received on 2/27/2023 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 1.5° C and 1.9° C.

Dioxin

Method 1613B: The automated ending resolution check scheduled to be performed on March 20, 2023 at approximately 22:23 did not print. A manual resolution check was performed, without retuning, at the end of the second sequence on March 21, 2023 at 10:21, which indicated that the instrument maintained 10,000 resolution. The approximately 12 hour delay in printing the ending resolution check has no impact on the data.

Outfall008_20230225_Comp (570-129009-1), (CCV 320-662109/2), (LCS 320-659338/2-A), (LCSD 320-659338/3-A), (MB 320-659338/1-A) and (WDM 320-662109/1)

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: 570-129009-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.0000086	J,DX q	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				4					
2,3,4,7,8-PeCDF	0.0000011	J,DX	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				9					
1,2,3,4,7,8-HxCDD	0.0000020	J,DX MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				0					
1,2,3,6,7,8-HxCDD	0.0000098	J,DX q MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8,9-HxCDD	0.0000012	J,DX	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,7,8-HxCDF	0.0000092	J,DX q	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				7					
1,2,3,6,7,8-HxCDF	0.0000076	J,DX q	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				5					
1,2,3,7,8,9-HxCDF	0.0000015	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				4					
1,2,3,4,6,7,8-HpCDD	0.0000041	J,DX q MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				9					
1,2,3,4,6,7,8-HpCDF	0.0000022	J,DX q MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				2					
1,2,3,4,7,8,9-HpCDF	0.0000010	J,DX	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				3					
OCDD	0.000048	J,DX MB	0.000096	0.0000005	ug/L	1		1613B	Total/NA
				1					
OCDF	0.0000039	J,DX MB	0.000096	0.0000003	ug/L	1		1613B	Total/NA
				8					
Total TCDF	0.0000077	J,DX	0.000096	0.0000004	ug/L	1		1613B	Total/NA
				8					
Total PeCDD	0.0000011	J,DX q	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				9					
Total PeCDF	0.0000020	J,DX q	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				7					
Total HxCDD	0.0000042	J,DX q MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				9					
Total HxCDF	0.0000031	J,DX q MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				5					
Total HpCDD	0.000011	J,DX q MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				9					
Total HpCDF	0.0000047	J,DX q MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				2					

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 008 -
 Comp

Job ID: 570-129009-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230225_Comp

Date Collected: 02/25/23 08:35

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000096	0.0000008	ug/L		03/09/23 04:30	03/20/23 16:04	1
2,3,7,8-TCDF	ND		0.0000096	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,7,8-PeCDF	0.0000086	J,DX q	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
2,3,4,7,8-PeCDF	0.0000011	J,DX	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,4,7,8-HxCDD	0.0000020	J,DX MB	0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,6,7,8-HxCDD	0.0000098	J,DX q MB	0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,7,8,9-HxCDD	0.0000012	J,DX	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,4,7,8-HxCDF	0.0000092	J,DX q	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,6,7,8-HxCDF	0.0000076	J,DX q	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,7,8,9-HxCDF	0.0000015	J,DX MB	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
2,3,4,6,7,8-HxCDF	ND		0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,4,6,7,8-HpCDD	0.0000041	J,DX q MB	0.000048	0.0000002	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,4,6,7,8-HpCDF	0.0000022	J,DX q MB	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
1,2,3,4,7,8,9-HpCDF	0.0000010	J,DX	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
OCDD	0.000048	J,DX MB	0.000096	0.0000005	ug/L		03/09/23 04:30	03/20/23 16:04	1
OCDF	0.0000039	J,DX MB	0.000096	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
Total TCDD	ND		0.0000096	0.0000008	ug/L		03/09/23 04:30	03/20/23 16:04	1
Total TCDF	0.0000077	J,DX	0.0000096	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:04	1
Total PeCDD	0.0000011	J,DX q	0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:04	1
Total PeCDF	0.0000020	J,DX q	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
Total HxCDD	0.0000042	J,DX q MB	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
Total HxCDF	0.0000031	J,DX q MB	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
Total HpCDD	0.000011	J,DX q MB	0.000048	0.0000002	ug/L		03/09/23 04:30	03/20/23 16:04	1
Total HpCDF	0.0000047	J,DX q MB	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:04	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	76		25 - 164				03/09/23 04:30	03/20/23 16:04	1
13C-2,3,7,8-TCDF	70		24 - 169				03/09/23 04:30	03/20/23 16:04	1
13C-1,2,3,7,8-PeCDD	95		25 - 181				03/09/23 04:30	03/20/23 16:04	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230225_Comp

Date Collected: 02/25/23 08:35

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-1

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	03/09/23 04:30	03/20/23 16:04	1
13C-2,3,4,7,8-PeCDF	82		21 - 178	03/09/23 04:30	03/20/23 16:04	1
13C-1,2,3,4,7,8-HxCDD	71		32 - 141	03/09/23 04:30	03/20/23 16:04	1
13C-1,2,3,6,7,8-HxCDD	73		28 - 130	03/09/23 04:30	03/20/23 16:04	1
13C-1,2,3,4,7,8-HxCDF	61		26 - 152	03/09/23 04:30	03/20/23 16:04	1
13C-1,2,3,6,7,8-HxCDF	66		26 - 123	03/09/23 04:30	03/20/23 16:04	1
13C-1,2,3,7,8,9-HxCDF	74		29 - 147	03/09/23 04:30	03/20/23 16:04	1
13C-2,3,4,6,7,8-HxCDF	73		28 - 136	03/09/23 04:30	03/20/23 16:04	1
13C-1,2,3,4,6,7,8-HpCDD	90		23 - 140	03/09/23 04:30	03/20/23 16:04	1
13C-1,2,3,4,6,7,8-HpCDF	73		28 - 143	03/09/23 04:30	03/20/23 16:04	1
13C-1,2,3,4,7,8,9-HpCDF	83		26 - 138	03/09/23 04:30	03/20/23 16:04	1
13C-OCDD	90		17 - 157	03/09/23 04:30	03/20/23 16:04	1
13C-OCDF	83		17 - 157	03/09/23 04:30	03/20/23 16:04	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	85		35 - 197	03/09/23 04:30	03/20/23 16:04	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129009-2

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)
570-129009-1	Outfall008_20230225_Comp	85
MB 320-659338/1-A	Method Blank	84

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 320-659338/2-A	Lab Control Sample	85
LCSD 320-659338/3-A	Lab Control Sample Dup	86

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129009-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
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)
570-129009-1	Outfall008_20230225_Comp	76	70	95	82	82	71	73	61
MB 320-659338/1-A	Method Blank	71	62	90	77	78	70	72	59

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)
570-129009-1	Outfall008_20230225_Comp	66	74	73	90	73	83	90	83
MB 320-659338/1-A	Method Blank	65	71	69	88	71	81	89	80

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 320-659338/2-A	Lab Control Sample	65	58	83	71	70	63	62	51
LCSD 320-659338/3-A	Lab Control Sample Dup	77	70	96	82	84	72	68	57

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 320-659338/2-A	Lab Control Sample	56	65	61	78	63	72	78	71
LCSD 320-659338/3-A	Lab Control Sample Dup	64	75	71	91	71	84	93	84

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

Eurofins Calscience

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129009-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-659338/1-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 659338

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000009	ug/L		03/09/23 04:30	03/20/23 13:41	1
				7					
2,3,7,8-TCDF	ND		0.000010	0.0000005	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
1,2,3,7,8-PeCDD	ND		0.000050	0.0000004	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
1,2,3,7,8-PeCDF	ND		0.000050	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				7					
2,3,4,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		03/09/23 04:30	03/20/23 13:41	1
				2					
1,2,3,4,7,8-HxCDD	0.00000174	J,DX	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				8					
1,2,3,6,7,8-HxCDD	0.000000455	J,DX q	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				9					
1,2,3,7,8,9-HxCDD	ND		0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				8					
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				6					
1,2,3,7,8,9-HxCDF	0.000000967	J,DX	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				6					
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				4					
1,2,3,4,6,7,8-HpCDD	0.00000104	J,DX q	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				4					
1,2,3,4,6,7,8-HpCDF	0.00000126	J,DX	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				9					
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				2					
OCDD	0.0000112	J,DX	0.00010	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				1					
OCDF	0.00000213	J,DX q	0.00010	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				9					
Total TCDD	ND		0.000010	0.0000009	ug/L		03/09/23 04:30	03/20/23 13:41	1
				7					
Total TCDF	ND		0.000010	0.0000005	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
Total PeCDD	ND		0.000050	0.0000004	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
Total PeCDF	ND		0.000050	0.0000004	ug/L		03/09/23 04:30	03/20/23 13:41	1
				2					
Total HxCDD	0.00000263	J,DX q	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				8					
Total HxCDF	0.000000967	J,DX	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				6					
Total HpCDD	0.00000272	J,DX q	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				4					
Total HpCDF	0.00000126	J,DX	0.000050	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				1					
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	71		25 - 164				03/09/23 04:30	03/20/23 13:41	1
13C-2,3,7,8-TCDF	62		24 - 169				03/09/23 04:30	03/20/23 13:41	1

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-659338/1-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 659338

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	90		25 - 181	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,7,8-PeCDF	77		24 - 185	03/09/23 04:30	03/20/23 13:41	1
13C-2,3,4,7,8-PeCDF	78		21 - 178	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,7,8-HxCDD	70		32 - 141	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,6,7,8-HxCDD	72		28 - 130	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,7,8-HxCDF	59		26 - 152	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,6,7,8-HxCDF	65		26 - 123	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147	03/09/23 04:30	03/20/23 13:41	1
13C-2,3,4,6,7,8-HxCDF	69		28 - 136	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,6,7,8-HpCDD	88		23 - 140	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,6,7,8-HpCDF	71		28 - 143	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,7,8,9-HpCDF	81		26 - 138	03/09/23 04:30	03/20/23 13:41	1
13C-OCDD	89		17 - 157	03/09/23 04:30	03/20/23 13:41	1
13C-OCDF	80		17 - 157	03/09/23 04:30	03/20/23 13:41	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	84		35 - 197	03/09/23 04:30	03/20/23 13:41	1

Lab Sample ID: LCS 320-659338/2-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 659338

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000212		ug/L		106	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000901		ug/L		90	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000947		ug/L		95	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000953		ug/L		95	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000912		ug/L		91	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000959		ug/L		96	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000963		ug/L		96	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000953		ug/L		95	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000956		ug/L		96	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000924		ug/L		92	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000948		ug/L		95	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000934		ug/L		93	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000984		ug/L		98	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000935		ug/L		94	78 - 138
OCDD	0.00200	0.00191		ug/L		96	78 - 144
OCDF	0.00200	0.00195		ug/L		97	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	65		20 - 175
13C-2,3,7,8-TCDF	58		22 - 152
13C-1,2,3,7,8-PeCDD	83		21 - 227
13C-1,2,3,7,8-PeCDF	71		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 008 -
 Comp

Job ID: 570-129009-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-659338/2-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 659338

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDD	63		21 - 193
13C-1,2,3,6,7,8-HxCDD	62		25 - 163
13C-1,2,3,4,7,8-HxCDF	51		19 - 202
13C-1,2,3,6,7,8-HxCDF	56		21 - 159
13C-1,2,3,7,8,9-HxCDF	65		17 - 205
13C-2,3,4,6,7,8-HxCDF	61		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	78		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	63		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	72		20 - 186
13C-OCDD	78		13 - 199
13C-OCDF	71		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	85		31 - 191

Lab Sample ID: LCSD 320-659338/3-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 659338

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000197		ug/L		98	67 - 158	6	50	
2,3,7,8-TCDF	0.000200	0.000218		ug/L		109	75 - 158	3	50	
1,2,3,7,8-PeCDD	0.00100	0.000927		ug/L		93	70 - 142	3	50	
1,2,3,7,8-PeCDF	0.00100	0.000974		ug/L		97	80 - 134	3	50	
2,3,4,7,8-PeCDF	0.00100	0.000961		ug/L		96	68 - 160	1	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000919		ug/L		92	70 - 164	1	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00100		ug/L		100	76 - 134	4	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00101		ug/L		101	64 - 162	4	50	
1,2,3,4,7,8-HxCDF	0.00100	0.000989		ug/L		99	72 - 134	4	50	
1,2,3,6,7,8-HxCDF	0.00100	0.000954		ug/L		95	84 - 130	0	50	
1,2,3,7,8,9-HxCDF	0.00100	0.000953		ug/L		95	78 - 130	3	50	
2,3,4,6,7,8-HxCDF	0.00100	0.000958		ug/L		96	70 - 156	1	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000942		ug/L		94	70 - 140	1	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.000988		ug/L		99	82 - 122	0	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.000957		ug/L		96	78 - 138	2	50	
OCDD	0.00200	0.00195		ug/L		97	78 - 144	2	50	
OCDF	0.00200	0.00199		ug/L		99	63 - 170	2	50	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	77		20 - 175
13C-2,3,7,8-TCDF	70		22 - 152
13C-1,2,3,7,8-PeCDD	96		21 - 227
13C-1,2,3,7,8-PeCDF	82		21 - 192
13C-2,3,4,7,8-PeCDF	84		13 - 328
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	68		25 - 163
13C-1,2,3,4,7,8-HxCDF	57		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-659338/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 662109

Prep Batch: 659338

<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	64		21 - 159
13C-1,2,3,7,8,9-HxCDF	75		17 - 205
13C-2,3,4,6,7,8-HxCDF	71		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	91		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	71		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	84		20 - 186
13C-OCDD	93		13 - 199
13C-OCDF	84		13 - 199

<u>Surrogate</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
37Cl4-2,3,7,8-TCDD	86		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129009-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Specialty Organics

Prep Batch: 659338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	1613B	
MB 320-659338/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-659338/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-659338/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 662109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_Comp	Total/NA	Water	1613B	659338
MB 320-659338/1-A	Method Blank	Total/NA	Water	1613B	659338
LCS 320-659338/2-A	Lab Control Sample	Total/NA	Water	1613B	659338
LCSD 320-659338/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	659338

Lab Chronicle

Client: Haley & Aldrich, Inc.

Job ID: 570-129009-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 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			1046.9 mL	20.0 uL	659338	03/09/23 04:30	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	662109	03/20/23 16:04	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 008 -
 Comp

Job ID: 570-129009-2

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 008 -
Comp

Job ID: 570-129009-2

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 008 -
Comp

Job ID: 570-129009-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129009-1	Outfall008_20230225_Comp	Water	02/25/23 08:35	02/27/23 18:00

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CHAIN OF CUSTODY FORM



Eurofins Calscience Irvine

570-129009 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92106 Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel 714-895-5494 ECI Project #57013187		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 008 Outfall 008 Comp		Field Manager: Katherine Miller 520.289.8606; 520.904.6944 (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 T2CS within Blanket Service Agreement #2018-22-TestAmerica by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories.		Sampler: Adrian Mobela																							
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	ANALYSIS REQUIRED							Field Readings									
			WM	500 mL Poly	1	HNO ₃	95	Yes	Total Recoverable Metals: (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	X	TCCD (and all congeners) (E161B)														
			WM	1 L Glass Amber	2	None	110	No	Total Dissolved Metals: (E200.8): Ni, Zn																
			WM	500 mL Poly	2	None	130	No	TDS (SM2540C/E160.1)																
			WM	500 mL Poly	1	None	155	No	Cyanide (SM4500-CN-E / E335.2)	X															
		2/25/2023	WM	500 mL Poly	1	H ₂ SO ₄	160	No	Ammônia-N (350.2)																
		2/25/2023	WM	500 mL Poly	1	NaOH	220	No	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Combined Reading 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, Cs-137 (E901.0 or E901.1)	X															
		2/25/2023	WM	2.5 Gal Cube	1	None	225	No	Total Recoverable Metals: (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	X															
		2/25/2023	WM	1 L Glass Amber	1	None	230	No	Total Dissolved Metals: (E200.8): Ni, Zn																
		2/25/2023	WM	1 L Poly	1	None	185	No	Total Dissolved Metals: (E200.8): Ni, Zn																
		2/25/2023	WM	1 L Poly	1	None	205	Yes																	
		2/25/2023	WM	borosilicate vials	1	None	320	No																	
		2/25/2023	WM	1 L Glass Amber	2	None	110	No																	
		2/25/2023	WM	500 mL Poly	2	None	130	No																	

2019, 16/1.5 SC12

191111

Requisitioned By: <i>[Signature]</i> Date/Time: 2/27/2023 11:20 Company:	Received By: <i>[Signature]</i> Date/Time: 2/27/23 11:20 EC Company:
Requisitioned By: <i>[Signature]</i> Date/Time: 2/27/23 18:00 Company:	Received By: <i>[Signature]</i> Date/Time: 2/27/23 18:00 Company:

Legend EP=Expert Panel, R=Routine

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



Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



eurofins

Environment Testing

Client Information (Sub Contract Lab) Client Contact: Patel, Virendra Shipping/Receiving: Virendra.Patel@et.eurofins.com Company: Eurofins Environment Testing Northern Ca Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email: Project Name: Boeing NPDES SSFL - Routine Outfall 008 - Comp Site:		Sampler: Patel, Virendra Lab PM: E-Mail: Virendra.Patel@et.eurofins.com Phone: State of Origin: California Carrier Tracking No(s): COC No: 570-209611.1 Page: Page 1 of 1 Job #: 570-129009-2 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 - NazS2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)
Due Date Requested: 3/15/2023 TAT Requested (days): PO #: WO #: Project #: 57013187 SSOW#:		Analysis Requested Total Number of containers 2
1613B/1613B_Box_Sep_P(MD) Standard List W/ Totals (Hold) <input checked="checked" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="checked" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="checked" type="checkbox"/> Special Instructions/Note: See QAS, Boeing, w/zero, ug/L; Use Boeing glassware.		
Sample Identification - Client ID (Lab ID) Outfall008_20230225_Comp_Extra (570-129009-3) Sample Date: 2/25/23 Sample Time: 08:35 Pacific Sample Type (C=Comp, G=grab) Matrix (Water, Solid, Other) 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 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2 Empty Kit Relinquished by: Relinquished by: <i>[Signature]</i> Date: 02/16/23 11:35 Relinquished by: <i>[Signature]</i> Date: 02/16/23 11:35 Relinquished by: <i>[Signature]</i> Date:		
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:		
Method of Shipment: Received by: <i>[Signature]</i> Date: 2-20-23 9:15 Relinquished by: <i>[Signature]</i> Date: <i>[Signature]</i> Relinquished by: <i>[Signature]</i> Date: <i>[Signature]</i> Relinquished by: <i>[Signature]</i> Date:		Company: <i>[Signature]</i> Company: <i>[Signature]</i> Company: <i>[Signature]</i> Cooler Temperature(s) °C and Other Remarks: <i>[Signature]</i>
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:



Ver: 06/08/2021

Chain of Custody Record



Client Information (Sub Contract Lab) Client Contact: Patel, Virendra Shipping/Receiving: Virendra.Pate@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:		Lab PII: Patel, Virendra E-Mail: Virendra.Pate@et.eurofins.com Accreditations Required (See note): State Program - California Carrier Tracking No(s): 570-209611.1 Page: Page 1 of 1 Job #: 570-129009-2 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:	
Due Date Requested: 3/15/2023 TAT Requested (days): PO #: WO #: Project #: Boeing NPDES SSFL - Routine Outfall 008 - Comp Site:		Analysis Requested Total Number of Containers: 2 Special Instructions/Note: See OAS, Boeing, w/iu to zero, ug/L; Use Boeing glassware.	
Sample Identification - Client ID (Lab ID) Outfall008_20230225_Comp_Extra (570-129009-3)		Matrix (W=Water, S=Soil, O=Water/Oil, T=Tissue, A=Air) Preservation Code: Water	
Sample Date: 2/25/23 Sample Time: 08:35 Pacific		Field Filtered Sample (Yes or No): X Perform M/MSD (Yes or No): 1613B/1613B_Sox_Sep_P (MOD) Standard List/W	
Note: Since laboratory accreditations are subject to change, Eurofins Calscienc 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 Calscienc laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscienc attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscienc.			
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2			
Empty Kit Relinquished by: Relinquished by: [Signature] Date: 02/28/23 11:35 Company: EC Relinquished by: [Signature] Date/Time: Company: Relinquished by: [Signature] Date/Time: Company:			
Custody Seals Intact: Δ Yes Δ No Cooler Temperature(s) °C and Other Remarks:			



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129009-2

Login Number: 129009

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: 570-129009-2

Login Number: 129009

List Number: 2

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/01/23 01:40 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	2.4c
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	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129009-2

Login Number: 129009

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 </= 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	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	
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 4/4/2023 10:40:48 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 008 - Comp

JOB NUMBER

570-129009-3

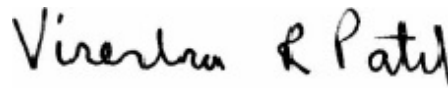
Job Notes

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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
4/4/2023 10:40:48 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 008 -
Comp

Job ID: 570-129009-3

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 008 - Comp

Job ID: 570-129009-3

Job ID: 570-129009-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129009-3

Comments

No additional comments.

Receipt

The samples were received on 2/27/2023 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 1.5° C and 1.9° C.

RAD

Methods 900.0, 9310: 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)

Methods 900.0, 9310: 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.

Outfall008_20230225_Comp (570-129009-1), (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 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
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.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Comp

Job ID: 570-129009-3

Job ID: 570-129009-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

**The method blank (MB) Z-score is within limits and is located in the level IV raw data.

Outfall008_20230225_Comp (570-129009-1), (570-128840-R-1-D) and (570-128840-R-1-E DU)

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.

Outfall008_20230225_Comp (570-129009-1), (LCS 160-602356/2-A), (LCSD 160-602356/3-A) and (MB 160-602356/1-A)

Method 904.0: Radium-228 batch 602360

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: Outfall008_20230225_Comp (570-129009-1). Analytical results are reported with the detection limit achieved.

Method 904.0: Radium-228 batch 602360

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.

Outfall008_20230225_Comp (570-129009-1), (LCS 160-602360/2-A), (LCSD 160-602360/3-A) and (MB 160-602360/1-A)

Method 905: 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.

Outfall008_20230225_Comp (570-129009-1), (LCS 160-603033/2-A), (LCSD 160-603033/3-A) and (MB 160-603033/1-A)

Method 905: 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.

Method 906.0: Tritium 605070

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. Outfall008_20230225_Comp (570-129009-1), (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)

Method A-01-R: 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.

Outfall008_20230225_Comp (570-129009-1), (LCS 160-604368/2-A), (MB 160-604368/1-A), (570-129285-J-1-D) and (570-129285-J-1-E DU)

Method Evaporation:

Method ExtChrom: Uranium Prep Batch 160-604368:

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall008_20230225_Comp (570-129009-1).

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Comp

Job ID: 570-129009-3

Job ID: 570-129009-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method PrecSep_0: Radium-228 Prep Batch 160-602360

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230225_Comp (570-129009-1). 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 160-602356

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230225_Comp (570-129009-1). 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 160-603033

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230225_Comp (570-129009-1). 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.

Job ID: 570-129009-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

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.

Job ID: 570-129009-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	2.44		1.02	1.06	3.00	1.09	pCi/L	03/20/23 10:44	03/28/23 08:18	1
Gross Beta	2.91		0.743	0.798	4.00	0.832	pCi/L	03/20/23 10:44	03/28/23 08:18	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-0.880	U	13.1	13.1	20.0	17.2	pCi/L	03/17/23 14:08	03/22/23 21:44	1
Potassium-40	100	U	116	116		173	pCi/L	03/17/23 14:08	03/22/23 21:44	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 NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230225_Comp
Date Collected: 02/25/23 08:35
Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.182	U	0.153	0.154	1.00	0.229	pCi/L	03/06/23 09:11	03/29/23 21:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	50.0		30 - 110					03/06/23 09:11	03/29/23 21:59	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230225_Comp
Date Collected: 02/25/23 08:35
Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.907	U G	0.799	0.803	1.00	1.26	pCi/L	03/06/23 09:48	03/16/23 12:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	50.0		30 - 110					03/06/23 09:48	03/16/23 12:14	1
Y Carrier	87.1		30 - 110					03/06/23 09:48	03/16/23 12:14	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230225_Comp
Date Collected: 02/25/23 08:35
Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.543	U	0.427	0.429	3.00	0.670	pCi/L	03/09/23 13:03	03/17/23 18:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	75.1		30 - 110					03/09/23 13:03	03/17/23 18:33	1
Y Carrier	85.2		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 008 -
 Comp

Job ID: 570-129009-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230225_Comp
 Date Collected: 02/25/23 08:35
 Date Received: 02/27/23 18:00

Lab Sample ID: 570-129009-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-38.7	U	165	165	500	309	pCi/L	03/27/23 11:11	03/27/23 22:32	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.300		0.253	0.254	1.00	0.276	pCi/L	03/20/23 12:19	03/27/23 14:38	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	91.2		30 - 110					03/20/23 12:19	03/27/23 14:38	1

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129009-3

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)							
570-129009-1	Outfall008_20230225_Comp	50.0							
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)						
570-129009-1	Outfall008_20230225_Comp	50.0	87.1						
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)						
570-129009-1	Outfall008_20230225_Comp	75.1	85.2						
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)							
570-129009-1	Outfall008_20230225_Comp	91.2							
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 008 -
 Comp

Job ID: 570-129009-3

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-3

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		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB 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		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield	MB Qualifier	30 - 110					03/06/23 09:11	03/29/23 20:10	1
	87.6									

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		Limits						
Ba Carrier	%Yield	LCS Qualifier	30 - 110						
	87.6								

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
				Uncert. (2σ+/-)							Limit
Radium-226	11.3	11.01		1.14	1.00	0.107	pCi/L	97	75 - 125	0.33	1
Carrier	LCSD		Limits								
Ba Carrier	%Yield	LCSD Qualifier	30 - 110								
	83.3										

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		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB 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		Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	%Yield	MB Qualifier	30 - 110					03/06/23 09:48	03/16/23 12:10	1
Y Carrier	87.6		30 - 110					03/06/23 09:48	03/16/23 12:10	1
	87.9									

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129009-3

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	
Carrier	%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
Carrier	%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
Carrier	%Yield	MB Qualifier	Limits							
Sr Carrier	87.1		30 - 110							
Y Carrier	81.1		30 - 110							

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
Carrier	%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 008 -
 Comp

Job ID: 570-129009-3

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	

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129009-3

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 008 -
 Comp

Job ID: 570-129009-3

Rad

Prep Batch: 602356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_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
570-129009-1	Outfall008_20230225_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
570-129009-1	Outfall008_20230225_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
570-129009-1	Outfall008_20230225_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: 604346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129009-1	Outfall008_20230225_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
570-129009-1	Outfall008_20230225_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
570-129009-1	Outfall008_20230225_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 008 -
 Comp

Job ID: 570-129009-3

Client Sample ID: Outfall008_20230225_Comp

Lab Sample ID: 570-129009-1

Date Collected: 02/25/23 08:35

Matrix: Water

Date Received: 02/27/23 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			200 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			604757	03/22/23 21:44	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			744.97 mL	1.0 g	602356	03/06/23 09:11	DJP	EET SL
Total/NA	Analysis	903.0		1			605412	03/29/23 21:59	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			744.97 mL	1.0 g	602360	03/06/23 09:48	DJP	EET SL
Total/NA	Analysis	904.0		1			603870	03/16/23 12:14	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			505.01 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			98.29 mL	1.0 g	605070	03/27/23 11:11	SEH	EET SL
Total/NA	Analysis	906.0		1			605427	03/27/23 22:32	REV	EET SL
Instrument ID: LSC3180										
Total/NA	Prep	ExtChrom			254.28 mL	1.0 mL	604368	03/20/23 12:19	MAL	EET SL
Total/NA	Analysis	A-01-R		1			605175	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 008 -
 Comp

Job ID: 570-129009-3

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.

Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129009-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
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 008 -
Comp

Job ID: 570-129009-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129009-1	Outfall008_20230225_Comp	Water	02/25/23 08:35	02/27/23 18:00

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CHAIN OF CUSTODY FORM



570-129009 Chain of Custody

Eurofins Calscience Irvine

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92106 Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel 714-895-5494 ECI Project #57013187		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Comp		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		ANALYSIS REQUIRED Total Recoverable Metals: (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl TCCD (and all congeners) (E161B) Cr- SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.8): Ni, Zn Total Disolved Metals: (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl Gross Beta(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Combined Reading 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)		Field Readings Comments TSS (160.2 (SM2540D)) Total Dissolved Metals: Mercury (E245.1) Total Recoverable Metals: Mercury (E245.1) Cyanide (SM4500-CN-E / E335.2) Ammonia-N (350.2) 48 hours Holding Time NO ₂ & NO ₃ Unfiltered and unpreserved analysis. Separate RAD only for further workorder. Analyze duplicate, not MS/MSD. Filter and preserve w/in 24hrs of receipt at lab Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Hold Hold				
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Yes	No	Field Readings	Comments
Outfall008_20230225_Comp		2/25/2023	WM	500 mL Poly	1	HNO ₃	95	Yes				
			WM	1 L Glass Amber	2	None	110	No				
			WM	500 mL Poly	2	None	130	No				
			WM	500 mL Poly	1	None	155	No				
			WM	500 mL Poly	1	H ₂ SO ₄	160	No				
			WM	500 mL Poly	1	NaOH	220	No				
			WM	2.5 Gal Cube	1	None	225	No				
			WM	1 L Glass Amber	1	None	230	No				
			WM	1 L Poly	1	None	185	No				
			WM	1 L Poly	1	None	205	Yes				
			WM	borosilicate vials	1	None	320	No				
			WM	1 L Glass Amber	2	None	110	No				
			WM	500 mL Poly	2	None	130	No				

Legend EP=Expert Panel, R=Routine
 Received By: *[Signature]* Date/Time: 2/27/23 11:20 EC
 Received By: *[Signature]* Date/Time: 2/27/23 1:00
 Received By: *[Signature]* Date/Time: 2/27/23 1:00

2019, 16/1.5 SC12

[Signature]

Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



eurofins

Environment Testing

Client Information (Sub Contract Lab)		Lab PM		Carrier Tracking Note(s)		COC No.					
2841 Dow Avenue, Suite 100 Tustin, CA 92780 Phone: 714-895-5494		Patel, Virendra		State of Origin: California		570-208635.1					
Shipping/Receiving		E-Mail: Virendra.Patel@eurofins.com		State of Origin: California		Page 1 of 1					
Company: TestAmerica Laboratories, Inc.		Address: 13715 Rider Trail North, Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Accreditations Required (See note): State Program - California		Job #: 570-129009-3					
Project Name: Boeing NPDES SSFL - Routine Outfall 008 - Comp		Project #: 57013187		Analysis Requested		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:					
Site: Boeing NPDES SSFL - Routine Outfall 008 - Comp		SSOW#		TAT Requested (days):		Total Number of Containers					
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, B=Trace, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	906.0/LSC, Dist. Susp Tritium	905.5r90/PreSep_7 Strontium-90	903.0/PreSep_21 Radium-226	904.0/PreSep_0 Radium-228	A01R_UR/Chrom_Actin Total Uranium	901.1_Ca/Flu_Geo_0 K-40 and Csium-137
2/25/23	08:35 Pacific	Water	Water	X	X	X	X	X	X	X	X
<p>Sample Identification - Client ID (Lab ID)</p> <p>Outfall008_20230225_Comp (570-129009-1)</p>											
<p>Possible Hazard Identification</p> <p>Unconfirmed</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) _____ 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>											
<p>Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____</p> <p>Relinquished by: _____ Date/Time: 02/23/23 11:19 PM Company: FEDEX</p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p>											
<p>Custody Seals Intact Δ Yes Δ No</p> <p>Custody Seal No. _____</p> <p>Received by: _____ Date/Time: _____ Company: _____</p> <p>Received by: _____ Date/Time: MAR 01 2023 09:00 Company: _____</p> <p>Received by: _____ Date/Time: _____ Company: _____</p> <p>Cooler Temperature(s) °C and Other Remarks: _____</p>											



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:	Carrier Tracking No(s):	COG No:						
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	State of Origin: California	570-208608.1						
Company: TestAmerica Laboratories, Inc.		E-Mail: Virendra.Patel@et.eurofins.com		Page 1 of 1							
Address: 13715 Rider Trail North,		Accreditations Required (See note): State Program - California		Job #:	570-129009-3						
City: Earth City	Due Date Requested: 3/30/2023	Analysis Requested									
State, Zip: MO, 63045	TAT Requested (days):										
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:	Perform MS/MSD (Yes or No)	Field Filtered Sample (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC, Dist. Susp Tritium	905.5r90/PreSep_7 Strontium-90	903.0/PreSep_21 Radium-226	904.0/PreSep_0 Radium-228	A01r_UreChrom_Actin Total Uranium	901.1 Cs/Fill_Geo_0 K-40 and Cesium-137	Total Number of containers
Email: Project Name: Boeing NPDES SSFL - Routine Outfall 008 - Comp	WO #:	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=Solid, O=Wastewater, ST=Stainless Steel)	Preservation Code:	Special Instructions/Note:				
Site: Boeing NPDES SSFL - Routine Outfall 008 - Comp	Project #: 57013187	2/25/23	08:35 Pacific	Water			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/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) _____ Months <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>											
<p>Empty Kit Relinquished by: _____ Date: _____ Relinquished by: _____ Date/Time: 2/28/23 9:23 Relinquished by: _____ Date/Time: _____ Relinquished by: _____ Date/Time: _____ Custody Seals Intact: _____ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____</p>											



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129009-3

Login Number: 129009

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: 570-129009-3

Login Number: 129009

List Number: 3

Creator: Booker, Autumn R

List Source: Eurofins St. Louis

List Creation: 03/02/23 12:00 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	
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 10:57:50 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 008 - Grab

JOB NUMBER

570-129926-1

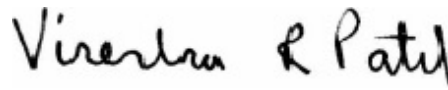
Job Notes

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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 10:57:50 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: 570-129926-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - 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 008 - Grab

Job ID: 570-129926-1

Job ID: 570-129926-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-129926-1

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 1.6° C.

GC Semi VOA

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.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129926-1

Client Sample ID: Outfall008_20230305_Grab

Lab Sample ID: 570-129926-1

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 008 - Grat

Job ID: 570-129926-1

General Chemistry

Client Sample ID: Outfall008_20230305_Grab
Date Collected: 03/05/23 07:05
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129926-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.98	0.50	mg/L		03/09/23 10:10	03/10/23 07:51	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129926-1

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 Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		03/09/23 10:10	03/10/23 07:51	1

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

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129926-1

General Chemistry

Prep Batch: 310236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129926-1	Outfall008_20230305_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
570-129926-1	Outfall008_20230305_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



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129926-1

Client Sample ID: Outfall008_20230305_Grab

Lab Sample ID: 570-129926-1

Date Collected: 03/05/23 07:05

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	Prep	1664A			1020 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

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 008 - Grat

Job ID: 570-129926-1

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: 570-129926-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

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 008 -
Grab

Job ID: 570-129926-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129926-1	Outfall008_20230305_Grab	Water	03/05/23 07:05	03/06/23 17:00

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CHAIN OF CUSTODY FORM

EDBPJ6UX

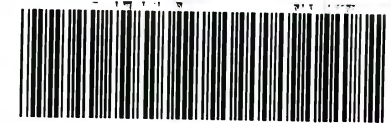
Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Grab							ANALYSIS REQUIRED										Field Readings Meter serial #			
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)							OIL & GREASE (E:1664A-HEM)										Field Readings (Include units) Time of Readings: <u>0705</u> pH <u>7.41</u> pH unit Temp <u>48.8</u> °C			
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 Checked by: <u>[Signature]</u> Date/Time: <u>3-5-2023/0705</u>			
Sampler: Adrian Mobeka																			Comments			
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD														
Outfall 008	Outfall008_20230305_Grab	3/5/2023 / 0705	WM	1 L Glass Amber	2	HCl	15	No	X													Extra Bottles
	Outfall008_20230305_Grab_Extra	3/5/2023 / 0705	WM	1 L Glass Amber	2	HCl	15	No	H													Hold

Legend: R=Routine

Relinquished By: <u>[Signature]</u> Date/Time: <u>3-6-2023/1355</u> Company: <u>H.A</u>	Received By: <u>[Signature]</u> Date/Time: <u>3/6/23 1355 EC</u>	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> _____ 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <u>[Signature]</u> Date/Time: <u>3/6/23 1700</u> Company: <u>EC</u>	Received By: <u>[Signature]</u> Date/Time: <u>3/8/23 1700</u>	
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: _____

1.6/1.6 SC11



570-129926 Chain of Custody

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129926-1

Login Number: 129926

List Source: Eurofins Calscience

List Number: 1

Creator: Cruise, Noel

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 3/12/2023 11:01:41 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 008 - Grab

JOB NUMBER

570-129991-1

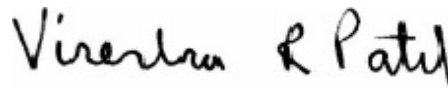
Job Notes

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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 11:01:41 AM

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



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Method Summary	12
Sample Summary	13
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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-129991-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - 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 008 - Grab

Job ID: 570-129991-1

Job ID: 570-129991-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-129991-1

Comments

No additional comments.

Receipt

The sample was received on 3/6/2023 5:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.2° C.

GC Semi VOA

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.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129991-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Client Sample ID: Outfall008_20230306_Grab

Lab Sample ID: 570-129991-1

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 008 - Grat

Job ID: 570-129991-1

General Chemistry

Client Sample ID: Outfall008_20230306_Grab
Date Collected: 03/06/23 07:20
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129991-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.96	0.49	mg/L		03/09/23 10:10	03/10/23 07:51	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129991-1

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 Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		03/09/23 10:10	03/10/23 07:51	1

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

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129991-1

General Chemistry

Prep Batch: 310236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129991-1	Outfall008_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
570-129991-1	Outfall008_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



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Job ID: 570-129991-1

Client Sample ID: Outfall008_20230306_Grab

Lab Sample ID: 570-129991-1

Date Collected: 03/06/23 07:20

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	1664A			1038 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

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 008 - Grat

Job ID: 570-129991-1

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: 570-129991-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Grat

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

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 008 -
Grab

Job ID: 570-129991-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129991-1	Outfall008_20230306_Grab	Water	03/06/23 07:20	03/06/23 17:00

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CHAIN OF CUSTODY FORM

EDDPJ6UX

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Grab				ANALYSIS REQUIRED				Field Readings Meter serial #	
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)				Oil & Grease (E1664A-HEM)				Field Readings: (Include units) Time of Readings: 0720	
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)								pH 7.26 pH unit Temp 45.1 °C	
Sampler: Adrian Mobeka												Field readings QC Checked by: <i>[Signature]</i> Date/Time: 3-6-2023/0720	
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Comments				
Outfall 008	Outfall008_20230306_Grab	3/6/2023 / 0720	WM	1 L Glass Amber	2	HCl	15	No	Extra Bottles				
													
570-129991 Chain of Custody													
Legend: 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: <input checked="" type="checkbox"/> _____ 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: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> _____					

2.2/2.2 SC11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129991-1

Login Number: 129991

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 7:04:24 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 008 - Comp

JOB NUMBER

570-129992-1

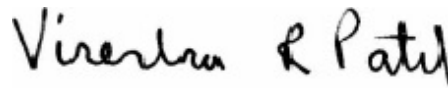
Job Notes

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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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3/22/2023 7:04:24 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.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-1

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
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
LQ	LCS/LCSD recovery above method control limits
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 NPDES SSFL - Routine Outfall 008 - Comp

Job ID: 570-129992-1

Job ID: 570-129992-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-129992-1**

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 2 coolers at receipt time were 1.8° 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.

HPLC/IC

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 570-309651 and analytical batch 570-309903 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 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 Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230306_Comp_F (570-129992-2). 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.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129992-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.1		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrite as N	0.15		0.10	0.043	mg/L	1		300.0	Total/NA
Nitrate as N	0.14		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate	5.9		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.29		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	2.5		2.0	0.36	ug/L	1		200.8	Total Recoverable
Cadmium	0.13	J,DX	1.0	0.13	ug/L	1		200.8	Total Recoverable
Copper	1.1	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.21	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	1.0	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Silver	0.35	J,DX	1.0	0.23	ug/L	1		200.8	Total Recoverable
Thallium	0.14	J,DX	1.0	0.11	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	160		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall008_20230306_Comp_F

Lab Sample ID: 570-129992-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	3.3	BU MB	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	1.2	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.14	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Nickel	1.1	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Silver	0.40	J,DX BU	1.0	0.23	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.

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230306_Comp

Date Collected: 03/06/23 07:05

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129992-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.1		1.0	0.36	mg/L			03/07/23 08:41	1
Nitrite as N	0.15		0.10	0.043	mg/L			03/07/23 08:41	1
Nitrate as N	0.14		0.10	0.020	mg/L			03/07/23 08:41	1
Sulfate	5.9		1.0	0.24	mg/L			03/07/23 08:41	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/09/23 18:07	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.29		0.10	0.020	mg/L			03/10/23 16:06	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-129992-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

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

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	2.5		2.0	0.36	ug/L		03/07/23 08:45	03/07/23 13:32	1
Cadmium	0.13	J,DX	1.0	0.13	ug/L		03/07/23 08:45	03/07/23 13:32	1
Copper	1.1	J,DX	2.0	0.32	ug/L		03/07/23 08:45	03/07/23 13:32	1
Lead	0.21	J,DX	1.0	0.12	ug/L		03/07/23 08:45	03/07/23 13:32	1
Nickel	1.0	J,DX	2.0	0.17	ug/L		03/07/23 08:45	03/07/23 13:32	1
Selenium	ND		2.0	0.52	ug/L		03/07/23 08:45	03/07/23 13:32	1
Silver	0.35	J,DX	1.0	0.23	ug/L		03/07/23 08:45	03/07/23 13:32	1
Thallium	0.14	J,DX	1.0	0.11	ug/L		03/07/23 08:45	03/07/23 13:32	1
Zinc	ND		20	2.8	ug/L		03/07/23 08:45	03/07/23 13:32	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-129992-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

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

Client Sample ID: Outfall008_20230306_Comp_F

Lab Sample ID: 570-129992-2

Date Collected: 03/06/23 07:05

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.3	BU MB	2.0	0.36	ug/L			03/08/23 10:07	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/08/23 10:07	1
Copper	1.2	J,DX BU	2.0	0.32	ug/L			03/08/23 10:07	1
Lead	0.14	J,DX BU	1.0	0.12	ug/L			03/08/23 10:07	1
Nickel	1.1	J,DX BU	2.0	0.17	ug/L			03/08/23 10:07	1
Selenium	ND	BU	2.0	0.52	ug/L			03/08/23 10:07	1
Silver	0.40	J,DX BU	1.0	0.23	ug/L			03/08/23 10:07	1
Thallium	ND	BU	1.0	0.11	ug/L			03/08/23 10:07	1
Zinc	3.0	J,DX BU	20	2.8	ug/L			03/08/23 10:07	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

Matrix: Water

Date Received: 03/06/23 17:00

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 17:28	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230306_Comp_F

Date Collected: 03/06/23 07:05

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129992-2

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 14:06	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-1

General Chemistry

Client Sample ID: Outfall008_20230306_Comp

Date Collected: 03/06/23 07:05

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129992-1

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 15:55	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/14/23 19:36	1
Total Dissolved Solids (SM 2540C)	160		10	8.7	mg/L			03/09/23 18:08	1
Total Suspended Solids (SM 2540D)	ND		1.0	0.83	mg/L			03/09/23 18:34	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-309424/5
Matrix: Water
Analysis Batch: 309424

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 03:08	1
Nitrate as N	ND		0.10	0.020	mg/L			03/07/23 03:08	1

Lab Sample ID: LCS 570-309424/6
Matrix: Water
Analysis Batch: 309424

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	5.03		mg/L		101	90 - 110

Lab Sample ID: LCSD 570-309424/7
Matrix: Water
Analysis Batch: 309424

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 570-309425/5
Matrix: Water
Analysis Batch: 309425

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 03:08	1
Sulfate	ND		1.0	0.24	mg/L			03/07/23 03:08	1

Lab Sample ID: LCS 570-309425/6
Matrix: Water
Analysis Batch: 309425

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	48.9		mg/L		98	90 - 110
Sulfate	50.0	49.8		mg/L		100	90 - 110

Lab Sample ID: LCSD 570-309425/7
Matrix: Water
Analysis Batch: 309425

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	48.9		mg/L		98	90 - 110	0	15
Sulfate	50.0	49.8		mg/L		100	90 - 110	0	15

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-310301/7
Matrix: Water
Analysis Batch: 310301

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 16:18	1

Lab Sample ID: LCS 570-310301/8
Matrix: Water
Analysis Batch: 310301

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 570-310301/9
Matrix: Water
Analysis Batch: 310301

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	24.9		ug/L		100	85 - 115	2	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-309486/1-A
Matrix: Water
Analysis Batch: 309658

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 309486

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		03/07/23 08:45	03/07/23 13:25	1
Cadmium	ND		1.0	0.13	ug/L		03/07/23 08:45	03/07/23 13:25	1
Copper	ND		2.0	0.32	ug/L		03/07/23 08:45	03/07/23 13:25	1
Lead	ND		1.0	0.12	ug/L		03/07/23 08:45	03/07/23 13:25	1
Nickel	ND		2.0	0.17	ug/L		03/07/23 08:45	03/07/23 13:25	1
Selenium	ND		2.0	0.52	ug/L		03/07/23 08:45	03/07/23 13:25	1
Silver	ND		1.0	0.23	ug/L		03/07/23 08:45	03/07/23 13:25	1
Thallium	ND		1.0	0.11	ug/L		03/07/23 08:45	03/07/23 13:25	1
Zinc	ND		20	2.8	ug/L		03/07/23 08:45	03/07/23 13:25	1

Lab Sample ID: LCS 570-309486/2-A
Matrix: Water
Analysis Batch: 309658

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 309486

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	77.7		ug/L		97	85 - 115
Cadmium	80.0	76.5		ug/L		96	85 - 115
Copper	80.0	74.8		ug/L		93	85 - 115
Lead	80.0	76.7		ug/L		96	85 - 115
Nickel	80.0	74.9		ug/L		94	85 - 115
Selenium	80.0	78.4		ug/L		98	85 - 115
Silver	80.0	76.4		ug/L		95	85 - 115
Thallium	80.0	76.9		ug/L		96	85 - 115
Zinc	80.0	74.7		ug/L		93	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

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

Lab Sample ID: LCSD 570-309486/3-A
Matrix: Water
Analysis Batch: 309658

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 309486

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	%Rec	
									RPD	Limit
Antimony	80.0	78.8		ug/L		99	85 - 115	1	20	
Cadmium	80.0	77.2		ug/L		96	85 - 115	1	20	
Copper	80.0	74.9		ug/L		94	85 - 115	0	20	
Lead	80.0	75.7		ug/L		95	85 - 115	1	20	
Nickel	80.0	75.1		ug/L		94	85 - 115	0	20	
Selenium	80.0	80.0		ug/L		100	85 - 115	2	20	
Silver	80.0	76.3		ug/L		95	85 - 115	0	20	
Thallium	80.0	76.0		ug/L		95	85 - 115	1	20	
Zinc	80.0	73.6		ug/L		92	85 - 115	2	20	

Lab Sample ID: 570-129992-1 MS
Matrix: Water
Analysis Batch: 309658

Client Sample ID: Outfall008_20230306_Comp
Prep Type: Total Recoverable
Prep Batch: 309486

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec	
									Limits	RPD
Antimony	2.5		80.0	83.7		ug/L		102	80 - 120	
Cadmium	0.13	J,DX	80.0	76.5		ug/L		96	80 - 120	
Copper	1.1	J,DX	80.0	76.7		ug/L		94	80 - 120	
Lead	0.21	J,DX	80.0	76.6		ug/L		95	80 - 120	
Nickel	1.0	J,DX	80.0	75.2		ug/L		93	80 - 120	
Selenium	ND		80.0	77.0		ug/L		96	80 - 120	
Silver	0.35	J,DX	80.0	75.8		ug/L		94	80 - 120	
Thallium	0.14	J,DX	80.0	77.1		ug/L		96	80 - 120	
Zinc	ND		80.0	75.7		ug/L		95	80 - 120	

Lab Sample ID: 570-129992-1 MSD
Matrix: Water
Analysis Batch: 309658

Client Sample ID: Outfall008_20230306_Comp
Prep Type: Total Recoverable
Prep Batch: 309486

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec	
									Limits	RPD
Antimony	2.5		80.0	81.7		ug/L		99	80 - 120	2
Cadmium	0.13	J,DX	80.0	75.5		ug/L		94	80 - 120	1
Copper	1.1	J,DX	80.0	75.8		ug/L		93	80 - 120	1
Lead	0.21	J,DX	80.0	75.4		ug/L		94	80 - 120	2
Nickel	1.0	J,DX	80.0	74.7		ug/L		92	80 - 120	1
Selenium	ND		80.0	76.5		ug/L		96	80 - 120	1
Silver	0.35	J,DX	80.0	74.2		ug/L		92	80 - 120	2
Thallium	0.14	J,DX	80.0	76.6		ug/L		96	80 - 120	1
Zinc	ND		80.0	74.8		ug/L		93	80 - 120	1

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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

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
Lead	ND		1.0	0.12	ug/L			03/08/23 09:45	1
Nickel	ND		2.0	0.17	ug/L			03/08/23 09:45	1
Selenium	ND		2.0	0.52	ug/L			03/08/23 09:45	1
Silver	ND		1.0	0.23	ug/L			03/08/23 09:45	1
Thallium	ND		1.0	0.11	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
Antimony	80.0	74.3		ug/L		93	85 - 115
Cadmium	80.0	80.5		ug/L		101	85 - 115
Copper	80.0	78.8		ug/L		98	85 - 115
Lead	80.0	79.5		ug/L		99	85 - 115
Nickel	80.0	79.5		ug/L		99	85 - 115
Selenium	80.0	81.4		ug/L		102	85 - 115
Silver	80.0	79.6		ug/L		100	85 - 115
Thallium	80.0	80.3		ug/L		100	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
Antimony	80.0	78.2		ug/L		98	85 - 115	5	20
Cadmium	80.0	79.9		ug/L		100	85 - 115	1	20
Copper	80.0	79.7		ug/L		100	85 - 115	1	20
Lead	80.0	79.7		ug/L		100	85 - 115	0	20
Nickel	80.0	80.2		ug/L		100	85 - 115	1	20
Selenium	80.0	82.5		ug/L		103	85 - 115	1	20
Silver	80.0	80.1		ug/L		100	85 - 115	1	20
Thallium	80.0	79.8		ug/L		100	85 - 115	1	20
Zinc	80.0	78.9		ug/L		99	85 - 115	1	20

Lab Sample ID: 570-129992-2 MS
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Outfall008_20230306_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	3.3	BU MB	80.0	72.4	BU	ug/L		86	80 - 120
Cadmium	ND	BU	80.0	73.1	BU	ug/L		91	80 - 120
Copper	1.2	J,DX BU	80.0	74.6	BU	ug/L		92	80 - 120
Lead	0.14	J,DX BU	80.0	70.9	BU	ug/L		88	80 - 120
Nickel	1.1	J,DX BU	80.0	74.2	BU	ug/L		91	80 - 120
Selenium	ND	BU	80.0	78.3	BU	ug/L		98	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

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

Lab Sample ID: 570-129992-2 MS
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Outfall008_20230306_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	0.40	J,DX BU	80.0	73.7	BU	ug/L		92	80 - 120
Thallium	ND	BU	80.0	73.4	BU	ug/L		92	80 - 120
Zinc	3.0	J,DX BU	80.0	73.6	BU	ug/L		88	80 - 120

Lab Sample ID: 570-129992-2 MSD
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Outfall008_20230306_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	3.3	BU MB	80.0	76.9	BU	ug/L		92	80 - 120	6	20
Cadmium	ND	BU	80.0	74.4	BU	ug/L		93	80 - 120	2	20
Copper	1.2	J,DX BU	80.0	74.7	BU	ug/L		92	80 - 120	0	20
Lead	0.14	J,DX BU	80.0	74.0	BU	ug/L		92	80 - 120	4	20
Nickel	1.1	J,DX BU	80.0	74.3	BU	ug/L		91	80 - 120	0	20
Selenium	ND	BU	80.0	79.9	BU	ug/L		100	80 - 120	2	20
Silver	0.40	J,DX BU	80.0	75.2	BU	ug/L		93	80 - 120	2	20
Thallium	ND	BU	80.0	75.2	BU	ug/L		94	80 - 120	2	20
Zinc	3.0	J,DX BU	80.0	74.7	BU	ug/L		90	80 - 120	1	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 Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
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 Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec 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 Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	9.54	LQ	ug/L		119	85 - 115	2	10

Lab Sample ID: 570-129992-1 MS
Matrix: Water
Analysis Batch: 310041

Client Sample ID: Outfall008_20230306_Comp
Prep Type: Total/NA
Prep Batch: 309760

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	LQ	8.00	9.63	LM	ug/L		120	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-129992-1 MSD
 Matrix: Water
 Analysis Batch: 310041

Client Sample ID: Outfall008_20230306_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	9.68	LM	ug/L		121	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	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

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	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				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	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
		Result	Qualifier				Limits		
Mercury	8.00	8.40		ug/L		105	85 - 115	1	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	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
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	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				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	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
		Result	Qualifier				Limits		
Ammonia	0.500	0.498		mg/L		100	90 - 110	4	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

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

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

Lab Sample ID: MB 570-310438/1
Matrix: Water
Analysis Batch: 310438

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 18:08	1

Lab Sample ID: LCS 570-310438/2
Matrix: Water
Analysis Batch: 310438

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	994		mg/L		99	84 - 108

Lab Sample ID: LCSD 570-310438/3
Matrix: Water
Analysis Batch: 310438

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	1000		mg/L		100	84 - 108	1	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

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

Lab Sample ID: 570-129992-1 DU
 Matrix: Water
 Analysis Batch: 310438

Client Sample ID: Outfall008_20230306_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	160		148		mg/L		10	10

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

Lab Sample ID: MB 570-310449/1
 Matrix: Water
 Analysis Batch: 310449

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 18:34	1

Lab Sample ID: LCS 570-310449/2
 Matrix: Water
 Analysis Batch: 310449

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 570-310449/3
 Matrix: Water
 Analysis Batch: 310449

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	2	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

HPLC/IC

Analysis Batch: 309424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_Comp	Total/NA	Water	300.0	
MB 570-309424/5	Method Blank	Total/NA	Water	300.0	
LCS 570-309424/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309424/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 309425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_Comp	Total/NA	Water	300.0	
MB 570-309425/5	Method Blank	Total/NA	Water	300.0	
LCS 570-309425/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309425/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 310301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_Comp	Total/NA	Water	314.0	
MB 570-310301/7	Method Blank	Total/NA	Water	314.0	
LCS 570-310301/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-310301/9	Lab Control Sample Dup	Total/NA	Water	314.0	

Analysis Batch: 310704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 309367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-2	Outfall008_20230306_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	

Prep Batch: 309368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-2	Outfall008_20230306_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

Prep Batch: 309486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_Comp	Total Recoverable	Water	200.8	
MB 570-309486/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-309486/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-309486/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-129992-1 MS	Outfall008_20230306_Comp	Total Recoverable	Water	200.8	
570-129992-1 MSD	Outfall008_20230306_Comp	Total Recoverable	Water	200.8	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

Metals

Filtration Batch: 309651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-2	Outfall008_20230306_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	
570-129992-2 MS	Outfall008_20230306_Comp_F	Dissolved	Water	Filtration	
570-129992-2 MSD	Outfall008_20230306_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 309658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_Comp	Total Recoverable	Water	200.8	309486
MB 570-309486/1-A	Method Blank	Total Recoverable	Water	200.8	309486
LCS 570-309486/2-A	Lab Control Sample	Total Recoverable	Water	200.8	309486
LCSD 570-309486/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	309486
570-129992-1 MS	Outfall008_20230306_Comp	Total Recoverable	Water	200.8	309486
570-129992-1 MSD	Outfall008_20230306_Comp	Total Recoverable	Water	200.8	309486

Analysis Batch: 309665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-2	Outfall008_20230306_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

Prep Batch: 309760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_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	
570-129992-1 MS	Outfall008_20230306_Comp	Total/NA	Water	245.1	
570-129992-1 MSD	Outfall008_20230306_Comp	Total/NA	Water	245.1	

Analysis Batch: 309903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-2	Outfall008_20230306_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
570-129992-2 MS	Outfall008_20230306_Comp_F	Dissolved	Water	200.8	309651
570-129992-2 MSD	Outfall008_20230306_Comp_F	Dissolved	Water	200.8	309651

Analysis Batch: 310041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_Comp	Total/NA	Water	245.1	309760
MB 570-309760/1-A	Method Blank	Total/NA	Water	245.1	309760
LCS 570-309760/2-A	Lab Control Sample	Total/NA	Water	245.1	309760
LCSD 570-309760/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	309760
570-129992-1 MS	Outfall008_20230306_Comp	Total/NA	Water	245.1	309760
570-129992-1 MSD	Outfall008_20230306_Comp	Total/NA	Water	245.1	309760

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

General Chemistry

Analysis Batch: 310438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_Comp	Total/NA	Water	SM 2540C	
MB 570-310438/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-310438/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCS 570-310438/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-129992-1 DU	Outfall008_20230306_Comp	Total/NA	Water	SM 2540C	

Analysis Batch: 310449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_Comp	Total/NA	Water	SM 2540D	
MB 570-310449/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-310449/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCS 570-310449/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Prep Batch: 311129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_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	
LCS 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
570-129992-1	Outfall008_20230306_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
LCS 570-311129/7-A	Lab Control Sample Dup	Total/NA	Water	350.1	311129

Analysis Batch: 312131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_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	
LCS 570-312131/17	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-312131/13	Lab Control Sample	Total/NA	Water	Kelada 01	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

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	300.0		1	4 mL	4 mL	309424	03/07/23 08:41	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	300.0		1	4 mL	4 mL	309425	03/07/23 08:41	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	314.0		1	4 mL	4 mL	310301	03/09/23 18:07	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	309486	03/07/23 08:45	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			309658	03/07/23 13:32	Y2WS	EET CAL 4
	Instrument ID: ICPMS09									
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 17:28	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 15:55	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 2540C		1	100 mL	1000 mL	310438	03/09/23 18:08	ZL7L	EET CAL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	310449	03/09/23 18:34	WVA4	EET CAL 4
	Instrument ID: BAL71									

Client Sample ID: Outfall008_20230306_Comp_F

Lab Sample ID: 570-129992-2

Date Collected: 03/06/23 07:05

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
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 10:07	Y2WS	EET CAL 4
	Instrument ID: ICPMS09									
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 14:06	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 008 -
Comp

Job ID: 570-129992-1

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.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-1

Method	Method Description	Protocol	Laboratory
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	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 008 -
Comp

Job ID: 570-129992-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129992-1	Outfall008_20230306_Comp	Water	03/06/23 07:05	03/06/23 17:00
570-129992-2	Outfall008_20230306_Comp_F	Water	03/06/23 07:05	03/06/23 17:00

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

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 [008] Outfall 008 Comp							ANALYSIS REQUIRED										Field Readings									
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)							Total Recoverable Metals: (E200.6): Ni, Zn (E200.6): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (end all congeners) (E1619B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E180.1)	Total Dissolved Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E909.0), Strontium (E905.0), Uranium (E903.0 & E903.1) & Radium (E904.0), Uranium (E906.0), N-40, CS-137 (E901.0 or E901.1)	Ammonia-N (E90.2)	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (180.2 (SM2540D))	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. Sampler: Adrian Mobeka									X	X	X	X	X	X	X	X												
Outfall 008	Outfall008_20230306_Comp	3/6/2023 10705	WM	500 mL Poly	1	HNO3	95	Yes																				
			WM	1 L Glass Amber	2	None	110	No			X																	
			WM	500 mL Poly	2	None	130	No				X															48 hours Holding Time NO ₂ & NO ₃	
			WM	500 mL Poly	1	None	155	No				X																
			WM	500 mL Poly	1	H2SO4	160	No								X												
			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																				
				WM	1 L Poly	1	None	185	No																			
		Outfall008_20230306_Comp_F	3/6/2023 10705	WM	1L Poly	1	None	205	Yes					X												Filter and preserve w/in 24hrs of receipt at lab		
			WM	borosilicate vials	1	None	320	No													X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.			
	Outfall008_20230306_Comp_Extra	3/6/2023 10705	WM	1 L Glass Amber	2	None	110	No																	Hold			
			WM	500 mL Poly	2	None	130	No																		Hold		

Relinquished By: *Mark Dominick* Date/Time: 3-6-2023/1355 Company: HIA

Received By: *Adrian Mobeka* Date/Time: 3/6/23 1355 EC

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

Relinquished By: *Adrian Mobeka* Date/Time: 3/6/23 1700 EC

Received By: *Adrian Mobeka* Date/Time: 3/6/23 1700

Sample Integrity: (Check)
Intact: _____ On Ice: _____

Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: X

2.3/2.3, 1.8/1.8 SC11



570-129992 Chain of Custody

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab P/N: Patel, Virendra		Carrier Tracking No(s): 570-209419.1	
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program California		Job #: 570-129992-1	
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 008 Comp		Project #: 57013187		M Hexane N None O AsNaO2 P Na2OAS Q Na2SO3 R Na2SO4 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 X Trizma Y other (specify)	
Site:		SSOW#:		Z	
Sample Identification Client ID (Lab ID)		Sample Date		Sample Time	
Outfall008_20230306_Comp (570-129992-1)		3/6/23		07:05 Pacific	
Matrix (Water, Swab, On-site, etc.)		Sample Type (C-comp, G-grab)		Preservation Code	
Water					
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers	
X		X		2	
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/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:		Method of Shipment:	
Relinquished by: [Signature]		Date/Time: 03/07/23 10:28 AM		Received by: Company	
Relinquished by:		Date/Time:		Received by: Company	
Relinquished by:		Date/Time:		Received by: Company	
Custody Seals Intact: 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)	
Δ Yes Δ No				Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months	



ICOC No
570-209419

Containers
Count

Container Type

Preservative

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

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129992-1

Login Number: 129992

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 008 - Comp

JOB NUMBER

570-129992-2

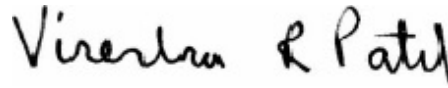
Job Notes

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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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4/3/2023 2:46:06 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 008 -
Comp

Job ID: 570-129992-2

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 008 - Comp

Job ID: 570-129992-2

Job ID: 570-129992-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129992-2

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 2 coolers at receipt time were 1.8° 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: Outfall008_20230306_Comp (570-129992-1), (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: 570-129992-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDD	0.0000070	J,DX q	0.000048	0.0000005	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8-PeCDF	0.0000013	J,DX	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				7					
2,3,4,7,8-PeCDF	0.0000023	J,DX q	0.000048	0.0000005	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,7,8-HxCDD	0.0000026	J,DX MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				4					
1,2,3,6,7,8-HxCDD	0.0000024	J,DX	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				5					
1,2,3,7,8,9-HxCDD	0.0000017	J,DX	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				0					
1,2,3,4,7,8-HxCDF	0.0000025	J,DX q MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				3					
1,2,3,6,7,8-HxCDF	0.0000019	J,DX MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8,9-HxCDF	0.0000068	J,DX q MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				8					
2,3,4,6,7,8-HxCDF	0.0000016	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				9					
1,2,3,4,6,7,8-HpCDD	0.000027	J,DX MB	0.000048	0.0000015	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.0000086	J,DX MB	0.000048	0.0000005	ug/L	1		1613B	Total/NA
				7					
OCDD	0.00024	MB	0.000096	0.0000008	ug/L	1		1613B	Total/NA
				4					
OCDF	0.000020	J,DX MB	0.000096	0.0000005	ug/L	1		1613B	Total/NA
				1					
Total TCDF	0.000015	q	0.0000096	0.0000004	ug/L	1		1613B	Total/NA
				1					
Total PeCDD	0.0000034	J,DX q	0.000048	0.0000005	ug/L	1		1613B	Total/NA
				0					
Total PeCDF	0.000019	J,DX q	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				7					
Total HxCDD	0.000019	J,DX q MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				0					
Total HxCDF	0.000018	J,DX q MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				9					
Total HpCDD	0.000063	MB	0.000048	0.0000015	ug/L	1		1613B	Total/NA
Total HpCDF	0.000019	J,DX MB	0.000048	0.0000005	ug/L	1		1613B	Total/NA
				7					
2,3,7,8-TCDF - RA	0.0000022	J,DX	0.000096	0.0000003	ug/L	1		1613B	Total/NA
				6					

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-129992-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000096	0.0000007	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,7,8-PeCDD	0.0000070	J,DX q	0.000048	0.0000005	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,7,8-PeCDF	0.0000013	J,DX	0.000048	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
2,3,4,7,8-PeCDF	0.0000023	J,DX q	0.000048	0.0000005	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,4,7,8-HxCDD	0.0000026	J,DX MB	0.000048	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,6,7,8-HxCDD	0.0000024	J,DX	0.000048	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,7,8,9-HxCDD	0.0000017	J,DX	0.000048	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,4,7,8-HxCDF	0.0000025	J,DX q MB	0.000048	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,6,7,8-HxCDF	0.0000019	J,DX MB	0.000048	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,7,8,9-HxCDF	0.0000068	J,DX q MB	0.000048	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
2,3,4,6,7,8-HxCDF	0.0000016	J,DX MB	0.000048	0.0000003	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,4,6,7,8-HpCDD	0.0000027	J,DX MB	0.000048	0.0000015	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,4,6,7,8-HpCDF	0.0000086	J,DX MB	0.000048	0.0000005	ug/L		03/22/23 04:36	03/24/23 22:55	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000006	ug/L		03/22/23 04:36	03/24/23 22:55	1
OCDD	0.000024	MB	0.000096	0.0000008	ug/L		03/22/23 04:36	03/24/23 22:55	1
OCDF	0.000020	J,DX MB	0.000096	0.0000005	ug/L		03/22/23 04:36	03/24/23 22:55	1
Total TCDD	ND		0.0000096	0.0000007	ug/L		03/22/23 04:36	03/24/23 22:55	1
Total TCDF	0.000015	q	0.0000096	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
Total PeCDD	0.0000034	J,DX q	0.000048	0.0000005	ug/L		03/22/23 04:36	03/24/23 22:55	1
Total PeCDF	0.000019	J,DX q	0.000048	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
Total HxCDD	0.000019	J,DX q MB	0.000048	0.0000004	ug/L		03/22/23 04:36	03/24/23 22:55	1
Total HxCDF	0.000018	J,DX q MB	0.000048	0.0000003	ug/L		03/22/23 04:36	03/24/23 22:55	1
Total HpCDD	0.000063	MB	0.000048	0.0000015	ug/L		03/22/23 04:36	03/24/23 22:55	1
Total HpCDF	0.000019	J,DX MB	0.000048	0.0000005	ug/L		03/22/23 04:36	03/24/23 22:55	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	79		25 - 164				03/22/23 04:36	03/24/23 22:55	1
13C-2,3,7,8-TCDF	85		24 - 169				03/22/23 04:36	03/24/23 22:55	1
13C-1,2,3,7,8-PeCDD	78		25 - 181				03/22/23 04:36	03/24/23 22:55	1
13C-1,2,3,7,8-PeCDF	87		24 - 185				03/22/23 04:36	03/24/23 22:55	1
13C-2,3,4,7,8-PeCDF	84		21 - 178				03/22/23 04:36	03/24/23 22:55	1
13C-1,2,3,4,7,8-HxCDD	75		32 - 141				03/22/23 04:36	03/24/23 22:55	1
13C-1,2,3,6,7,8-HxCDD	88		28 - 130				03/22/23 04:36	03/24/23 22:55	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-129992-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

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-HxCDF	79		26 - 152	03/22/23 04:36	03/24/23 22:55	1
13C-1,2,3,6,7,8-HxCDF	97		26 - 123	03/22/23 04:36	03/24/23 22:55	1
13C-1,2,3,7,8,9-HxCDF	93		29 - 147	03/22/23 04:36	03/24/23 22:55	1
13C-2,3,4,6,7,8-HxCDF	94		28 - 136	03/22/23 04:36	03/24/23 22:55	1
13C-1,2,3,4,6,7,8-HpCDD	79		23 - 140	03/22/23 04:36	03/24/23 22:55	1
13C-1,2,3,4,6,7,8-HpCDF	81		28 - 143	03/22/23 04:36	03/24/23 22:55	1
13C-1,2,3,4,7,8,9-HpCDF	89		26 - 138	03/22/23 04:36	03/24/23 22:55	1
13C-OCDD	89		17 - 157	03/22/23 04:36	03/24/23 22:55	1
13C-OCDF	100		17 - 157	03/22/23 04:36	03/24/23 22:55	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	94		35 - 197	03/22/23 04:36	03/24/23 22:55	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall008_20230306_Comp

Date Collected: 03/06/23 07:05

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129992-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0000022	J,DX	0.0000096	0.0000003	ug/L	-	03/22/23 04:36	03/28/23 14:37	1
				6					
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C-2,3,7,8-TCDF	78		24 - 169				03/22/23 04:36	03/28/23 14:37	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
37Cl4-2,3,7,8-TCDD	93		35 - 197				03/22/23 04:36	03/28/23 14:37	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-2

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)
570-129992-1	Outfall008_20230306_Comp	94
570-129992-1 - RA	Outfall008_20230306_Comp	93
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.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-2

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)
570-129992-1	Outfall008_20230306_Comp	79	85	78	87	84	75	88	79
570-129992-1 - RA	Outfall008_20230306_Comp		78						
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	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-129992-1	Outfall008_20230306_Comp	97	93	94	79	81	89	89	100
570-129992-1 - RA	Outfall008_20230306_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
- 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 320-662474/2-A	Lab Control Sample	87	95	89	99	98	85	96	92
LCS 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	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 320-662474/2-A	Lab Control Sample	106	104	103	86	88	98	98	111
LCS 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: 570-129992-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
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 008 -
 Comp

Job ID: 570-129992-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

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

Analyte	MB	MB	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,3,7,8-TCDD	ND		0.000010	0.0000006	ug/L		03/22/23 04:36	03/24/23 20:32	1
2,3,7,8-TCDF	ND		0.000010	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,7,8-PeCDD	ND		0.000050	0.0000003	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,7,8-HxCDD	0.00000212	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,7,8-HxCDF	0.000000407	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,6,7,8-HxCDF	0.000000287	J,DX q	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,7,8,9-HxCDF	0.000000381	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
2,3,4,6,7,8-HxCDF	0.000000354	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,6,7,8-HpCDD	0.00000127	J,DX q	0.000050	0.0000003	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,6,7,8-HpCDF	0.00000137	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
OCDD	0.00000721	J,DX	0.00010	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
OCDF	0.00000266	J,DX	0.00010	0.0000003	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total TCDD	ND		0.000010	0.0000006	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total TCDF	ND		0.000010	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total PeCDD	ND		0.000050	0.0000004	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total PeCDF	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total HxCDD	0.00000343	J,DX q	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total HxCDF	0.00000143	J,DX q	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total HpCDD	0.00000335	J,DX q	0.000050	0.0000003	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total HpCDF	0.00000190	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	86		25 - 164				03/22/23 04:36	03/24/23 20:32	1
13C-2,3,7,8-TCDF	94		24 - 169				03/22/23 04:36	03/24/23 20:32	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-2

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 008 -
 Comp

Job ID: 570-129992-2

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 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 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		RPD	RPD Limit
							Limits	RPD		
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 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 008 -
 Comp

Job ID: 570-129992-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-662474/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 663420

Prep Batch: 662474

<u>Isotope Dilution</u>	<i>LCSD LCSD</i>		<u>Limits</u>
	<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

<u>Surrogate</u>	<i>LCSD LCSD</i>		<u>Limits</u>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	91		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-2

Specialty Organics

Prep Batch: 662474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1 - RA	Outfall008_20230306_Comp	Total/NA	Water	1613B	
570-129992-1	Outfall008_20230306_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
570-129992-1	Outfall008_20230306_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
570-129992-1 - RA	Outfall008_20230306_Comp	Total/NA	Water	1613B	662474

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-2

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

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	Prep	1613B	RA		1043.8 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 14:37	DB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1043.8 mL	20.0 uL	662474	03/22/23 04:36	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	663420	03/24/23 22:55	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 008 -
 Comp

Job ID: 570-129992-2

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 008 -
Comp

Job ID: 570-129992-2

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 008 -
Comp

Job ID: 570-129992-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129992-1	Outfall008_20230306_Comp	Water	03/06/23 07:05	03/06/23 17:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Comp					ANALYSIS REQUIRED										Field Readings						
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.				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)					Total Recoverable Metals: (E200.6): Ni, Zn (E200.6): Ag, Cd, Cu, Pb, Sb, Se, Tl TCDD (end all congeners) (E1619B) Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300) TDS (SM2540C/E180.1) Total Dissolved Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Tl Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E909.0), Strontium (E909.0), Uranium (E903.0) (E903.1) & Radium (E904.0), Uranium (E906.0), N-40, CS-137 (E901.0 or E901.1) Ammonia-N (E90.2) Cyanide (SM4500-CN/E1 E335.2) Total Recoverable Metals: Mercury (E245.1) Total Dissolved Metals: Mercury (E245.1) TSS (180.2 (SM2540D))										Comments						
Sampler: Adrian Mobeka				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): Ni, Zn (E200.6): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (end all congeners) (E1619B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E180.1)	Total Dissolved Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E909.0), Strontium (E909.0), Uranium (E903.0) (E903.1) & Radium (E904.0), Uranium (E906.0), N-40, CS-137 (E901.0 or E901.1)	Ammonia-N (E90.2)	Cyanide (SM4500-CN/E1 E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (180.2 (SM2540D))	Comments					
Outfall 008	Outfall008_20230306_Comp	3/6/2023 10705	WM	500 mL Poly	1	HNO3	95	Yes	X									X							
			WM	1 L Glass Amber	2	None	110	No			X														
			WM	500 mL Poly	2	None	130	No				X												48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None	155	No					X												
			WM	500 mL Poly	1	H2SO4	160	No									X								
			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																	
				WM	1 L Poly	1	None	185	No												X				
		Outfall008_20230306_Comp_F	3/6/2023 10705	WM	1L Poly	1	None	205	Yes					X									Filter and preserve w/in 24hrs of receipt at lab		
			WM	borosilicate vials	1	None	320	No										X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.			
	Outfall008_20230306_Comp_Extra	3/6/2023 10705	WM	1 L Glass Amber	2	None	110	No		H												Hold			
			WM	500 mL Poly	2	None	130	No			H											Hold			

Relinquished By: *Mark Dominick* Date/Time: 3-6-2023/1355 Company: H&A

Received By: *Mark Dominick* Date/Time: 3/6/23 1355 EC

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

Relinquished By: *Adrian Mobeka* Date/Time: 3/6/23 1700 EC Company: H&A

Received By: *Adrian Mobeka* Date/Time: 3/6/23 1700

Sample Integrity: (Check)
Intact: _____ On Ice: _____

Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: X

2.3/2.3, 1.8/1.8 SC11



570-129992 Chain of Custody

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab P/N: 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																																
Address: 13715 Rider Trail North, Earth City, MO, 63045		Job #: 570-129992-1																																
Phone: 314-298-8566 (Tel) 314-298-8757 (Fax)		Preservation Codes:																																
Email:		A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2OAS 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 008 Comp		Analysis Requested																																
Site:		Total Number of Containers																																
Project #: 57013187		Boeing SSFL DO NOT FILTER, use prep date from preservation																																
SSOW#:		Special Instructions/Note:																																
Sample Identification Client ID (Lab ID)		<table border="1"> <thead> <tr> <th>Sample ID</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=Comp, G=grab)</th> <th>Matrix (Water, Swab, On-site soil, On-site air)</th> <th>Preservation Code</th> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>90.0/Evap/Polon Gross Alpha/Beta</th> <th>906.0/LSC Diet Susp Tritium</th> <th>905.0/PreSep_7 Strontium-90</th> <th>903.0/PreSep_21 Radium-226</th> <th>904.0/PreSep_0 Radium-228</th> <th>A01R_U/ExChrom_Actin Total Uranium</th> <th>901.1_Ca/Fill_Geo_0 K-40 and Cesium-137</th> </tr> </thead> <tbody> <tr> <td>Outfall008_20230306_Comp (570-129992-1)</td> <td>3/6/23</td> <td>07:05 Pacific</td> <td></td> <td>Water</td> <td></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> </tr> </tbody> </table>			Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Swab, On-site soil, On-site air)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	90.0/Evap/Polon Gross Alpha/Beta	906.0/LSC Diet 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	Outfall008_20230306_Comp (570-129992-1)	3/6/23	07:05 Pacific		Water		X	X	X	X	X	X	X	X	X
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Swab, On-site soil, On-site air)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	90.0/Evap/Polon Gross Alpha/Beta	906.0/LSC Diet 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																				
Outfall008_20230306_Comp (570-129992-1)	3/6/23	07:05 Pacific		Water		X	X	X	X	X	X	X	X	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 <input type="checkbox"/> Unconfirmed <input type="checkbox"/> Deliverable Requested: I II III IV Other (specify) Primary Deliverable Rank: 2 <input type="checkbox"/> Empty Kit Relinquished by: _____ Date: _____ <input type="checkbox"/> Relinquished by: _____ Date/Time: 03/07/23 10:28 AM Company: _____ <input type="checkbox"/> Relinquished by: _____ Date/Time: _____ Company: _____ <input type="checkbox"/> Relinquished by: _____ Date/Time: _____ Company: _____ Custody Seals Intact: _____ Custody Seal No. _____ Δ Yes Δ No																																



ICOC No
570-209419

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):																			
Client Contact: Shipping/Receiving		Patel, Virendra	E-Mail:	570-209610.1																			
Company: Eurofins Environment Testing Northern Ca		Phone:	Virendra.Patel@et.eurofinsus.com	Page: 1 of 1																			
Address: 880 Riverside Parkway,		Accreditations Required (See note): State Program - California																					
City: West Sacramento		Analysis Requested																					
State, Zip: CA, 95605		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Performs MS/MSD (Yes or No)</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Field Filtered Sample (Yes or No)</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>1618/1618 Sox Sep P (MOD) Standard List w/ Totals (Hold)</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Total Number of Containers</td> <td>2</td> </tr> </table>				Performs MS/MSD (Yes or No)	<input checked="" type="checkbox"/>	Field Filtered Sample (Yes or No)	<input checked="" type="checkbox"/>	1618/1618 Sox Sep P (MOD) Standard List w/ Totals (Hold)	<input checked="" type="checkbox"/>	Total Number of Containers	2										
Performs MS/MSD (Yes or No)	<input checked="" type="checkbox"/>																						
Field Filtered Sample (Yes or No)	<input checked="" type="checkbox"/>																						
1618/1618 Sox Sep P (MOD) Standard List w/ Totals (Hold)	<input checked="" type="checkbox"/>																						
Total Number of Containers	2																						
Due Date Requested: 3/22/2023		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>PO #:</td> <td></td> <td>Matrix (Wet/dry, Solid, Organic/Sol)</td> <td></td> <td rowspan="2">Special Instructions/Note:</td> </tr> <tr> <td>WFO #:</td> <td></td> <td>Sample Type (C=Comp, G=grab)</td> <td>Water</td> </tr> <tr> <td>Project #:</td> <td>57013187</td> <td>Sample Time</td> <td>07:05 Pacific</td> <td rowspan="2">See OAS, Boeing, w/ to zero, ug/L; Use Boeing glassware.</td> </tr> <tr> <td>Site:</td> <td>Boeing NPDES SSFL - Routine Outfall 008 - Comp</td> <td>Sample Date</td> <td>3/6/23</td> </tr> </table>				PO #:		Matrix (Wet/dry, Solid, Organic/Sol)		Special Instructions/Note:	WFO #:		Sample Type (C=Comp, G=grab)	Water	Project #:	57013187	Sample Time	07:05 Pacific	See OAS, Boeing, w/ to zero, ug/L; Use Boeing glassware.	Site:	Boeing NPDES SSFL - Routine Outfall 008 - Comp	Sample Date	3/6/23
PO #:		Matrix (Wet/dry, Solid, Organic/Sol)		Special Instructions/Note:																			
WFO #:		Sample Type (C=Comp, G=grab)	Water																				
Project #:	57013187	Sample Time	07:05 Pacific	See OAS, Boeing, w/ to zero, ug/L; Use Boeing glassware.																			
Site:	Boeing NPDES SSFL - Routine Outfall 008 - Comp	Sample Date	3/6/23																				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		<p>Sample Identification - Client ID (Lab ID) Outfall008_20230306_Comp_Extra (570-129992-3)</p>																					
Email:		<p>Possible Hazard Identification Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>																					
Project Name: Boeing NPDES SSFL - Routine Outfall 008 - Comp		<p>Deliverable Requested: I, II, III, IV, Other (specify)</p> <p>Primary Deliverable Rank: 2</p>																					
Site:		<p>Empty Kit Relinquished by: _____ Date: _____ Method of Shipment:</p>																					
Relinquished by: _____		<p>Relinquished by: _____ Date/Time: 03/10/23 11:12 AM Company: _____</p>																					
Relinquished by: _____		<p>Relinquished by: _____ Date/Time: _____ Company: _____</p>																					
Custody Seals Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		<p>Cooler Temperature(s) °C and Other Remarks: 1.7C</p>																					





Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):		COC No: 570-209610.1
Client Contact: Shipping/Receiving		Phone:	E-Mail:	State of Origin:		Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Address:		Accreditations Required (See note):		Job #: 570-129992-2
880 Riverside Parkway,		880 Riverside Parkway,		State Program - California		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: West Sacramento		City: West Sacramento		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: CA, 95605		State, Zip: CA, 95605		Due Date Requested:		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		Phone: 916-373-5600(Tel) 916-372-1059(Fax)		TAT Requested (days):		
Email:		Email:		PO #:		
Project Name: Boeing NPDES SSFL - Routine Outfall 008 - Comp		Project #: 57013187		WO #:		
Site:		SSOW#:		Field Filtered Sample (Yes or No)		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Other)	Preservation Code:
Outfall008_20230306_Comp_Extra (570-129992-3)		3/6/23	07:05 Pacific		Water	
Perform MS/MSD (Yes or No)		16138/16138_Sox_Sep_P (MOD) Standard List/W		Totals (Hold)		
Field Filtered Sample (Yes or No)		X		Total Number of Containers		2
Special Instructions/Note:		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/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: 03/10/23 11:12 Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seals Intact: _____ Custody Seal No.: _____
 Cooler Temperature(s) °C and Other Remarks: 1.7c

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: 570-129992-2

Login Number: 129992

List Source: Eurofins Calscience

List Number: 1

Creator: Cruise, Noel

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: 570-129992-2

Login Number: 129992

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	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	2.1c
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	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: 570-129992-2

Login Number: 129992

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 7:30:05 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 008 - Comp

JOB NUMBER

570-129992-3

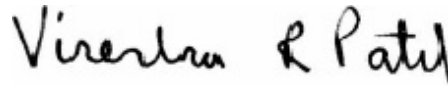
Job Notes

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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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(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-3

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 008 - Comp

Job ID: 570-129992-3

Job ID: 570-129992-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129992-3

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 2 coolers at receipt time were 1.8° 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. (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.

Outfall008_20230306_Comp (570-129992-1), (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 008 - Comp

Job ID: 570-129992-3

Job ID: 570-129992-3 (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.

Outfall008_20230306_Comp (570-129992-1), (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.

Outfall008_20230306_Comp (570-129992-1), (LCS 160-603857/2-A), (LCSD 160-603857/25-A), (MB 160-603857/1-A), (570-129852-R-1-B), (570-129852-L-1-C MS) and (570-129852-L-1-D MSD)

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.

Outfall008_20230306_Comp (570-129992-1), (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. Outfall008_20230306_Comp (570-129992-1), (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. Outfall008_20230306_Comp (570-129992-1), (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

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 - Comp

Job ID: 570-129992-3

Job ID: 570-129992-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

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. Outfall008_20230306_Comp (570-129992-1), (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: Outfall008_20230306_Comp (570-129992-1).

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.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Job ID: 570-129992-3

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

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 008 -
 Comp

Job ID: 570-129992-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230306_Comp
 Date Collected: 03/06/23 07:05
 Date Received: 03/06/23 17:00

Lab Sample ID: 570-129992-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.36	U F	1.28	1.29	3.00	2.01	pCi/L	04/06/23 10:28	04/11/23 06:09	1
Gross Beta	0.794	U	0.597	0.602	4.00	0.896	pCi/L	04/06/23 10:28	04/11/23 06:09	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230306_Comp
 Date Collected: 03/06/23 07:05
 Date Received: 03/06/23 17:00

Lab Sample ID: 570-129992-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.000	U	4.97	4.97	20.0	12.1	pCi/L	03/17/23 14:08	03/29/23 17:47	1
Potassium-40	34.5	U	89.6	89.7		156	pCi/L	03/17/23 14:08	03/29/23 17:47	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230306_Comp
Date Collected: 03/06/23 07:05
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129992-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0199	U	0.0664	0.0665	1.00	0.151	pCi/L	03/16/23 07:58	04/07/23 10:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					03/16/23 07:58	04/07/23 10:46	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230306_Comp
 Date Collected: 03/06/23 07:05
 Date Received: 03/06/23 17:00

Lab Sample ID: 570-129992-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.662	U	0.489	0.493	1.00	0.743	pCi/L	03/16/23 09:45	03/30/23 12:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					03/16/23 09:45	03/30/23 12:08	1
Y Carrier	80.0		30 - 110					03/16/23 09:45	03/30/23 12:08	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230306_Comp
Date Collected: 03/06/23 07:05
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129992-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0900	U	0.467	0.467	3.00	0.849	pCi/L	03/20/23 13:22	03/29/23 16:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	83.9		30 - 110					03/20/23 13:22	03/29/23 16:07	1
Y Carrier	71.8		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: 570-129992-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
Comp

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

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
Tritium	40.1	U F	141	141	500	252	pCi/L	03/29/23 11:02	04/04/23 20:59	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

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	0.338		0.219	0.220	1.00	0.196	pCi/L	03/30/23 15:31	04/04/23 20:41	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	91.3		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 008 -
 Comp

Job ID: 570-129992-3

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)					
570-129992-1	Outfall008_20230306_Comp	86.6					
LCS 160-603854/2-A	Lab Control Sample	94.8					
LCSD 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)				
570-129992-1	Outfall008_20230306_Comp	86.6	80.0				
LCS 160-603857/2-A	Lab Control Sample	94.8	81.5				
LCSD 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)				
570-129992-1	Outfall008_20230306_Comp	83.9	71.8				
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)					
570-129992-1	Outfall008_20230306_Comp	91.3					
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 008 -
 Comp

Job ID: 570-129992-3

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 008 -
 Comp

Job ID: 570-129992-3

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	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
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	MB %Yield	MB 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	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.41		1.18	1.00	0.0785	pCi/L	101	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	94.8		30 - 110					03/16/23 07:58	04/07/23 10:41

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	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	10.67		1.13	1.00	0.155	pCi/L	94	75 - 125	0.32	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	89.2		30 - 110					03/16/23 09:45	03/30/23 12:11	1	

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	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.4545		0.308	0.311	1.00	0.452	pCi/L	03/16/23 09:45	03/30/23 12:11	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	91.5		30 - 110					03/16/23 09:45	03/30/23 12:11	1
Y Carrier	83.7		30 - 110		03/16/23 09:45	03/30/23 12:11	1			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-3

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	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									

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 Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
								03/20/23 13:22	03/29/23 15:59	03/29/23 15:59	15:59	
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	03/29/23 15:59	15:59	1
MB MB												
Carrier	%Yield	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 Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Strontium-90	7.35	7.405		0.842	3.00	0.323	pCi/L	101	75 - 125	
LCS LCS										
Carrier	%Yield	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 008 -
 Comp

Job ID: 570-129992-3

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.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-3

Rad

Prep Batch: 603854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_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	
LCS D 160-603854/25-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 603857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_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	
LCS D 160-603857/25-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 604032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129992-1	Outfall008_20230306_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
570-129992-1	Outfall008_20230306_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
570-129992-1	Outfall008_20230306_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
570-129992-1	Outfall008_20230306_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
570-129992-1	Outfall008_20230306_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	
LCS B 160-606326/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 008 -
 Comp

Job ID: 570-129992-3

Client Sample ID: Outfall008_20230306_Comp

Lab Sample ID: 570-129992-1

Date Collected: 03/06/23 07:05

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	Prep	Evaporation			199.97 mL	1.0 g	606326	04/06/23 10:28	MST	EET SL
Total/NA	Analysis	900.0		1			606895	04/11/23 06:09	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			605376	03/29/23 17:47	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			749.42 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 10:46	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			749.42 mL	1.0 g	603857	03/16/23 09:45	DJP	EET SL
Total/NA	Analysis	904.0		1			605623	03/30/23 12:08	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep-7			504.20 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			97.06 mL	1.0 g	605397	03/29/23 11:02	SEH	EET SL
Total/NA	Analysis	906.0		1			606179	04/04/23 20:59	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			295.5 mL	1.0 mL	605724	03/30/23 15:31	CMM	EET SL
Total/NA	Analysis	A-01-R		1			606115	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 008 -
 Comp

Job ID: 570-129992-3

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 008 -
Comp

Job ID: 570-129992-3

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 008 -
Comp

Job ID: 570-129992-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129992-1	Outfall008_20230306_Comp	Water	03/06/23 07:05	03/06/23 17:00

1

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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 [008] Outfall 008 Comp							ANALYSIS REQUIRED										Field Readings								
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)							Total Recoverable Metals: (E200.6): Ni, Zn (E200.6): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (end all congeners) (E1619B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E180.1)	Total Dissolved Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Tl	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E909.0), Strontium (E905.0), Uranium (E903.0 & E903.1) & Radium (E904.0), Uranium (E906.0), N-40, CS-137 (E901.0 or E901.1)	Ammonia-N (E90.2)	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (180.2 (SM2540D))	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. Sampler: Adrian Mobeka									X	X	X	X	X	X	X	X											
Outfall 008	Outfall008_20230306_Comp	3/6/2023 10705	WM	500 mL Poly	1	HNO3	95	Yes																			
			WM	1 L Glass Amber	2	None	110	No		X																	
			WM	500 mL Poly	2	None	130	No			X															48 hours Holding Time NO ₂ & NO ₃	
			WM	500 mL Poly	1	None	155	No				X															
			WM	500 mL Poly	1	H2SO4	160	No								X											
			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																			
				WM	1 L Poly	1	None	185	No													X					
		Outfall008_20230306_Comp_F	3/6/2023 10705	WM	1L Poly	1	None	205	Yes				X												Filter and preserve w/in 24hrs of receipt at lab		
			WM	borosilicate vials	1	None	320	No													X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.			
	Outfall008_20230306_Comp_Extra	3/6/2023 10705	WM	1 L Glass Amber	2	None	110	No			H													Hold			
			WM	500 mL Poly	2	None	130	No			H														Hold		

Relinquished By: *Mark Dominick* Date/Time: 3-6-2023/1355 Company: HIA

Received By: *Adrian Mobeka* Date/Time: 3/6/23 1355 EC

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

Relinquished By: *Adrian Mobeka* Date/Time: 3/6/23 1700 EC

Received By: *Adrian Mobeka* Date/Time: 3/6/23 1700

Sample Integrity: (Check)
Intact: _____ On Ice: _____

Store samples for 6 months.
Data Requirements: (Check)
No Level IV: _____ All Level IV: X

2.3/2.3, 1.8/1.8 SC11



570-129992 Chain of Custody

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab P/N: 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 #: 570-129992-1														
Address: 13715 Rider Trail North, Earth City, MO, 63045		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																
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		M Hexane N None O AsNaO2 P Na2OAS Q Na2SO3 R Na2SO4 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 Y Trizma Z other (specify)																
Email:		Special Instructions/Note: Boeing SSFL DO NOT FILTER; use prep date from preservation																
Project Name: Boeing NPDES SSFL Routine Outfall 008 Comp		Total Number of Containers: 2																
Site:																		
Due Date Requested: 3/16/2023																		
TAT Requested (days):																		
PO #:																		
WO #:																		
Project #: 57013187																		
SSOW#:																		
Sample Identification Client ID (Lab ID)																		
Outfall008_20230306_Comp (570-129992-1)																		
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Swab, On-site, etc.)	Preservation Code														
3/6/23	07:05 Pacific		Water															
Perform MS/MSD (Yes or No)		Field Filtered Sample (Yes or No)																
900/Evaporation Gross Alpha/Beta		906/LSC Dist. Susp Tritium																
905_Sr90Presep_7 Strontium-90		903_0/Presep_21 Radium-226																
904_0/Presep_0 Radium-228		A01R_UVEXchrom_Actin Total Uranium																
901_1_CaFill_Geo_0 K-40 and Cesium-137																		
<p>Analysis Requested</p> <table border="1"> <tr> <td>901_1_CaFill_Geo_0 K-40 and Cesium-137</td> <td>X</td> </tr> <tr> <td>A01R_UVEXchrom_Actin Total Uranium</td> <td>X</td> </tr> <tr> <td>904_0/Presep_0 Radium-228</td> <td>X</td> </tr> <tr> <td>903_0/Presep_21 Radium-226</td> <td>X</td> </tr> <tr> <td>905_Sr90Presep_7 Strontium-90</td> <td>X</td> </tr> <tr> <td>906/LSC Dist. Susp Tritium</td> <td>X</td> </tr> <tr> <td>900/Evaporation Gross Alpha/Beta</td> <td>X</td> </tr> </table>					901_1_CaFill_Geo_0 K-40 and Cesium-137	X	A01R_UVEXchrom_Actin Total Uranium	X	904_0/Presep_0 Radium-228	X	903_0/Presep_21 Radium-226	X	905_Sr90Presep_7 Strontium-90	X	906/LSC Dist. Susp Tritium	X	900/Evaporation Gross Alpha/Beta	X
901_1_CaFill_Geo_0 K-40 and Cesium-137	X																	
A01R_UVEXchrom_Actin Total Uranium	X																	
904_0/Presep_0 Radium-228	X																	
903_0/Presep_21 Radium-226	X																	
905_Sr90Presep_7 Strontium-90	X																	
906/LSC Dist. Susp Tritium	X																	
900/Evaporation Gross Alpha/Beta	X																	
<p>Possible Hazard Identification</p> <p>Unconfirmed</p> <p>Deliverable Requested: I II III IV Other (specify) Primary Deliverable Rank: 2</p> <p>Empty Kit Relinquished by: _____ Date: _____</p> <p>Relinquished by: _____ Date/Time: 03/07/23 10:28 AM Company: _____</p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p> <p>Relinquished by: _____ Date/Time: _____ Company: _____</p> <p>Custody Seals Intact: _____ Custody Seal No. _____</p> <p>Δ Yes Δ No</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>																		
<p>Method of Shipment: _____</p> <p>Received by: _____ Date/Time: _____ Company: _____</p> <p>Received by: _____ Date/Time: _____ Company: _____</p> <p>Received by: _____ Date/Time: _____ Company: _____</p> <p>Cooler Temperature(s) °C and Other Remarks:</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.

ICOC No
570-209419

Containers
Count

Container Type

Preservative

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

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s): 570-209419.1
Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		State of Origin: California	
Address: 13715 Rider Trail North, Earth City MO, 63045		Job #: 570-129992-1	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		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)	
Email:		Other:	
Project Name: Boeing NPDES SSFL - Routine Outfall 008 - Comp		Total Number of Containers: 2	
Site: Outfall008_20230306_Comp (570-129992-1)		Special Instructions/Note: Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Due Date Requested: 3/16/2023		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
TAT Requested (days):		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
PO #:		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
WO #:		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Project #: 57013187		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
SSOW#:		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Sample Date: 3/6/23		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Sample Time: 07:05 Pacific		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Sample Type (C=Comp, G=Grab):		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Matrix (W=Water, S=Solid, O=Swab/Soil, BT=Tissue, A=Air):		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Preservation Code: Water		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Field Filtered Sample (Yes or No):		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
Perform MS/MSD (Yes or No):		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
900.0/Evaporation Gross Alpha/Beta		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
906.0/LSC_Dist_Susp Tritium		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
905.590/PreSep_7 Strontium-90		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
903.0/PreSep_21 Radium-226		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
904.0/PreSep_0 Radium-228		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
A01R_UIC(Chrom_Actin Total Uranium		Boeing SSFL: DO NOT FILTER; use prep date from preservation	
901.1_Ca/Fill_Geo_0 K-40 and Cesium-137		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: _____ Date: _____
 Relinquished by: _____ Date/Time: 03/07/23 10:30 PM Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seals Intact: _____ Custody Seal No.: _____
 Δ Yes Δ No

Special Instructions/QC Requirements:
 Return To Client Disposal By Lab Archive For _____ Months
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____
 Cooler Temperature(s) °C and Other Remarks: _____



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129992-3

Login Number: 129992

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: 570-129992-3

Login Number: 129992

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

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 - Comp

JOB NUMBER

570-130109-1

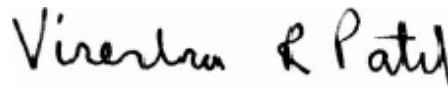
Job Notes

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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 7:30:11 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: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

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
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 NPDES SSFL - Routine Outfall - 008 - Comp

Job ID: 570-130109-1

Job ID: 570-130109-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130109-1

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 temperature of the cooler at receipt was 1.0° C.

HPLC/IC

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

Metals

Method 245.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-310128 and analytical batch 570-310348 were outside control limits for Mercury, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recovery is within acceptance limits.

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 sample is impacted: (CCV 570-310614/9-A).

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230307_Comp_F (570-130109-2). 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: Outfall008_20230307_Comp_F (570-130109-2), Outfall008_20230307_Comp_F (570-130109-2[MS]) and Outfall008_20230307_Comp_F (570-130109-2[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.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.4		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.12		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate	5.9		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.12		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	0.82	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	1.2	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Nickel	1.2	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	140		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall008_20230307_Comp_F

Lab Sample ID: 570-130109-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.89	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	1.0	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Nickel	0.96	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.4		1.0	0.36	mg/L			03/08/23 06:05	1
Nitrite as N	ND		0.10	0.043	mg/L			03/08/23 06:05	1
Nitrate as N	0.12		0.10	0.020	mg/L			03/08/23 06:05	1
Sulfate	5.9		1.0	0.24	mg/L			03/08/23 06:05	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

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 05:56	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.12		0.10	0.020	mg/L			03/10/23 16:06	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

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

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.82	J,DX	2.0	0.36	ug/L		03/08/23 08:49	03/08/23 12:19	1
Cadmium	ND		1.0	0.13	ug/L		03/08/23 08:49	03/08/23 12:19	1
Copper	1.2	J,DX	2.0	0.32	ug/L		03/08/23 08:49	03/08/23 12:19	1
Lead	ND		1.0	0.12	ug/L		03/08/23 08:49	03/08/23 12:19	1
Nickel	1.2	J,DX	2.0	0.17	ug/L		03/08/23 08:49	03/08/23 12:19	1
Selenium	ND		2.0	0.52	ug/L		03/08/23 08:49	03/08/23 12:19	1
Silver	ND		1.0	0.23	ug/L		03/08/23 08:49	03/08/23 12:19	1
Thallium	ND		1.0	0.11	ug/L		03/08/23 08:49	03/08/23 12:19	1
Zinc	ND		20	2.8	ug/L		03/08/23 08:49	03/08/23 12:19	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

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

Client Sample ID: Outfall008_20230307_Comp_F

Lab Sample ID: 570-130109-2

Date Collected: 03/07/23 08:30

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.89	J,DX BU	2.0	0.36	ug/L			03/08/23 14:14	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/08/23 14:14	1
Copper	1.0	J,DX BU	2.0	0.32	ug/L			03/08/23 14:14	1
Lead	ND	BU	1.0	0.12	ug/L			03/08/23 14:14	1
Nickel	0.96	J,DX BU	2.0	0.17	ug/L			03/08/23 14:14	1
Selenium	ND	BU	2.0	0.52	ug/L			03/08/23 14:14	1
Silver	ND	BU	1.0	0.23	ug/L			03/08/23 14:14	1
Thallium	ND	BU	1.0	0.11	ug/L			03/08/23 14:14	1
Zinc	ND	BU	20	2.8	ug/L			03/08/23 14:14	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

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 22:19	03/09/23 13:42	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230307_Comp_F

Lab Sample ID: 570-130109-2

Date Collected: 03/07/23 08:30

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 17:10	03/10/23 14:17	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

General Chemistry

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

Matrix: Water

Date Received: 03/07/23 18:00

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 15:51	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/14/23 19:36	1
Total Dissolved Solids (SM 2540C)	140		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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-309786/5
Matrix: Water
Analysis Batch: 309786

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 03:31	1
Nitrate as N	ND		0.10	0.020	mg/L			03/08/23 03:31	1

Lab Sample ID: LCS 570-309786/6
Matrix: Water
Analysis Batch: 309786

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	4.90		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-309786/7
Matrix: Water
Analysis Batch: 309786

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	0	15
Nitrate as N	5.00	4.89		mg/L		98	90 - 110	0	15

Lab Sample ID: MB 570-309787/5
Matrix: Water
Analysis Batch: 309787

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 03:31	1
Sulfate	ND		1.0	0.24	mg/L			03/08/23 03:31	1

Lab Sample ID: LCS 570-309787/6
Matrix: Water
Analysis Batch: 309787

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	47.4		mg/L		95	90 - 110
Sulfate	50.0	48.4		mg/L		97	90 - 110

Lab Sample ID: LCSD 570-309787/7
Matrix: Water
Analysis Batch: 309787

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	47.4		mg/L		95	90 - 110	0	15
Sulfate	50.0	48.4		mg/L		97	90 - 110	0	15

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

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
Antimony	ND		2.0	0.36	ug/L		03/08/23 08:49	03/08/23 11:45	1
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
Lead	ND		1.0	0.12	ug/L		03/08/23 08:49	03/08/23 11:45	1
Nickel	ND		2.0	0.17	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
Silver	ND		1.0	0.23	ug/L		03/08/23 08:49	03/08/23 11:45	1
Thallium	ND		1.0	0.11	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
Antimony	80.0	85.3		ug/L		107	85 - 115
Cadmium	80.0	81.1		ug/L		101	85 - 115
Copper	80.0	81.4		ug/L		102	85 - 115
Lead	80.0	83.3		ug/L		104	85 - 115
Nickel	80.0	81.4		ug/L		102	85 - 115
Selenium	80.0	80.9		ug/L		101	85 - 115
Silver	80.0	82.7		ug/L		103	85 - 115
Thallium	80.0	83.7		ug/L		105	85 - 115
Zinc	80.0	78.8		ug/L		99	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

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 Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Antimony	80.0	85.3		ug/L		107	85 - 115	0	20	
Cadmium	80.0	79.3		ug/L		99	85 - 115	2	20	
Copper	80.0	80.1		ug/L		100	85 - 115	2	20	
Lead	80.0	82.1		ug/L		103	85 - 115	1	20	
Nickel	80.0	80.3		ug/L		100	85 - 115	1	20	
Selenium	80.0	77.9		ug/L		97	85 - 115	4	20	
Silver	80.0	81.5		ug/L		102	85 - 115	2	20	
Thallium	80.0	80.7		ug/L		101	85 - 115	4	20	
Zinc	80.0	77.2		ug/L		96	85 - 115	2	20	

Lab Sample ID: 570-130109-1 MS
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Outfall008_20230307_Comp
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	0.82	J,DX	80.0	88.9		ug/L		110	80 - 120			
Cadmium	ND		80.0	80.4		ug/L		101	80 - 120			
Copper	1.2	J,DX	80.0	84.0		ug/L		103	80 - 120			
Lead	ND		80.0	83.1		ug/L		104	80 - 120			
Nickel	1.2	J,DX	80.0	82.7		ug/L		102	80 - 120			
Selenium	ND		80.0	79.7		ug/L		100	80 - 120			
Silver	ND		80.0	81.1		ug/L		101	80 - 120			
Thallium	ND		80.0	83.3		ug/L		104	80 - 120			
Zinc	ND		80.0	79.2		ug/L		99	80 - 120			

Lab Sample ID: 570-130109-1 MSD
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Outfall008_20230307_Comp
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	0.82	J,DX	80.0	88.3		ug/L		109	80 - 120	1	20	
Cadmium	ND		80.0	80.7		ug/L		101	80 - 120	0	20	
Copper	1.2	J,DX	80.0	82.8		ug/L		102	80 - 120	1	20	
Lead	ND		80.0	81.8		ug/L		102	80 - 120	2	20	
Nickel	1.2	J,DX	80.0	81.8		ug/L		101	80 - 120	1	20	
Selenium	ND		80.0	79.0		ug/L		99	80 - 120	1	20	
Silver	ND		80.0	82.3		ug/L		103	80 - 120	1	20	
Thallium	ND		80.0	81.4		ug/L		102	80 - 120	2	20	
Zinc	ND		80.0	78.1		ug/L		98	80 - 120	1	20	

Lab Sample ID: 570-130109-2 MS
Matrix: Water
Analysis Batch: 310017

Client Sample ID: Outfall008_20230307_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	0.89	J,DX BU	80.0	67.5	BU	ug/L		83	80 - 120			
Cadmium	ND	BU	80.0	70.7	BU	ug/L		88	80 - 120			
Copper	1.0	J,DX BU	80.0	69.9	BU	ug/L		86	80 - 120			

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

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

Lab Sample ID: 570-130109-2 MS

Matrix: Water

Analysis Batch: 310017

Client Sample ID: Outfall008_20230307_Comp_F

Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Lead	ND	BU	80.0	66.2	BU	ug/L		83	80 - 120	
Nickel	0.96	J,DX BU	80.0	69.3	BU	ug/L		85	80 - 120	
Selenium	ND	BU	80.0	76.2	BU	ug/L		95	80 - 120	
Silver	ND	BU	80.0	70.3	BU	ug/L		88	80 - 120	
Thallium	ND	BU	80.0	71.1	BU	ug/L		89	80 - 120	
Zinc	ND	BU	80.0	68.8	BU	ug/L		86	80 - 120	

Lab Sample ID: 570-130109-2 MSD

Matrix: Water

Analysis Batch: 310017

Client Sample ID: Outfall008_20230307_Comp_F

Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD
	Result	Qualifier		Result	Qualifier						RPD	Limit
Antimony	0.89	J,DX BU	80.0	72.2	BU	ug/L		89	80 - 120	7	20	
Cadmium	ND	BU	80.0	72.1	BU	ug/L		90	80 - 120	2	20	
Copper	1.0	J,DX BU	80.0	72.0	BU	ug/L		89	80 - 120	3	20	
Lead	ND	BU	80.0	68.6	BU	ug/L		86	80 - 120	4	20	
Nickel	0.96	J,DX BU	80.0	71.5	BU	ug/L		88	80 - 120	3	20	
Selenium	ND	BU	80.0	76.9	BU	ug/L		96	80 - 120	1	20	
Silver	ND	BU	80.0	72.4	BU	ug/L		90	80 - 120	3	20	
Thallium	ND	BU	80.0	71.7	BU	ug/L		90	80 - 120	1	20	
Zinc	ND	BU	80.0	71.4	BU	ug/L		89	80 - 120	4	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							
Antimony	ND		2.0	0.36	ug/L			03/08/23 14:29	1
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
Lead	ND		1.0	0.12	ug/L			03/08/23 14:29	1
Nickel	ND		2.0	0.17	ug/L			03/08/23 14:29	1
Selenium	ND		2.0	0.52	ug/L			03/08/23 14:29	1
Silver	ND		1.0	0.23	ug/L			03/08/23 14:29	1
Thallium	ND		1.0	0.11	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	LCS	Unit	D	%Rec	%Rec	Limits
		Result	Qualifier					
Antimony	80.0	75.7		ug/L		95	85 - 115	
Cadmium	80.0	73.5		ug/L		92	85 - 115	
Copper	80.0	75.3		ug/L		94	85 - 115	
Lead	80.0	78.0		ug/L		98	85 - 115	
Nickel	80.0	75.7		ug/L		95	85 - 115	
Selenium	80.0	74.3		ug/L		93	85 - 115	

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

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

Lab Sample ID: LCS 570-309983/2-A
Matrix: Water
Analysis Batch: 310023

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	80.0	75.3		ug/L		94	85 - 115
Thallium	80.0	78.2		ug/L		98	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 Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	73.8		ug/L		92	85 - 115	2	20
Cadmium	80.0	71.0		ug/L		89	85 - 115	3	20
Copper	80.0	73.2		ug/L		91	85 - 115	3	20
Lead	80.0	75.9		ug/L		95	85 - 115	3	20
Nickel	80.0	73.1		ug/L		91	85 - 115	3	20
Selenium	80.0	71.1		ug/L		89	85 - 115	4	20
Silver	80.0	72.0		ug/L		90	85 - 115	5	20
Thallium	80.0	75.4		ug/L		94	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 570-310128/1-A
Matrix: Water
Analysis Batch: 310348

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310128

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/08/23 22:19	03/09/23 12:44	1

Lab Sample ID: LCS 570-310128/2-A
Matrix: Water
Analysis Batch: 310348

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.61		ug/L		108	85 - 115

Lab Sample ID: LCSD 570-310128/3-A
Matrix: Water
Analysis Batch: 310348

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310128

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.70		ug/L		109	85 - 115	1	10

Lab Sample ID: 570-130109-1 MS
Matrix: Water
Analysis Batch: 310348

Client Sample ID: Outfall008_20230307_Comp
Prep Type: Total/NA
Prep Batch: 310128

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	10.7	LM	ug/L		134	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-130109-1 MSD
 Matrix: Water
 Analysis Batch: 310348

Client Sample ID: Outfall008_20230307_Comp
 Prep Type: Total/NA
 Prep Batch: 310128

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	10.7	LM	ug/L		134	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

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

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

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

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

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

HPLC/IC

Analysis Batch: 309786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_20230307_Comp	Total/NA	Water	300.0	
MB 570-309786/5	Method Blank	Total/NA	Water	300.0	
LCS 570-309786/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309786/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 309787

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_20230307_Comp	Total/NA	Water	300.0	
MB 570-309787/5	Method Blank	Total/NA	Water	300.0	
LCS 570-309787/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309787/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 310432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_20230307_Comp	Total/NA	Water	314.0	
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
570-130109-1	Outfall008_20230307_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 309778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-2	Outfall008_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
570-130109-2	Outfall008_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
570-130109-1	Outfall008_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	
570-130109-1 MS	Outfall008_20230307_Comp	Total Recoverable	Water	200.8	
570-130109-1 MSD	Outfall008_20230307_Comp	Total Recoverable	Water	200.8	

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 - Comp

Metals

Filtration Batch: 309983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-2	Outfall008_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	
570-130109-2 MS	Outfall008_20230307_Comp_F	Dissolved	Water	Filtration	
570-130109-2 MSD	Outfall008_20230307_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 309984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_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
570-130109-1 MS	Outfall008_20230307_Comp	Total Recoverable	Water	200.8	309830
570-130109-1 MSD	Outfall008_20230307_Comp	Total Recoverable	Water	200.8	309830

Analysis Batch: 310017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-2	Outfall008_20230307_Comp_F	Dissolved	Water	200.8	309983
570-130109-2 MS	Outfall008_20230307_Comp_F	Dissolved	Water	200.8	309983
570-130109-2 MSD	Outfall008_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: 310128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_20230307_Comp	Total/NA	Water	245.1	
MB 570-310128/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-310128/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-310128/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-130109-1 MS	Outfall008_20230307_Comp	Total/NA	Water	245.1	
570-130109-1 MSD	Outfall008_20230307_Comp	Total/NA	Water	245.1	

Analysis Batch: 310348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_20230307_Comp	Total/NA	Water	245.1	310128
MB 570-310128/1-A	Method Blank	Total/NA	Water	245.1	310128
LCS 570-310128/2-A	Lab Control Sample	Total/NA	Water	245.1	310128
LCSD 570-310128/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	310128
570-130109-1 MS	Outfall008_20230307_Comp	Total/NA	Water	245.1	310128
570-130109-1 MSD	Outfall008_20230307_Comp	Total/NA	Water	245.1	310128

Analysis Batch: 310669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-2	Outfall008_20230307_Comp_F	Dissolved	Water	245.1	309780
MB 570-309778/1-B	Method Blank	Dissolved	Water	245.1	309780

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

Metals (Continued)

Analysis Batch: 310669 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-309778/2-B	Lab Control Sample	Dissolved	Water	245.1	309780
LCSD 570-309778/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309780

General Chemistry

Analysis Batch: 310629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_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
570-130109-1	Outfall008_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	

Prep Batch: 311129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_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
570-130109-1	Outfall008_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

Analysis Batch: 312131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_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	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-1

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

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	Analysis	300.0		1	4 mL	4 mL	309786	03/08/23 06:05	UIP1	EET CAL 4
	Instrument ID: IC10									
Total/NA	Analysis	300.0		1	4 mL	4 mL	309787	03/08/23 06:05	UIP1	EET CAL 4
	Instrument ID: IC10									
Total/NA	Analysis	314.0		1	4 mL	4 mL	310432	03/10/23 05:56	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 12:19	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
Total/NA	Prep	245.1			25 mL	50 mL	310128	03/08/23 22:19	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			310348	03/09/23 13:42	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 15:51	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 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									

Client Sample ID: Outfall008_20230307_Comp_F

Lab Sample ID: 570-130109-2

Date Collected: 03/07/23 08:30

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 14:14	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 14:17	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.

Job ID: 570-130109-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

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 - 008 -
 Comp

Job ID: 570-130109-1

Method	Method Description	Protocol	Laboratory
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	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 - 008 -
Comp

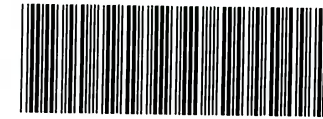
Job ID: 570-130109-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130109-1	Outfall008_20230307_Comp	Water	03/07/23 08:30	03/07/23 18:00
570-130109-2	Outfall008_20230307_Comp_F	Water	03/07/23 08:30	03/07/23 18:00

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130109

CHAIN OF CUSTODY FORM



570-130109 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 [008] Outfall 008 Comp		ANALYSIS REQUIRED										Field Readings											
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECl Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Total Recoverable Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti TCDD (end all congeners) (E1613B) Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E908.0), 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)										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)		Ammonia-N (350.2) Cyanide (SM4500-CN/E /E335.2) Total Recoverable Metals: Mercury (E245.1) Total Dissolved Metals: Mercury (E245.1) TSS (160.2 (SM2540D))																					
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): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (end all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E908.0), 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)	Ammonia-N (350.2)	Cyanide (SM4500-CN/E /E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Field Readings	Comments				
1 Outfall 008	Outfall008_20230307_Comp	3/7/2023 10530	WM	500 mL Poly	1	HNO ₃	95	Yes	X																
			WM	1 L Glass Amber	2	None	110	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	155	No				X													
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X								
			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																	
2	Outfall008_20230307_Comp_F	3/7/2023 1830	WM	1L Poly	1	None	205	Yes					X									Filter and preserve w/in 24hrs of receipt at lab			
			WM	borosilicate vials	1	None	320	No											X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
3	Outfall008_20230307_Comp_Extra	3/7/2023 1830	WM	1 L Glass Amber	2	None	110	No			H											Hold			
			WM	500 mL Poly	2	None	130	No				H											Hold		

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 18:00 Company: EC		Received By: <i>[Signature]</i> Date/Time: 3-7-23 18:00		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	

1.0/1.0 sc11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130109-1

Login Number: 130109

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	

 **ANALYTICAL REPORT****PREPARED FOR**

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

Generated 4/3/2023 3:02:06 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 - Comp

JOB NUMBER

570-130109-2

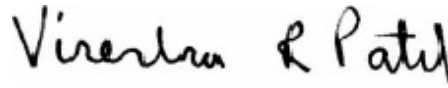
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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
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 - 008 - Comp

Job ID: 570-130109-2

Job ID: 570-130109-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130109-2

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 temperature of the cooler at receipt was 1.0° 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: Outfall008_20230307_Comp (570-130109-1), (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: 570-130109-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000023	J,DX MB	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				2					
1,2,3,6,7,8-HxCDD	0.0000050	J,DX q	0.000048	0.0000003	ug/L	1		1613B	Total/NA
				3					
1,2,3,7,8,9-HxCDD	0.0000034	J,DX q	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				9					
1,2,3,4,7,8-HxCDF	0.0000046	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				8					
1,2,3,6,7,8-HxCDF	0.0000031	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				7					
1,2,3,7,8,9-HxCDF	0.0000057	J,DX q MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				0					
2,3,4,6,7,8-HxCDF	0.0000039	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				7					
1,2,3,4,6,7,8-HpCDD	0.0000045	J,DX MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				8					
1,2,3,4,6,7,8-HpCDF	0.0000010	J,DX q MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				5					
OCDD	0.000020	J,DX MB	0.000095	0.0000003	ug/L	1		1613B	Total/NA
				3					
OCDF	0.0000032	J,DX q MB	0.000095	0.0000002	ug/L	1		1613B	Total/NA
				6					
Total TCDD	0.0000035	J,DX q	0.0000095	0.0000005	ug/L	1		1613B	Total/NA
				8					
Total HxCDD	0.0000032	J,DX q MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				9					
Total HxCDF	0.0000017	J,DX q MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				7					
Total HpCDD	0.0000073	J,DX MB	0.000048	0.0000004	ug/L	1		1613B	Total/NA
				8					
Total HpCDF	0.0000017	J,DX q MB	0.000048	0.0000002	ug/L	1		1613B	Total/NA
				5					

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 - 008 -
 Comp

Job ID: 570-130109-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230307_Comp

Date Collected: 03/07/23 08:30

Date Received: 03/07/23 18:00

Lab Sample ID: 570-130109-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000005	ug/L		03/22/23 04:36	03/25/23 01:18	1
2,3,7,8-TCDF	ND		0.0000095	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,7,8-PeCDF	ND		0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,4,7,8-HxCDD	0.0000023	J,DX MB	0.000048	0.0000003	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,6,7,8-HxCDD	0.00000050	J,DX q	0.000048	0.0000003	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,7,8,9-HxCDD	0.00000034	J,DX q	0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,4,7,8-HxCDF	0.00000046	J,DX MB	0.000048	0.0000001	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,6,7,8-HxCDF	0.00000031	J,DX MB	0.000048	0.0000001	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,7,8,9-HxCDF	0.00000057	J,DX q MB	0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
2,3,4,6,7,8-HxCDF	0.00000039	J,DX MB	0.000048	0.0000001	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,4,6,7,8-HpCDD	0.0000045	J,DX MB	0.000048	0.0000004	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,4,6,7,8-HpCDF	0.0000010	J,DX q MB	0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
OCDD	0.000020	J,DX MB	0.000095	0.0000003	ug/L		03/22/23 04:36	03/25/23 01:18	1
OCDF	0.0000032	J,DX q MB	0.000095	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
Total TCDD	0.0000035	J,DX q	0.0000095	0.0000005	ug/L		03/22/23 04:36	03/25/23 01:18	1
Total TCDF	ND		0.0000095	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
Total PeCDD	ND		0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
Total PeCDF	ND		0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
Total HxCDD	0.0000032	J,DX q MB	0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	1
Total HxCDF	0.0000017	J,DX q MB	0.000048	0.0000001	ug/L		03/22/23 04:36	03/25/23 01:18	1
Total HpCDD	0.0000073	J,DX MB	0.000048	0.0000004	ug/L		03/22/23 04:36	03/25/23 01:18	1
Total HpCDF	0.0000017	J,DX q MB	0.000048	0.0000002	ug/L		03/22/23 04:36	03/25/23 01:18	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 01:18	1
13C-2,3,7,8-TCDF	85		24 - 169				03/22/23 04:36	03/25/23 01:18	1
13C-1,2,3,7,8-PeCDD	80		25 - 181				03/22/23 04:36	03/25/23 01:18	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

Matrix: Water

Date Received: 03/07/23 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-1,2,3,7,8-PeCDF	88		24 - 185	03/22/23 04:36	03/25/23 01:18	1
13C-2,3,4,7,8-PeCDF	88		21 - 178	03/22/23 04:36	03/25/23 01:18	1
13C-1,2,3,4,7,8-HxCDD	77		32 - 141	03/22/23 04:36	03/25/23 01:18	1
13C-1,2,3,6,7,8-HxCDD	88		28 - 130	03/22/23 04:36	03/25/23 01:18	1
13C-1,2,3,4,7,8-HxCDF	81		26 - 152	03/22/23 04:36	03/25/23 01:18	1
13C-1,2,3,6,7,8-HxCDF	96		26 - 123	03/22/23 04:36	03/25/23 01:18	1
13C-1,2,3,7,8,9-HxCDF	94		29 - 147	03/22/23 04:36	03/25/23 01:18	1
13C-2,3,4,6,7,8-HxCDF	95		28 - 136	03/22/23 04:36	03/25/23 01:18	1
13C-1,2,3,4,6,7,8-HpCDD	79		23 - 140	03/22/23 04:36	03/25/23 01:18	1
13C-1,2,3,4,6,7,8-HpCDF	80		28 - 143	03/22/23 04:36	03/25/23 01:18	1
13C-1,2,3,4,7,8,9-HpCDF	88		26 - 138	03/22/23 04:36	03/25/23 01:18	1
13C-OCDD	87		17 - 157	03/22/23 04:36	03/25/23 01:18	1
13C-OCDF	96		17 - 157	03/22/23 04:36	03/25/23 01:18	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	87		35 - 197	03/22/23 04:36	03/25/23 01:18	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Job ID: 570-130109-2

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)
570-130109-1	Outfall008_20230307_Comp	87
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.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-2

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)
570-130109-1	Outfall008_20230307_Comp	79	85	80	88	88	77	88	81
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	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-130109-1	Outfall008_20230307_Comp	96	94	95	79	80	88	87	96
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
 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 320-662474/2-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	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 320-662474/2-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
 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: 570-130109-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
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 - 008 -
 Comp

Job ID: 570-130109-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

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

Analyte	MB MB		RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,3,7,8-TCDD	ND		0.000010	0.0000006	ug/L		03/22/23 04:36	03/24/23 20:32	1
2,3,7,8-TCDF	ND		0.000010	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,7,8-PeCDD	ND		0.000050	0.0000003	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,7,8-PeCDF	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
2,3,4,7,8-PeCDF	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,7,8-HxCDD	0.00000212	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,7,8,9-HxCDD	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,7,8-HxCDF	0.000000407	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,6,7,8-HxCDF	0.000000287	J,DX q	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,7,8,9-HxCDF	0.000000381	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
2,3,4,6,7,8-HxCDF	0.000000354	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,6,7,8-HpCDD	0.00000127	J,DX q	0.000050	0.0000003	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,6,7,8-HpCDF	0.00000137	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
OCDD	0.00000721	J,DX	0.00010	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
OCDF	0.00000266	J,DX	0.00010	0.0000003	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total TCDD	ND		0.000010	0.0000006	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total TCDF	ND		0.000010	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total PeCDD	ND		0.000050	0.0000004	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total PeCDF	ND		0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total HxCDD	0.00000343	J,DX q	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total HxCDF	0.00000143	J,DX q	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total HpCDD	0.00000335	J,DX q	0.000050	0.0000003	ug/L		03/22/23 04:36	03/24/23 20:32	1
Total HpCDF	0.00000190	J,DX	0.000050	0.0000002	ug/L		03/22/23 04:36	03/24/23 20:32	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C-2,3,7,8-TCDD	86		25 - 164				03/22/23 04:36	03/24/23 20:32	1
13C-2,3,7,8-TCDF	94		24 - 169				03/22/23 04:36	03/24/23 20:32	1

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-2

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 - 008 -
 Comp

Job ID: 570-130109-2

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 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 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 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 - 008 -
 Comp

Job ID: 570-130109-2

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

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Specialty Organics

Prep Batch: 662474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_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
570-130109-1	Outfall008_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

Lab Chronicle

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

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			1052.2 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 01:18	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 - 008 -
 Comp

Job ID: 570-130109-2

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.

Job ID: 570-130109-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
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

- 1
- 2
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Sample Summary

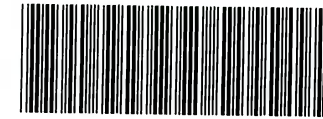
Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Job ID: 570-130109-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130109-1	Outfall008_20230307_Comp	Water	03/07/23 08:30	03/07/23 18:00

- 1
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- 3
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- 9
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- 14
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- 16

CHAIN OF CUSTODY FORM



570-130109 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 [008] Outfall 008 Comp	ANALYSIS REQUIRED	Field Readings
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187			
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: Adrian Mobeka	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: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (end all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E908.0), 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)	Ammonia-N (350.2)	Cyanide (SM4500-CN/E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments				
1 Outfall 008	Outfall008_20230307_Comp	3/7/2023 10530	WM	500 mL Poly	1	HNO ₃	95	Yes	X															
			WM	1 L Glass Amber	2	None	110	No		X														
			WM	500 mL Poly	2	None	130	No			X												48 hours Holding Time NO ₂ & NO ₃	
			WM	500 mL Poly	1	None	155	No				X												
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X							
			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													X			
2	Outfall008_20230307_Comp_F	3/7/2023 1830	WM	1L Poly	1	None	205	Yes					X									Filter and preserve w/in 24hrs of receipt at lab		
			WM	borosilicate vials	1	None	320	No										X					Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
3	Outfall008_20230307_Comp_Extra	3/7/2023 1830	WM	1 L Glass Amber	2	None	110	No			H											Hold		
			WM	500 mL Poly	2	None	130	No				H											Hold	

Legend: EP=Expert Panel, 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: _____ 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: 3-7-23 18:00 Company: EC	Received By: <i>[Signature]</i> Date/Time: 3-7-23 18:00	
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	

1.0/1.0 sc11

Chain of Custody Record



Environment Testing



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	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,		Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	California	Page 1 of 1
City: West Sacramento		Accreditations Required (See note): State Program - California		Job #:	570-130109-1
State, Zip: CA, 95605		Due Date Requested:	Analysis Requested		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		3/17/2023	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)		
Email:		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 - 008 - Comp		PO #:	Preservation Codes:		
Site:		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, Seawater, Onwater/soil)
Outfall008_20230307_Comp (570-130109-1)	3/7/23	08:30 Pacific	Water	Water	See QAS, Boeig, w/u to zero, ug/L. Use Boeig glassware.
Outfall008_20230307_Comp_Extra (570-130109-3)	3/7/23	08:30 Pacific	Water	Water	See QAS, Boeig, w/u to zero, ug/L. Use Boeig 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					
Empty Kit Relinquished by:					
Relinquished by: [Signature]					
Relinquished by: [Signature]					
Relinquished by: [Signature]					
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Custody Seal No.: [Handwritten]					
Cooler Temperature(s) °C and Other Remarks: [Handwritten]					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months					
Special Instructions/QC Requirements:					
Method of Shipment:					
Received by: [Signature]					
Date/Time: 3.9.23 9:15					
Company: [Handwritten]					
Received by: [Signature]					
Date/Time:					
Company:					
Received by: [Signature]					
Date/Time:					
Company:					



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130109-2

Login Number: 130109

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: 570-130109-2

Login Number: 130109

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 2.3c 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 7:48:48 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 - Comp

JOB NUMBER

570-130109-3

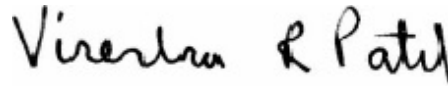
Job Notes

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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.

Job ID: 570-130109-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

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 - 008 - Comp

Job ID: 570-130109-3

Job ID: 570-130109-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130109-3

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 temperature of the cooler at receipt was 1.0° 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.

Outfall008_20230307_Comp (570-130109-1), (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 - 008 - Comp

Job ID: 570-130109-3

Job ID: 570-130109-3 (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.

Outfall008_20230307_Comp (570-130109-1), (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.

Outfall008_20230307_Comp (570-130109-1), (LCS 160-604353/2-A), (LCSD 160-604353/3-A) and (MB 160-604353/1-A)

Method 904.0: Radium-228 batch 604358

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: Outfall008_20230307_Comp (570-130109-1). Analytical results are reported with the detection limit achieved.

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.

Outfall008_20230307_Comp (570-130109-1), (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.

Outfall008_20230307_Comp (570-130109-1), (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. Outfall008_20230307_Comp (570-130109-1), (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. Outfall008_20230307_Comp (570-130109-1), (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. Outfall008_20230307_Comp (570-130109-1), (LCS 160-605724/2-A), (MB 160-605724/1-A),

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 - Comp

Job ID: 570-130109-3

Job ID: 570-130109-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

(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: Outfall008_20230307_Comp (570-130109-1).

Method PrecSep_0: Radium-228 Prep Batch 160-604358

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall008_20230307_Comp (570-130109-1). 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: Outfall008_20230307_Comp (570-130109-1). 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: 570-130109-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

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
Gross Alpha	1.17	U F	1.08	1.09	3.00	1.68	pCi/L	04/06/23 10:28	04/11/23 06:09	1
Gross Beta	1.35		0.706	0.719	4.00	1.04	pCi/L	04/06/23 10:28	04/11/23 06:09	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

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	3.02	U	5.95	5.96	20.0	7.72	pCi/L	03/17/23 14:08	03/29/23 18:54	1
Potassium-40	-227	U	99.8	103		288	pCi/L	03/17/23 14:08	03/29/23 18:54	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230307_Comp
Date Collected: 03/07/23 08:30
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130109-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.107	U	0.0921	0.0926	1.00	0.130	pCi/L	03/20/23 11:13	04/11/23 06:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.7		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 - 008 -
 Comp

Job ID: 570-130109-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230307_Comp
Date Collected: 03/07/23 08:30
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130109-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.264	U G	0.588	0.589	1.00	1.15	pCi/L	03/20/23 11:35	04/05/23 11:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.7		30 - 110					03/20/23 11:35	04/05/23 11:37	1
Y Carrier	63.9		30 - 110					03/20/23 11:35	04/05/23 11:37	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
 Comp

Job ID: 570-130109-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230307_Comp
Date Collected: 03/07/23 08:30
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130109-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.564	U	0.288	0.292	3.00	0.689	pCi/L	03/20/23 13:22	03/29/23 16:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	69.6		30 - 110					03/20/23 13:22	03/29/23 16:09	1
Y Carrier	79.3		30 - 110					03/20/23 13:22	03/29/23 16:09	1



Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

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	-94.1	U F	125	125	500	253	pCi/L	03/29/23 11:02	04/04/23 22:52	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130109-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

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	0.344		0.243	0.243	1.00	0.246	pCi/L	03/30/23 15:31	04/04/23 20:41	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	78.5		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 - 008 -
Comp

Job ID: 570-130109-3

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)							
570-130109-1	Outfall008_20230307_Comp	82.7							
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)						
570-130109-1	Outfall008_20230307_Comp	82.7	63.9						
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)						
570-130109-1	Outfall008_20230307_Comp	69.6	79.3						
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)							
570-130109-1	Outfall008_20230307_Comp	78.5							
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 - 008 -
 Comp

Job ID: 570-130109-3

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 - 008 -
 Comp

Job ID: 570-130109-3

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		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB 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		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB 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 - 008 -
 Comp

Job ID: 570-130109-3

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	
									75	125
Radium-228	8.06	8.920		1.20	1.00	0.395	pCi/L	111	75 - 125	
LCS LCS										
Carrier	%Yield	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
									75	125	0.03	1
Radium-228	8.06	8.860		1.20	1.00	0.421	pCi/L	110	75 - 125	0.03	1	
LCSD LCSD												
Carrier	%Yield	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 MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier						03/20/23 13:22	03/29/23 15:59	03/29/23 15:59	15:59	
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	03/29/23 15:59	15:59	1
MB MB												
Carrier	%Yield	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 Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Strontium-90	7.35	7.405		0.842	3.00	0.323	pCi/L	101	75 - 125	
LCS LCS										
Carrier	%Yield	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 - 008 -
 Comp

Job ID: 570-130109-3

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: 570-130109-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
Comp

Rad

Prep Batch: 604032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130109-1	Outfall008_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
570-130109-1	Outfall008_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
570-130109-1	Outfall008_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
570-130109-1	Outfall008_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
570-130109-1	Outfall008_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
570-130109-1	Outfall008_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
570-130109-1	Outfall008_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 - 008 -
 Comp

Job ID: 570-130109-3

Client Sample ID: Outfall008_20230307_Comp

Lab Sample ID: 570-130109-1

Date Collected: 03/07/23 08:30

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			200.04 mL	1.0 g	606326	04/06/23 10:28	MST	EET SL
Total/NA	Analysis	900.0		1			606895	04/11/23 06:09	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			605376	03/29/23 18:54	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			747.69 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			747.69 mL	1.0 g	604358	03/20/23 11:35	DJP	EET SL
Total/NA	Analysis	904.0		1			606157	04/05/23 11:37	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep-7			499.65 mL	1.0 g	604379	03/20/23 13:22	DJP	EET SL
Total/NA	Analysis	905		1			605412	03/29/23 16:09	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	LSC_Dist_Susp			102.52 mL	1.0 g	605397	03/29/23 11:02	SEH	EET SL
Total/NA	Analysis	906.0		1			606179	04/04/23 22:52	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			296.2 mL	1.0 mL	605724	03/30/23 15:31	CMM	EET SL
Total/NA	Analysis	A-01-R		1			606119	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 - 008 -
 Comp

Job ID: 570-130109-3

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: 570-130109-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 -
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 - 008 -
Comp

Job ID: 570-130109-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130109-1	Outfall008_20230307_Comp	Water	03/07/23 08:30	03/07/23 18:00

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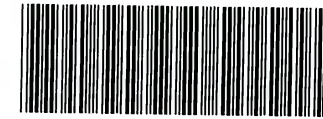
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CHAIN OF CUSTODY FORM



570-130109 Chain of Custody

Client Name/Address:		Project:		ANALYSIS REQUIRED										Field Readings											
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Comp																							
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: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti TCDD (end all congeners) (E1613B) Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E908.0), 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)										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.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																							
Sampler: Adrian Mobeka		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: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (end all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E908.0), 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)	Ammonia-N (350.2)	Cyanide (SM4500-CN/E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Field Readings	Comments				
1 Outfall 008	Outfall008_20230307_Comp	3/7/2023 10530	WM	500 mL Poly	1	HNO3	95	Yes	X																
			WM	1 L Glass Amber	2	None	110	No		X															
			WM	500 mL Poly	2	None	130	No			X													48 hours Holding Time NO2 & NO2	
			WM	500 mL Poly	1	None	155	No				X													
			WM	500 mL Poly	1	H2SO4	160	No									X								
			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																	
2	Outfall008_20230307_Comp_F	3/7/2023 1830	WM	1L Poly	1	None	205	Yes					X									Filter and preserve w/in 24hrs of receipt at lab			
			WM	borosilicate vials	1	None	320	No											X					Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
3	Outfall008_20230307_Comp_Extra	3/7/2023 1830	WM	1 L Glass Amber	2	None	110	No			H											Hold			
			WM	500 mL Poly	2	None	130	No				H											Hold		

Legend: EP=Expert Panel, 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
Relinquished By: <i>[Signature]</i>	Date/Time: 3-7-23 18:00	Company: EC	Received By: <i>[Signature]</i> Date/Time: 3-7-23 18:00
Relinquished By:	Date/Time:	Company:	Received By: Date/Time:

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

1.0/1.0 sc11

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM:	Carrier Tracking No(s):	
Client Contact: Patel, Virendra Shipping/Receiving: Virendra Patel@et.eurofinsus.com 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:		Phone: Project #: 57013187 SSOW#:	Patel, Virendra E-Mail: Virendra.Patel@et.eurofinsus.com State of Origin: California	570-209583.1 Page: 1 of 1 Job #: 570-130109-1	COC No: Page:
Due Date Requested: 3/17/2023 TAT Requested (days):					
Analysis Requested Accreditations Required (See note): State Program - California					
PO #: WO #: Project Name: Boeing NPDES SSFL - Routine Outfall - 008 - Comp Site		Matrix (H=Water, S=solid, O=water/Oil) Preservation Code:	Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>	Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>	Total Number of Containers
Sample Identification - Client ID (Lab ID) Outfall008_20230307_Comp (570-130109-1)	Sample Date: 3/7/23 Sample Time: 08:30 Pacific	Sample Type (C=Comp, G=grab) Preservation Code: Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2
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) <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: 03/08/23 9:28 Company: EC Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____		Method of Shipment: _____ Received by: FED EX Date/Time: _____ Received by: Sana Washington Date/Time: MAR 09 2023 1010 Company: _____ Received by: _____ Date/Time: _____ Company: _____			
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: 570-130109-3

Login Number: 130109

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: 570-130109-3

Login Number: 130109

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

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008

JOB NUMBER

570-130855-1

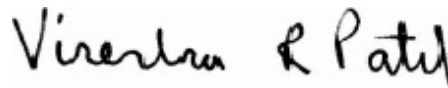
Job Notes

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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 - 008

Job ID: 570-130855-1

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 NPDES SSFL - Routine Outfall - 008

Job ID: 570-130855-1

Job ID: 570-130855-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130855-1

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 2.0° C.

GC Semi VOA

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 570-311356.

Method: 1664.

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 - 008

Job ID: 570-130855-1

Client Sample ID: Outfall008_20230310_Grab

Lab Sample ID: 570-130855-1

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 - 008

Job ID: 570-130855-1

General Chemistry

Client Sample ID: Outfall008_20230310_Grab
Date Collected: 03/10/23 09:40
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130855-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.99	0.51	mg/L		03/14/23 10:20	03/14/23 14:08	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008

Job ID: 570-130855-1

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

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

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008

Job ID: 570-130855-1

General Chemistry

Prep Batch: 311356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130855-1	Outfall008_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: 311464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130855-1	Outfall008_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



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008

Job ID: 570-130855-1

Client Sample ID: Outfall008_20230310_Grab

Lab Sample ID: 570-130855-1

Date Collected: 03/10/23 09:40

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	1664A			1009 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

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 - 008

Job ID: 570-130855-1

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 - 008

Job ID: 570-130855-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

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 - 008

Job ID: 570-130855-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130855-1	Outfall008_20230310_Grab	Water	03/10/23 09:40	03/13/23 19:25

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130855-1

Login Number: 130855

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 - 008 Comp

JOB NUMBER

570-130861-1

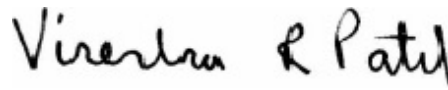
Job Notes

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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 NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-1

Qualifiers

HPLC/IC

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

Metals

Qualifier	Qualifier Description
BA	Relative percent difference out of control
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

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 - 008 Comp

Job ID: 570-130861-1

Job ID: 570-130861-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-130861-1

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 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 preserved to the appropriate pH in the laboratory.

Method 300.0: The following sample was received outside of holding time: Outfall008_20230311_Comp (570-130861-1).

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): Outfall008_20230311_Comp_Extra (570-130861-3). Received ICOC for job 570-130861 and only sample 1 was listed. We received sample 3. Sample is not on HOLD.

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: Outfall008_20230311_Comp (570-130861-1).

No additional analytical or quality issues were noted, other than those described above or 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 matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-311254 and 570-311580 and analytical batch 570-311965 were outside control limits. The samples associated with this MS/MSD were non-detects for the affected analytes; therefore, the data have been reported.

Method 245.1: The following samples were analyzed outside of analytical holding time : Outfall008_20230311_Comp_F (570-130861-2), Outfall008_20230311_Comp_F (570-130861-2[MS]) and Outfall008_20230311_Comp_F (570-130861-2[MSD]).

Method 245.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 570-311609 and analytical batch 570-311965 were outside control limits. The samples associated with this MS/MSD were non-detects for the affected analytes; therefore, the data have been reported.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Comp

Job ID: 570-130861-1

Job ID: 570-130861-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230311_Comp_F (570-130861-2), Outfall008_20230311_Comp_F (570-130861-2[MS]) and Outfall008_20230311_Comp_F (570-130861-2[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.



Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.2		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.29	BU BV	0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate	4.9		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.29		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	1.4	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	2.0		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.71	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	1.7	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Zinc	6.1	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	160		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	15		1.3	1.0	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall008_20230311_Comp_F

Lab Sample ID: 570-130861-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	1.1	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	1.4	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Nickel	1.1	J,DX BU	2.0	0.17	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 - 008
Comp

Job ID: 570-130861-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

Date Collected: 03/11/23 09:00

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.2		1.0	0.36	mg/L			03/14/23 10:00	1
Nitrite as N	ND	BU BV	0.10	0.043	mg/L			03/14/23 10:00	1
Nitrate as N	0.29	BU BV	0.10	0.020	mg/L			03/14/23 10:00	1
Sulfate	4.9		1.0	0.24	mg/L			03/14/23 10:00	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230311_Comp

Date Collected: 03/11/23 09:00

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/14/23 20:06	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

Date Collected: 03/11/23 09:00

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.29		0.10	0.020	mg/L			03/20/23 12:49	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130861-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008

Comp

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

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

Date Collected: 03/11/23 09:00

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.4	J,DX	2.0	0.36	ug/L		03/15/23 09:08	03/15/23 12:08	1
Cadmium	ND		1.0	0.13	ug/L		03/15/23 09:08	03/15/23 12:08	1
Copper	2.0		2.0	0.32	ug/L		03/15/23 09:08	03/15/23 12:08	1
Lead	0.71	J,DX	1.0	0.12	ug/L		03/15/23 09:08	03/15/23 12:08	1
Nickel	1.7	J,DX	2.0	0.17	ug/L		03/15/23 09:08	03/15/23 12:08	1
Selenium	ND		2.0	0.52	ug/L		03/15/23 09:08	03/15/23 12:08	1
Silver	ND		1.0	0.23	ug/L		03/15/23 09:08	03/15/23 12:08	1
Thallium	ND		1.0	0.11	ug/L		03/15/23 09:08	03/15/23 12:08	1
Zinc	6.1	J,DX	20	2.8	ug/L		03/15/23 09:08	03/15/23 12:08	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-1

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

Client Sample ID: Outfall008_20230311_Comp_F

Date Collected: 03/11/23 09:00

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.1	J,DX BU	2.0	0.36	ug/L			03/16/23 12:05	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/16/23 12:05	1
Copper	1.4	J,DX BU	2.0	0.32	ug/L			03/16/23 12:05	1
Lead	ND	BU	1.0	0.12	ug/L			03/16/23 12:05	1
Nickel	1.1	J,DX BU	2.0	0.17	ug/L			03/16/23 12:05	1
Selenium	ND	BU	2.0	0.52	ug/L			03/16/23 12:05	1
Silver	ND	BU	1.0	0.23	ug/L			03/16/23 12:05	1
Thallium	ND	BU	1.0	0.11	ug/L			03/16/23 12:05	1
Zinc	3.0	J,DX BU	20	2.8	ug/L			03/16/23 12:05	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230311_Comp

Date Collected: 03/11/23 09:00

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1

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 19:13	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230311_Comp_F

Date Collected: 03/11/23 09:00

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-2

Matrix: Water

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 20:07	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-1

General Chemistry

Client Sample ID: Outfall008_20230311_Comp

Date Collected: 03/11/23 09:00

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1

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 14:59	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/14/23 19:36	1
Total Dissolved Solids (SM 2540C)	160		10	8.7	mg/L			03/15/23 18:27	1
Total Suspended Solids (SM 2540D)	15		1.3	1.0	mg/L			03/15/23 18:42	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

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 - 008
 Comp

Job ID: 570-130861-1

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

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
Antimony	ND		2.0	0.36	ug/L		03/15/23 09:08	03/15/23 12:02	1
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
Nickel	ND		2.0	0.17	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
Silver	ND		1.0	0.23	ug/L		03/15/23 09:08	03/15/23 12:02	1
Thallium	ND		1.0	0.11	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

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
Antimony	80.0	78.2		ug/L		98	85 - 115
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
Nickel	80.0	78.0		ug/L		98	85 - 115
Selenium	80.0	75.4		ug/L		94	85 - 115
Silver	80.0	79.4		ug/L		99	85 - 115
Thallium	80.0	76.9		ug/L		96	85 - 115
Zinc	80.0	76.0		ug/L		95	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

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

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		RPD	Limit
							Limits	RPD		
Antimony	80.0	80.1		ug/L		100	85 - 115	2	20	
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	
Nickel	80.0	79.7		ug/L		100	85 - 115	2	20	
Selenium	80.0	77.0		ug/L		96	85 - 115	2	20	
Silver	80.0	81.2		ug/L		101	85 - 115	2	20	
Thallium	80.0	79.1		ug/L		99	85 - 115	3	20	
Zinc	80.0	77.3		ug/L		97	85 - 115	2	20	

Lab Sample ID: 570-130861-1 MS
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Outfall008_20230311_Comp
Prep Type: Total Recoverable
Prep Batch: 311694

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	1.4	J,DX	80.0	78.7		ug/L		97	80 - 120			
Cadmium	ND		80.0	77.3		ug/L		97	80 - 120			
Copper	2.0		80.0	80.9		ug/L		99	80 - 120			
Lead	0.71	J,DX	80.0	78.8		ug/L		98	80 - 120			
Nickel	1.7	J,DX	80.0	78.7		ug/L		96	80 - 120			
Selenium	ND		80.0	73.2		ug/L		91	80 - 120			
Silver	ND		80.0	78.5		ug/L		98	80 - 120			
Thallium	ND		80.0	77.2		ug/L		97	80 - 120			
Zinc	6.1	J,DX	80.0	81.3		ug/L		94	80 - 120			

Lab Sample ID: 570-130861-1 MSD
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Outfall008_20230311_Comp
Prep Type: Total Recoverable
Prep Batch: 311694

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	1.4	J,DX	80.0	80.4		ug/L		99	80 - 120	2	20	
Cadmium	ND		80.0	79.2		ug/L		99	80 - 120	2	20	
Copper	2.0		80.0	83.0		ug/L		101	80 - 120	3	20	
Lead	0.71	J,DX	80.0	80.3		ug/L		100	80 - 120	2	20	
Nickel	1.7	J,DX	80.0	80.6		ug/L		99	80 - 120	2	20	
Selenium	ND		80.0	75.9		ug/L		95	80 - 120	4	20	
Silver	ND		80.0	79.9		ug/L		100	80 - 120	2	20	
Thallium	ND		80.0	79.0		ug/L		99	80 - 120	2	20	
Zinc	6.1	J,DX	80.0	82.6		ug/L		96	80 - 120	2	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	

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

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
Lead	ND		1.0	0.12	ug/L			03/16/23 11:52	1
Nickel	ND		2.0	0.17	ug/L			03/16/23 11:52	1
Selenium	ND		2.0	0.52	ug/L			03/16/23 11:52	1
Silver	ND		1.0	0.23	ug/L			03/16/23 11:52	1
Thallium	ND		1.0	0.11	ug/L			03/16/23 11:52	1
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
Antimony	80.0	77.4		ug/L		97	85 - 115
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
Nickel	80.0	77.8		ug/L		97	85 - 115
Selenium	80.0	75.4		ug/L		94	85 - 115
Silver	80.0	77.7		ug/L		97	85 - 115
Thallium	80.0	77.2		ug/L		96	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
Antimony	80.0	79.8		ug/L		100	85 - 115	3	20
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
Nickel	80.0	79.1		ug/L		99	85 - 115	2	20
Selenium	80.0	79.0		ug/L		99	85 - 115	5	20
Silver	80.0	79.8		ug/L		100	85 - 115	3	20
Thallium	80.0	79.5		ug/L		99	85 - 115	3	20
Zinc	80.0	76.9		ug/L		96	85 - 115	2	20

Lab Sample ID: 570-130861-2 MS
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Outfall008_20230311_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.1	J,DX BU	80.0	54.4	BU LN	ug/L		67	80 - 120
Cadmium	ND	BU	80.0	61.4	BU LN	ug/L		77	80 - 120
Copper	1.4	J,DX BU	80.0	63.7	BU LN	ug/L		78	80 - 120
Lead	ND	BU	80.0	63.3	BU LN	ug/L		79	80 - 120
Nickel	1.1	J,DX BU	80.0	62.3	BU LN	ug/L		77	80 - 120
Selenium	ND	BU	80.0	62.6	BU LN	ug/L		78	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

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

Lab Sample ID: 570-130861-2 MS
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Outfall008_20230311_Comp_F
Prep Type: Dissolved

Analyte	Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Silver	ND	BU	80.0	61.4	BU LN	ug/L		77	80 - 120
Thallium	ND	BU	80.0	61.4	BU LN	ug/L		77	80 - 120
Zinc	3.0	J,DX BU	80.0	61.8	BU LN	ug/L		74	80 - 120

Lab Sample ID: 570-130861-2 MSD
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Outfall008_20230311_Comp_F
Prep Type: Dissolved

Analyte	Sample		Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
	Result	Qualifier		Result	Qualifier						
Antimony	1.1	J,DX BU	80.0	56.5	BU LN	ug/L		69	80 - 120	4	20
Cadmium	ND	BU	80.0	63.1	BU LN	ug/L		79	80 - 120	3	20
Copper	1.4	J,DX BU	80.0	65.4	BU	ug/L		80	80 - 120	3	20
Lead	ND	BU	80.0	64.1	BU	ug/L		80	80 - 120	1	20
Nickel	1.1	J,DX BU	80.0	63.7	BU LN	ug/L		78	80 - 120	2	20
Selenium	ND	BU	80.0	64.7	BU	ug/L		81	80 - 120	3	20
Silver	ND	BU	80.0	63.2	BU LN	ug/L		79	80 - 120	3	20
Thallium	ND	BU	80.0	61.8	BU LN	ug/L		77	80 - 120	1	20
Zinc	3.0	J,DX BU	80.0	62.7	BU LN	ug/L		75	80 - 120	1	20

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 MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
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 LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
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 LCSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
		Result	Qualifier						
Mercury	8.00	9.28	LQ	ug/L		116	85 - 115	2	10

Lab Sample ID: 570-130861-1 MS
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Outfall008_20230311_Comp
Prep Type: Total/NA
Prep Batch: 311609

Analyte	Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Mercury	ND	LQ	8.00	9.35	LM	ug/L		117	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-130861-1 MSD
 Matrix: Water
 Analysis Batch: 311965

Client Sample ID: Outfall008_20230311_Comp
 Prep Type: Total/NA
 Prep Batch: 311609

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Mercury	ND	LQ	8.00	4.81	LN BA	ug/L		60	85 - 115	64	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	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
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	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Mercury	8.00	9.25	LQ	ug/L		116	85 - 115

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	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
		Result	Qualifier				Limits		
Mercury	8.00	9.03		ug/L		113	85 - 115	2	10

Lab Sample ID: 570-130861-2 MS
 Matrix: Water
 Analysis Batch: 311965

Client Sample ID: Outfall008_20230311_Comp_F
 Prep Type: Dissolved
 Prep Batch: 311580

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier		Result	Qualifier				Limits
Mercury	ND	BU LQ	8.00	9.31	BU LM	ug/L		116	85 - 115

Lab Sample ID: 570-130861-2 MSD
 Matrix: Water
 Analysis Batch: 311965

Client Sample ID: Outfall008_20230311_Comp_F
 Prep Type: Dissolved
 Prep Batch: 311580

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Mercury	ND	BU LQ	8.00	9.20	BU	ug/L		115	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	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia	ND		0.075	0.032	mg/L		03/23/23 12:55	03/23/23 14:28	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

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

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 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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

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

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

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

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

HPLC/IC

Analysis Batch: 311256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_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
570-130861-1	Outfall008_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
570-130861-1	Outfall008_20230311_Comp	Total/NA	Water	314.0	
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: 313055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_20230311_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 311254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-2	Outfall008_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	
570-130861-2 MS	Outfall008_20230311_Comp_F	Dissolved	Water	Filtration	
570-130861-2 MSD	Outfall008_20230311_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 311580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-2	Outfall008_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
570-130861-2 MS	Outfall008_20230311_Comp_F	Dissolved	Water	245.1	311254
570-130861-2 MSD	Outfall008_20230311_Comp_F	Dissolved	Water	245.1	311254

Prep Batch: 311609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_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	
570-130861-1 MS	Outfall008_20230311_Comp	Total/NA	Water	245.1	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

Metals (Continued)

Prep Batch: 311609 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1 MSD	Outfall008_20230311_Comp	Total/NA	Water	245.1	

Prep Batch: 311694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_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	
570-130861-1 MS	Outfall008_20230311_Comp	Total Recoverable	Water	200.8	
570-130861-1 MSD	Outfall008_20230311_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 311853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_20230311_Comp	Total Recoverable	Water	200.8	311694
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
570-130861-1 MS	Outfall008_20230311_Comp	Total Recoverable	Water	200.8	311694
570-130861-1 MSD	Outfall008_20230311_Comp	Total Recoverable	Water	200.8	311694

Analysis Batch: 311965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_20230311_Comp	Total/NA	Water	245.1	311609
570-130861-2	Outfall008_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
570-130861-1 MS	Outfall008_20230311_Comp	Total/NA	Water	245.1	311609
570-130861-1 MSD	Outfall008_20230311_Comp	Total/NA	Water	245.1	311609
570-130861-2 MS	Outfall008_20230311_Comp_F	Dissolved	Water	245.1	311580
570-130861-2 MSD	Outfall008_20230311_Comp_F	Dissolved	Water	245.1	311580

Filtration Batch: 312120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-2	Outfall008_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	
570-130861-2 MS	Outfall008_20230311_Comp_F	Dissolved	Water	Filtration	
570-130861-2 MSD	Outfall008_20230311_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 312206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-2	Outfall008_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

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

Metals (Continued)

Analysis Batch: 312206 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-2 MS	Outfall008_20230311_Comp_F	Dissolved	Water	200.8	312120
570-130861-2 MSD	Outfall008_20230311_Comp_F	Dissolved	Water	200.8	312120

General Chemistry

Analysis Batch: 311975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_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
570-130861-1	Outfall008_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
570-130861-1	Outfall008_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: 314231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_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	
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
570-130861-1	Outfall008_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

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

Date Collected: 03/11/23 09:00

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	300.0		1	4 mL	4 mL	311256	03/14/23 10:00	PS	EET CAL 4
	Instrument ID: IC7									
Total/NA	Analysis	300.0		1	4 mL	4 mL	311257	03/14/23 10:00	PS	EET CAL 4
	Instrument ID: IC7									
Total/NA	Analysis	314.0		1	4 mL	4 mL	311491	03/14/23 20:06	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			311853	03/15/23 12:08	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
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 19:13	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 14:59	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 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	800 mL	1000 mL	311979	03/15/23 18:42	WVA4	EET CAL 4
	Instrument ID: BAL71									

Client Sample ID: Outfall008_20230311_Comp_F

Lab Sample ID: 570-130861-2

Date Collected: 03/11/23 09:00

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 12:05	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 20:07	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 - 008
Comp

Job ID: 570-130861-1

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.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-1

Method	Method Description	Protocol	Laboratory
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	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 - 008
Comp

Job ID: 570-130861-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130861-1	Outfall008_20230311_Comp	Water	03/11/23 09:00	03/13/23 19:25
570-130861-2	Outfall008_20230311_Comp_F	Water	03/11/23 09:00	03/13/23 19:25

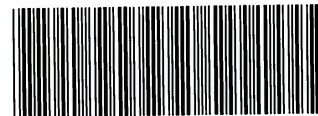
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CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Comp		ANALYSIS REQUIRED										Field Readings										
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: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl ⁻ , SO ₄ , Nitrate-N, Nitrite-N, NO ₃ -NO ₂ -N, Perchlorate (30)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E900.0), Sr-90 (E900.0), Total Combined Radium 226 (E900.0), E900.1) & Radium 228 (E900.0), Uranium (E900.0), K-40, CS-137 (E901.0 or E901.1)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E385.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	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.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																						
Sampler: Adrian Mobeka		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: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl ⁻ , SO ₄ , Nitrate-N, Nitrite-N, NO ₃ -NO ₂ -N, Perchlorate (30)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E900.0), Sr-90 (E900.0), Total Combined Radium 226 (E900.0), E900.1) & Radium 228 (E900.0), Uranium (E900.0), K-40, CS-137 (E901.0 or E901.1)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E385.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments				
Outfall 008	Outfall008_20230311_Comp	3/11/2023 10900	WM	500 mL Poly	1	HNO ₃	95	Yes	X															
			WM	1 L Glass Amber	2	None	110	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	155	No				X												
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X							
			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																
				WM	1 L Poly	1	None	185	No														X	
		Outfall008_20230311_Comp_F	3/11/2023 10900	WM	1L Poly	1	None	205	Yes					X									Filter and preserve w/in 24hrs of receipt at lab	
			WM	borosilicate vials	2	None	320	No										X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
	Outfall008_20230311_Comp_Extra	3/11/2023 10900	WM	1 L Glass Amber	MSD 1	None	110	No			H											Hold		
			WM	500 mL Poly	2	None	130	No			H											Hold		

Relinquished By: <i>Mark Dominick</i> Date/Time: 3-13-2023/1045 Company: H&A			Received By: <i>Adrian Mobeka</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>Adrian Mobeka</i> Date/Time: 3/13/23 1925 EC			Received By: <i>Adrian Mobeka</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: <input checked="" type="checkbox"/> X _____		

1.7/1.7 sc11



570-130861 Chain of Custody

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130861-1

Login Number: 130861

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	



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ANALYTICAL REPORT

PREPARED FOR

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

Generated 4/21/2023 7:57:43 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 Comp

JOB NUMBER

570-130861-2

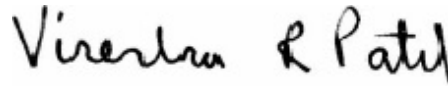
Job Notes

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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 NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-2

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 - 008 Comp

Job ID: 570-130861-2

Job ID: 570-130861-2

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-130861-2**

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 temperature of the cooler at receipt was 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 preserved to the appropriate pH in the laboratory.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): Outfall008_20230311_Comp_Extra (570-130861-3). Received ICOC for job 570-130861 and only sample 1 was listed. We received sample 3. Sample is not on HOLD.

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: Outfall008_20230311_Comp (570-130861-1), (CCV 320-665897/1) and (MB 320-664640/1-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 DFS 1 exceeded this criteria: (CCV 320-666484/2), (LCS 320-664640/2-A) and (LCSD 320-664640/3-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 method blank for preparation batch 320-664640 contained 1,2,3,4,6,7,8-HpCDF above the reporting limit (RL). None of the samples associated with this method blank contained the target compound over the RL; therefore, re-extraction and/or re-analysis of samples were not performed.

Method 1613B: The method blank for preparation batch 320-664640 and analytical batch 320-665897 contained OCDD above the reporting limit (RL). This compound is considered a common laboratory contaminant. The associated sample(s) was not re-extracted and/or re-analyzed because the concentration of the common lab contaminant in the method blank was less than 5 times the RL.

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: 570-130861-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008

Comp

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	0.0000069	J,DX MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,6,7,8-HpCDF	0.0000022	J,DX q MB	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				17					
OCDD	0.0000073	J,DX q MB	0.000094	0.0000005	ug/L	1		1613B	Total/NA
				5					
OCDF	0.0000020	J,DX q MB	0.000094	0.0000000	ug/L	1		1613B	Total/NA
				33					
Total HpCDD	0.000015	J,DX MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				5					
Total HpCDF	0.0000022	J,DX q MB	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				17					

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 - 008
 Comp

Job ID: 570-130861-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230311_Comp

Date Collected: 03/11/23 09:00

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000094	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				61					
2,3,7,8-TCDF	ND		0.0000094	0.0000001	ug/L		03/31/23 06:24	04/06/23 20:11	1
				1					
1,2,3,7,8-PeCDD	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				22					
1,2,3,7,8-PeCDF	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				12					
2,3,4,7,8-PeCDF	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				13					
1,2,3,4,7,8-HxCDD	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				29					
1,2,3,6,7,8-HxCDD	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				28					
1,2,3,7,8,9-HxCDD	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				26					
1,2,3,4,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				21					
1,2,3,6,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				21					
1,2,3,7,8,9-HxCDF	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				23					
2,3,4,6,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				21					
1,2,3,4,6,7,8-HpCDD	0.0000069	J,DX MB	0.000047	0.0000001	ug/L		03/31/23 06:24	04/06/23 20:11	1
				5					
1,2,3,4,6,7,8-HpCDF	0.0000022	J,DX q MB	0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				17					
1,2,3,4,7,8,9-HpCDF	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				18					
OCDD	0.000073	J,DX q MB	0.000094	0.0000005	ug/L		03/31/23 06:24	04/06/23 20:11	1
				5					
OCDF	0.0000020	J,DX q MB	0.000094	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				33					
Total TCDD	ND		0.0000094	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				61					
Total TCDF	ND		0.0000094	0.0000001	ug/L		03/31/23 06:24	04/06/23 20:11	1
				1					
Total PeCDD	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				22					
Total PeCDF	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				12					
Total HxCDD	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				26					
Total HxCDF	ND		0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				21					
Total HpCDD	0.000015	J,DX MB	0.000047	0.0000001	ug/L		03/31/23 06:24	04/06/23 20:11	1
				5					
Total HpCDF	0.0000022	J,DX q MB	0.000047	0.0000000	ug/L		03/31/23 06:24	04/06/23 20:11	1
				17					
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
13C-2,3,7,8-TCDD	57		25 - 164			03/31/23 06:24	04/06/23 20:11	1	
13C-2,3,7,8-TCDF	53		24 - 169			03/31/23 06:24	04/06/23 20:11	1	
13C-1,2,3,7,8-PeCDD	61		25 - 181			03/31/23 06:24	04/06/23 20:11	1	

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130861-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008

Comp

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

Date Collected: 03/11/23 09:00

Matrix: Water

Date Received: 03/13/23 19:25

<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	56		24 - 185	03/31/23 06:24	04/06/23 20:11	1
13C-2,3,4,7,8-PeCDF	55		21 - 178	03/31/23 06:24	04/06/23 20:11	1
13C-1,2,3,4,7,8-HxCDD	52		32 - 141	03/31/23 06:24	04/06/23 20:11	1
13C-1,2,3,6,7,8-HxCDD	58		28 - 130	03/31/23 06:24	04/06/23 20:11	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152	03/31/23 06:24	04/06/23 20:11	1
13C-1,2,3,6,7,8-HxCDF	53		26 - 123	03/31/23 06:24	04/06/23 20:11	1
13C-1,2,3,7,8,9-HxCDF	55		29 - 147	03/31/23 06:24	04/06/23 20:11	1
13C-2,3,4,6,7,8-HxCDF	54		28 - 136	03/31/23 06:24	04/06/23 20:11	1
13C-1,2,3,4,6,7,8-HpCDD	62		23 - 140	03/31/23 06:24	04/06/23 20:11	1
13C-1,2,3,4,6,7,8-HpCDF	49		28 - 143	03/31/23 06:24	04/06/23 20:11	1
13C-1,2,3,4,7,8,9-HpCDF	58		26 - 138	03/31/23 06:24	04/06/23 20:11	1
13C-OCDD	58		17 - 157	03/31/23 06:24	04/06/23 20:11	1
13C-OCDF	53		17 - 157	03/31/23 06:24	04/06/23 20:11	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	65		35 - 197	03/31/23 06:24	04/06/23 20:11	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-2

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)
570-130861-1	Outfall008_20230311_Comp	65
MB 320-664640/1-A	Method Blank	57

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 320-664640/2-A	Lab Control Sample	68
LCSD 320-664640/3-A	Lab Control Sample Dup	70

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-2

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)
570-130861-1	Outfall008_20230311_Comp	57	53	61	56	55	52	58	53
MB 320-664640/1-A	Method Blank	41	37	42	39	38	35	36	35

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)
570-130861-1	Outfall008_20230311_Comp	53	55	54	62	49	58	58	53
MB 320-664640/1-A	Method Blank	34	36	33	39	31	37	35	32

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 320-664640/2-A	Lab Control Sample	56	54	60	56	56	54	58	55
LCSD 320-664640/3-A	Lab Control Sample Dup	59	56	59	56	55	54	56	52

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 320-664640/2-A	Lab Control Sample	57	56	56	63	51	59	54	56
LCSD 320-664640/3-A	Lab Control Sample Dup	55	56	55	59	50	53	53	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

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008

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: 570-130861-2

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- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-664640/1-A
Matrix: Water
Analysis Batch: 665897

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 664640

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000001	ug/L		03/31/23 06:24	04/06/23 12:58	1
				8					
2,3,7,8-TCDF	ND		0.000010	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				25					
1,2,3,7,8-PeCDD	ND		0.000050	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				92					
1,2,3,7,8-PeCDF	ND		0.000050	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				79					
2,3,4,7,8-PeCDF	ND		0.000050	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				92					
1,2,3,4,7,8-HxCDD	ND		0.000050	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				75					
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				76					
1,2,3,7,8,9-HxCDD	ND		0.000050	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				69					
1,2,3,4,7,8-HxCDF	0.0000198	J,DX	0.000050	0.0000002	ug/L		03/31/23 06:24	04/06/23 12:58	1
				8					
1,2,3,6,7,8-HxCDF	0.00000350	J,DX	0.000050	0.0000002	ug/L		03/31/23 06:24	04/06/23 12:58	1
				9					
1,2,3,7,8,9-HxCDF	0.00000110	J,DX q	0.000050	0.0000002	ug/L		03/31/23 06:24	04/06/23 12:58	1
				8					
2,3,4,6,7,8-HxCDF	0.00000241	J,DX	0.000050	0.0000002	ug/L		03/31/23 06:24	04/06/23 12:58	1
				8					
1,2,3,4,6,7,8-HpCDD	0.0000202	J,DX q	0.000050	0.0000002	ug/L		03/31/23 06:24	04/06/23 12:58	1
				7					
1,2,3,4,6,7,8-HpCDF	0.0000579	q	0.000050	0.0000004	ug/L		03/31/23 06:24	04/06/23 12:58	1
				3					
1,2,3,4,7,8,9-HpCDF	0.00000402	J,DX q	0.000050	0.0000004	ug/L		03/31/23 06:24	04/06/23 12:58	1
				3					
OCDD	0.000433		0.00010	0.0000019	ug/L		03/31/23 06:24	04/06/23 12:58	1
OCDF	0.0000731	J,DX	0.00010	0.0000005	ug/L		03/31/23 06:24	04/06/23 12:58	1
				7					
Total TCDD	ND		0.000010	0.0000001	ug/L		03/31/23 06:24	04/06/23 12:58	1
				8					
Total TCDF	ND		0.000010	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				25					
Total PeCDD	ND		0.000050	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				92					
Total PeCDF	ND		0.000050	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				79					
Total HxCDD	ND		0.000050	0.0000000	ug/L		03/31/23 06:24	04/06/23 12:58	1
				69					
Total HxCDF	0.0000410	J,DX q	0.000050	0.0000002	ug/L		03/31/23 06:24	04/06/23 12:58	1
				8					
Total HpCDD	0.0000413	J,DX q	0.000050	0.0000002	ug/L		03/31/23 06:24	04/06/23 12:58	1
				7					
Total HpCDF	0.0000744	q	0.000050	0.0000004	ug/L		03/31/23 06:24	04/06/23 12:58	1
				3					
		MB MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	41		25 - 164				03/31/23 06:24	04/06/23 12:58	1
13C-2,3,7,8-TCDF	37		24 - 169				03/31/23 06:24	04/06/23 12:58	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-664640/1-A
Matrix: Water
Analysis Batch: 665897

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 664640

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	42		25 - 181	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,7,8-PeCDF	39		24 - 185	03/31/23 06:24	04/06/23 12:58	1
13C-2,3,4,7,8-PeCDF	38		21 - 178	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,7,8-HxCDD	35		32 - 141	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,6,7,8-HxCDD	36		28 - 130	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,7,8-HxCDF	35		26 - 152	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,6,7,8-HxCDF	34		26 - 123	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,7,8,9-HxCDF	36		29 - 147	03/31/23 06:24	04/06/23 12:58	1
13C-2,3,4,6,7,8-HxCDF	33		28 - 136	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,6,7,8-HpCDD	39		23 - 140	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,6,7,8-HpCDF	31		28 - 143	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,7,8,9-HpCDF	37		26 - 138	03/31/23 06:24	04/06/23 12:58	1
13C-OCDD	35		17 - 157	03/31/23 06:24	04/06/23 12:58	1
13C-OCDF	32		17 - 157	03/31/23 06:24	04/06/23 12:58	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	57		35 - 197	03/31/23 06:24	04/06/23 12:58	1

Lab Sample ID: LCS 320-664640/2-A
Matrix: Water
Analysis Batch: 666484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 664640

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000199		ug/L		100	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000847		ug/L		85	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000818		ug/L		82	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000828		ug/L		83	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000852		ug/L		85	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000869		ug/L		87	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000851		ug/L		85	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000873		ug/L		87	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000880		ug/L		88	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000880		ug/L		88	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000877		ug/L		88	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000803		ug/L		80	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000919		ug/L		92	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000853		ug/L		85	78 - 138
OCDD	0.00200	0.00192		ug/L		96	78 - 144
OCDF	0.00200	0.00182		ug/L		91	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	56		20 - 175
13C-2,3,7,8-TCDF	54		22 - 152
13C-1,2,3,7,8-PeCDD	60		21 - 227
13C-1,2,3,7,8-PeCDF	56		21 - 192
13C-2,3,4,7,8-PeCDF	56		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-664640/2-A
Matrix: Water
Analysis Batch: 666484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 664640

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDD	54		21 - 193
13C-1,2,3,6,7,8-HxCDD	58		25 - 163
13C-1,2,3,4,7,8-HxCDF	55		19 - 202
13C-1,2,3,6,7,8-HxCDF	57		21 - 159
13C-1,2,3,7,8,9-HxCDF	56		17 - 205
13C-2,3,4,6,7,8-HxCDF	56		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	63		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	51		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	59		20 - 186
13C-OCDD	54		13 - 199
13C-OCDF	56		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	68		31 - 191

Lab Sample ID: LCSD 320-664640/3-A
Matrix: Water
Analysis Batch: 666484

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 664640

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000171		ug/L		86	67 - 158	4	50	
2,3,7,8-TCDF	0.000200	0.000189		ug/L		95	75 - 158	5	50	
1,2,3,7,8-PeCDD	0.00100	0.000821		ug/L		82	70 - 142	3	50	
1,2,3,7,8-PeCDF	0.00100	0.000814		ug/L		81	80 - 134	0	50	
2,3,4,7,8-PeCDF	0.00100	0.000814		ug/L		81	68 - 160	2	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000745		ug/L		74	70 - 164	13	50	
1,2,3,6,7,8-HxCDD	0.00100	0.000848		ug/L		85	76 - 134	2	50	
1,2,3,7,8,9-HxCDD	0.00100	0.000811		ug/L		81	64 - 162	5	50	
1,2,3,4,7,8-HxCDF	0.00100	0.000829		ug/L		83	72 - 134	5	50	
1,2,3,6,7,8-HxCDF	0.00100	0.000837		ug/L		84	84 - 130	5	50	
1,2,3,7,8,9-HxCDF	0.00100	0.000811		ug/L		81	78 - 130	8	50	
2,3,4,6,7,8-HxCDF	0.00100	0.000817		ug/L		82	70 - 156	7	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000756		ug/L		76	70 - 140	6	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.000829		ug/L		83	82 - 122	10	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.000814		ug/L		81	78 - 138	5	50	
OCDD	0.00200	0.00166		ug/L		83	78 - 144	14	50	
OCDF	0.00200	0.00168		ug/L		84	63 - 170	8	50	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	59		20 - 175
13C-2,3,7,8-TCDF	56		22 - 152
13C-1,2,3,7,8-PeCDD	59		21 - 227
13C-1,2,3,7,8-PeCDF	56		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	56		25 - 163
13C-1,2,3,4,7,8-HxCDF	52		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-664640/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 666484

Prep Batch: 664640

<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	55		21 - 159
13C-1,2,3,7,8,9-HxCDF	56		17 - 205
13C-2,3,4,6,7,8-HxCDF	55		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	59		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	50		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	53		20 - 186
13C-OCDD	53		13 - 199
13C-OCDF	52		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	70		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-2

Specialty Organics

Prep Batch: 664640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_20230311_Comp	Total/NA	Water	1613B	
MB 320-664640/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-664640/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-664640/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 665897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_20230311_Comp	Total/NA	Water	1613B	664640
MB 320-664640/1-A	Method Blank	Total/NA	Water	1613B	664640

Analysis Batch: 666484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-664640/2-A	Lab Control Sample	Total/NA	Water	1613B	664640
LCSD 320-664640/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	664640

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-2

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

Date Collected: 03/11/23 09:00

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			1059.6 mL	20.0 uL	664640	03/31/23 06:24	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	665897	04/06/23 20:11	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 - 008
 Comp

Job ID: 570-130861-2

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	04-18-23
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 - 008
Comp

Job ID: 570-130861-2

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 - 008
Comp

Job ID: 570-130861-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130861-1	Outfall008_20230311_Comp	Water	03/11/23 09:00	03/13/23 19:25

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

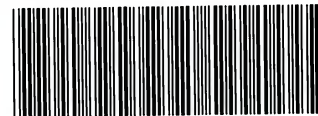
CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Comp		ANALYSIS REQUIRED										Field Readings										
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: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl ⁻ , SO ₄ , Nitrate-N, Nitrite-N, NO ₃ -NO ₂ -N, Perchlorate (30)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E900.0), Sr-90 (E900.0), Total Combined Radium 226 (E900.0), E900.1) & Radium 228 (E900.0), Uranium (E900.0), K-40, CS-137 (E901.0 or E901.1)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E385.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	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.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																						
Sampler: Adrian Mobeka		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: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl ⁻ , SO ₄ , Nitrate-N, Nitrite-N, NO ₃ -NO ₂ -N, Perchlorate (30)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E900.0), Sr-90 (E900.0), Total Combined Radium 226 (E900.0), E900.1) & Radium 228 (E900.0), Uranium (E900.0), K-40, CS-137 (E901.0 or E901.1)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E385.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments				
Outfall 008	Outfall008_20230311_Comp	3/11/2023 10900	WM	500 mL Poly	1	HNO ₃	95	Yes	X															
			WM	1 L Glass Amber	2	None	110	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	155	No				X												
			WM	500 mL Poly	1	H ₂ SO ₄	160	No									X							
			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																
				WM	1 L Poly	1	None	185	No														X	
		Outfall008_20230311_Comp_F	3/11/2023 10900	WM	1L Poly	1	None	205	Yes					X									Filter and preserve w/in 24hrs of receipt at lab	
			WM	borosilicate vials	2	None	320	No										X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
	Outfall008_20230311_Comp_Extra	3/11/2023 10900	WM	1 L Glass Amber	1	None	110	No			H											Hold		
			WM	500 mL Poly	2	None	130	No			H											Hold		

Legend: EP=Expert Panel, R=Routine

Relinquished By: <i>Mark Dominick</i> Date/Time: 3-13-2023/1045 Company: H&A	Received By: <i>Adrian Mobeka</i> Date/Time: 3/13/23 1045 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>Adrian Mobeka</i> Date/Time: 3/13/23 1925 Company: EC	Received By: <i>Adrian Mobeka</i> Date/Time: 3-13-23 19:25 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 _____

1.7/1.7 scil



570-130861 Chain of Custody

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Lab PM: Patel, Virendra	Carrier Tracking No(s): 570-210461.1	COC No: 570-210461.1
Client Contact: Shipping/Receiving		Phone:	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 #: 570-130861-2	Preservation Codes:
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		Due Date Requested: 3/29/2023		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: West Sacramento		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:	
State: CA, Zip: 95605		PO #:		Analysis Requested	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		WO #:		Total Number of Containers	
Email:		Project #:		Perform MS/MSD (Yes or No)	
Project Name: Boeing NPDES SSFL - Routine Outfall - 008 Comp		57013187		Field Filtered Sample (Yes or No)	
Site:		SSOW#:		1613B/1613B_Sox_Sep_P (MOD) Standard List w/ Totals	
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Oil)
Outfall008_20230311_Comp (570-130861-1)	3/11/23	09:00 Pacific	Water		
Sample Preservation Code:		Field Filtered Sample (Yes or No)		Special Instructions/Note:	
		X		See QAS, Boeing_wiu 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/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:		Time:			
Relinquished by: [Signature]		Date/Time: 03/14/23 9:10	Company: EC		
Relinquished by: [Signature]		Date/Time:	Company:		
Relinquished by: [Signature]		Date/Time:	Company:		
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:			
Δ Yes Δ No		3.6, 4.5 ^e			
Cooler Temperature(s) °C and Other Remarks:					
3.6, 4.5 ^e					

Record Sample 3 503-15-23



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130861-2

Login Number: 130861

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	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130861-2

Login Number: 130861

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.	False	Refer to Job Narrative for details.
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 2:52:31 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 Comp

JOB NUMBER

570-130861-3

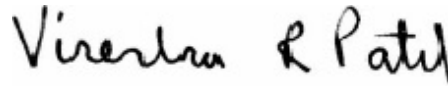
Job Notes

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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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4/17/2023 2:52:31 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 - 008
Comp

Job ID: 570-130861-3

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 - 008 Comp

Job ID: 570-130861-3

Job ID: 570-130861-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130861-3

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 temperature of the cooler at receipt was 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: Outfall008_20230311_Comp . The samples were preserved 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.

Outfall008_20230311_Comp (570-130861-1), (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
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 - 008 Comp

Job ID: 570-130861-3

Job ID: 570-130861-3 (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.

Outfall008_20230311_Comp (570-130861-1), (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.

Outfall008_20230311_Comp (570-130861-1), (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.

Outfall008_20230311_Comp (570-130861-1), (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.

Outfall008_20230311_Comp (570-130861-1), (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 606188

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. Outfall008_20230311_Comp (570-130861-1), (LCS 160-606188/2-A), (MB 160-606188/1-A), (570-130861-J-1-B DU), (570-130862-I-1-A) and (570-130862-I-1-B MS)

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. Outfall008_20230311_Comp (570-130861-1), (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: Outfall008_20230311_Comp (570-130861-1).

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Comp

Job ID: 570-130861-3

Job ID: 570-130861-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

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: Outfall008_20230311_Comp (570-130861-1). 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 - 008
Comp

Job ID: 570-130861-3

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

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 - 008
 Comp

Job ID: 570-130861-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230311_Comp

Date Collected: 03/11/23 09:00

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.07	U F	1.13	1.14	3.00	1.82	pCi/L	04/06/23 10:28	04/10/23 20:45	1
Gross Beta	2.07		0.709	0.738	4.00	0.933	pCi/L	04/06/23 10:28	04/10/23 20:45	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230311_Comp
 Date Collected: 03/11/23 09:00
 Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.84	U	8.90	8.90	20.0	11.4	pCi/L	03/22/23 16:26	03/30/23 08:12	1
Potassium-40	-192	U	96.2	98.8		254	pCi/L	03/22/23 16:26	03/30/23 08:12	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230311_Comp
Date Collected: 03/11/23 09:00
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.40		0.383	0.403	1.00	0.291	pCi/L	03/22/23 11:47	04/14/23 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	61.9		30 - 110					03/22/23 11:47	04/14/23 14:43	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230311_Comp
Date Collected: 03/11/23 09:00
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0531	U	0.493	0.493	1.00	0.948	pCi/L	03/22/23 12:28	04/12/23 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	61.9		30 - 110					03/22/23 12:28	04/12/23 12:00	1
Y Carrier	84.1		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 - 008
 Comp

Job ID: 570-130861-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230311_Comp
Date Collected: 03/11/23 09:00
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.537	U	0.409	0.412	3.00	0.638	pCi/L	03/27/23 13:47	04/11/23 09:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	86.8		30 - 110					03/27/23 13:47	04/11/23 09:00	1
Y Carrier	75.9		30 - 110					03/27/23 13:47	04/11/23 09:00	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230311_Comp
 Date Collected: 03/11/23 09:00
 Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	82.9	U	140	141	500	240	pCi/L	04/05/23 13:01	04/06/23 12:10	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230311_Comp
Date Collected: 03/11/23 09:00
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130861-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.240	U	0.289	0.289	1.00	0.403	pCi/L	03/30/23 15:31	04/04/23 20:42	1
Tracer	%Yield	Qualifier	Limits							
Uranium-232	90.2		30 - 110	Prepared	Analyzed	Dil Fac				
				03/30/23 15:31	04/04/23 20:42	1				

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-130861-3

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)							
570-130861-1	Outfall008_20230311_Comp	61.9							
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)						
570-130861-1	Outfall008_20230311_Comp	61.9	84.1						
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)						
570-130861-1	Outfall008_20230311_Comp	86.8	75.9						
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)							
570-130861-1	Outfall008_20230311_Comp	90.2							
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 - 008
 Comp

Job ID: 570-130861-3

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
				Uncert. (2σ+/-)					Limits
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
				Uncert. (2σ+/-)					Limits
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
				Uncert. (2σ+/-)					Limits
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 - 008
 Comp

Job ID: 570-130861-3

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 - 008
 Comp

Job ID: 570-130861-3

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	
Sr Carrier	83.0		30 - 110				03/27/23 13:47		04/10/23 16:12	
Y Carrier	70.3		30 - 110				03/27/23 13:47		04/10/23 16:12	

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 Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				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						
Sr Carrier	83.8		30 - 110						
Y Carrier	75.9		30 - 110						

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-606188/1-A
Matrix: Water
Analysis Batch: 606654

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606188

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	63.06	U	138	138	500	240	pCi/L	04/05/23 13:01	04/06/23 11:02	1

Lab Sample ID: LCS 160-606188/2-A
Matrix: Water
Analysis Batch: 606654

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606188

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Tritium	2090	1960		355	500	247	pCi/L	94	75 - 125

Lab Sample ID: 570-130861-1 DU
Matrix: Water
Analysis Batch: 606654

Client Sample ID: Outfall008_20230311_Comp
Prep Type: Total/NA
Prep Batch: 606188

Analyte	Sample	Sample	DU	DU	Total	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Tritium	82.9	U	40.54	U	137	500	247	pCi/L	0.15	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-3

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	MB	Limits		Prepared	Analyzed	Dil Fac			
Uranium-232	%Yield	Qualifier	30 - 110							
	92.8				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 Limits
				Uncert. (2σ+/-)					
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	LCS	Limits		Prepared	Analyzed	Dil Fac		
Uranium-232	%Yield	Qualifier	30 - 110						
	92.1								

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-130861-3

Rad

Prep Batch: 604617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_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
570-130861-1	Outfall008_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
570-130861-1	Outfall008_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
570-130861-1	Outfall008_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
570-130861-1	Outfall008_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: 606188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_20230311_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-606188/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-606188/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-130861-1 DU	Outfall008_20230311_Comp	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 606326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130861-1	Outfall008_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 - 008
 Comp

Job ID: 570-130861-3

Client Sample ID: Outfall008_20230311_Comp

Lab Sample ID: 570-130861-1

Date Collected: 03/11/23 09:00

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			200.00 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			605600	03/30/23 08:12	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			754.32 mL	1.0 g	604617	03/22/23 11:47	DJP	EET SL
Total/NA	Analysis	903.0		1			607421	04/14/23 14:43	SCB	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			754.32 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			504.75 mL	1.0 g	605090	03/27/23 13:47	DJP	EET SL
Total/NA	Analysis	905		1			606895	04/11/23 09:00	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			102.92 mL	1.0 g	606188	04/05/23 13:01	SEH	EET SL
Total/NA	Analysis	906.0		1			606654	04/06/23 12:10	REV	EET SL
Instrument ID: LSCTEAL										
Total/NA	Prep	ExtChrom			201.6 mL	1.0 mL	605724	03/30/23 15:31	CMM	EET SL
Total/NA	Analysis	A-01-R		1			606074	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 - 008
 Comp

Job ID: 570-130861-3

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 - 008
Comp

Job ID: 570-130861-3

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 - 008
Comp

Job ID: 570-130861-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130861-1	Outfall008_20230311_Comp	Water	03/11/23 09:00	03/13/23 19:25

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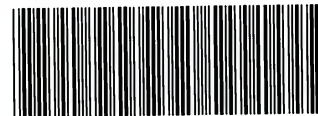
CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Comp		ANALYSIS REQUIRED										Field Readings					
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: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl ⁻ , SO ₄ , Nitrate-N, Nitrite-N, NO ₃ -NO ₂ -N, Perchlorate (30)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E900.0), Sr-90 (E900.0), Total Combined Radium 226 (E900.0), E900.1) & Radium 228 (E900.0), Uranium (E900.0), K-40, CS-137 (E901.0 or E901.1)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E385.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	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											
Outfall 008	Outfall008_20230311_Comp	3/11/2023 10900	WM	500 mL Poly	1	HNO ₃	95	Yes	X										
			WM	1 L Glass Amber	2	None	110	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	155	No				X							
			WM	500 mL Poly	1	H ₂ SO ₄	160	No						X					
			WM	500 mL Poly	1	NaOH	220	No							X				
			WM	2.5 Gal Cube	1	None	225	No								X			
			WM	1 L Glass Amber	1	None	230	No											
				WM	1 L Poly	1	None	185	No								X		
		Outfall008_20230311_Comp_F	3/11/2023 10900	WM	1L Poly	1	None	205	Yes					X				Filter and preserve w/in 24hrs of receipt at lab	
	Outfall008_20230311_Comp_Extra	3/11/2023 10900	WM	1 L Glass Amber	2	None	320	No						X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
WM			500 mL Poly	2	None	130	No			H							Hold		

Legend: EP=Expert Panel, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-13-2023/1045 Company: A.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 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: <input checked="" type="checkbox"/> X

1.7/1.7 scil



570-130861 Chain of Custody

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130861-3

Login Number: 130861

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	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130861-3

Login Number: 130861

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 \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 4/7/2023 3:28:29 PM

JOB DESCRIPTION

Boeing - SSFL NPDES - Routine Outfall - 008 Grab

JOB NUMBER

570-131811-1

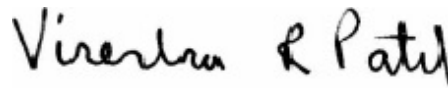
Job Notes

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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 3:28:29 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 - Routine Outfall - 008
Grab

Job ID: 570-131811-1

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 - 008 Grab

Job ID: 570-131811-1

Job ID: 570-131811-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-131811-1

Comments

No additional comments.

Receipt

The sample was received on 3/20/2023 6:45 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.5° C.

Receipt Exceptions

Outfall008_20230320_Grab (570-131811-1). The laboratory received Plastic 500ml Unpreserved And Amber Glass 1 Liter HCL instead of TWO Amber Glass 1 Liter HCL containers for Oil And Grease (E1664A-HEM)analysis on the following sample.

GC Semi VOA

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 570-313432.

Method: 1664.

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 - Routine Outfall - 008
Grab

Job ID: 570-131811-1

Client Sample ID: Outfall008_20230320_Grab

Lab Sample ID: 570-131811-1

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 - Routine Outfall - 008
Grab

Job ID: 570-131811-1

General Chemistry

Client Sample ID: Outfall008_20230320_Grab

Lab Sample ID: 570-131811-1

Date Collected: 03/20/23 08:55

Matrix: Water

Date Received: 03/20/23 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.98	0.50	mg/L		03/22/23 07:00	03/22/23 09:35	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing - SSFL NPDES - Routine Outfall - 008
 Grab

Job ID: 570-131811-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-313432/1-A
Matrix: Water
Analysis Batch: 313715

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313432

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 07:00	03/22/23 09:35	1

Lab Sample ID: LCS 570-313432/2-A
Matrix: Water
Analysis Batch: 313715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 313432

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	36.8		mg/L		92	78 - 114

Lab Sample ID: LCSD 570-313432/3-A
Matrix: Water
Analysis Batch: 313715

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 313432

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.3		mg/L		96	78 - 114	4	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing - SSFL NPDES - Routine Outfall - 008
Grab

Job ID: 570-131811-1

General Chemistry

Prep Batch: 313432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131811-1	Outfall008_20230320_Grab	Total/NA	Water	1664A	
MB 570-313432/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-313432/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-313432/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 313715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131811-1	Outfall008_20230320_Grab	Total/NA	Water	1664A	313432
MB 570-313432/1-A	Method Blank	Total/NA	Water	1664A	313432
LCS 570-313432/2-A	Lab Control Sample	Total/NA	Water	1664A	313432
LCSD 570-313432/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	313432

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing - SSFL NPDES - Routine Outfall - 008
Grab

Job ID: 570-131811-1

Client Sample ID: Outfall008_20230320_Grab

Lab Sample ID: 570-131811-1

Date Collected: 03/20/23 08:55

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	Prep	1664A			1024 mL	1000 mL	313432	03/22/23 07:00	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			313715	03/22/23 09:35	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

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 - 008
Grab

Job ID: 570-131811-1

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.
Project/Site: Boeing - SSFL NPDES - Routine Outfall - 008
Grab

Job ID: 570-131811-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

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



Sample Summary

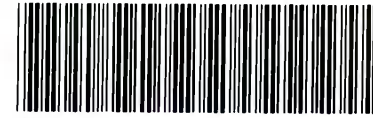
Client: Haley & Aldrich, Inc.
Project/Site: Boeing - SSFL NPDES - Routine Outfall - 008
Grab

Job ID: 570-131811-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131811-1	Outfall008_20230320_Grab	Water	03/20/23 08:55	03/20/23 18:45

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- 12
- 13
- 14

CHAIN OF CUSTODY FORM



Loc: 570
131811

570-131811 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 [008] Outfall 008 Grab					ANALYSIS REQUIRED										Field Readings		Meter serial #
"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 Readings: (Include units) Time of Readings: <u>0855</u> pH <u>8.00</u> pH unit Temp <u>55.3</u> °F Field readings QC Checked by: <u>MMD</u> Date/Time: <u>3/20/23 1300</u> 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	Oil & Grease (E1664A-HEM)												
Outfall 008	Outfall008_20230320_Grab	3/20/2023 <u>0855</u>	WM	1 L Glass Amber	2	HCl	15	No	X												
														Legend: R=Routine							
Relinquished By: <u>Michelle Dallalah</u> Date/Time: <u>3/20/23 1315</u> Company: <u>H&A</u>				Received By: <u>[Signature]</u> Date/Time: <u>3/20/23 1315</u> EC				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____													
Relinquished By: <u>[Signature]</u> Date/Time: <u>3/20/23 1845</u> Company: <u>EC</u>				Received By: <u>[Signature]</u> Date/Time: <u>3/20/23 18:45</u> RC				Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>													

1.6/1.5 SCR

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131811-1

Login Number: 131811

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.	False	Refer to Job Narrative for details.
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 4/8/2023 8:42:33 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 Comp

JOB NUMBER

570-131948-1

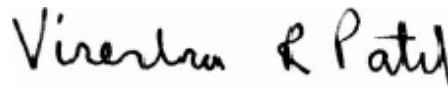
Job Notes

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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
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-131948-1

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
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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFI	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 - 008 Comp

Job ID: 570-131948-1

Job ID: 570-131948-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-131948-1

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 temperature of the cooler at receipt was 2.6° C.

HPLC/IC

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 570-313762 and analytical batch 570-313835 were outside control limits for Antimony, Thallium and Zinc. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method:

Outfall008_20230321_Comp_F (570-131948-2), Outfall008_20230321_Comp_F (570-131948-2[MS]) and

Outfall008_20230321_Comp_F (570-131948-2[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:

Outfall008_20230321_Comp_F (570-131948-2), Outfall008_20230321_Comp_F (570-131948-2[MS]) and

Outfall008_20230321_Comp_F (570-131948-2[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.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

Client Sample ID: Outfall008_20230321_Comp

Lab Sample ID: 570-131948-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.1		1.0	0.36	mg/L	1		300.0	Total/NA
Nitrate as N	0.12		0.10	0.020	mg/L	1		300.0	Total/NA
Sulfate	5.1		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.12		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	0.58	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	1.3	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Zinc	3.5	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	160		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.9		1.0	0.83	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall008_20230321_Comp_F

Lab Sample ID: 570-131948-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	1.1	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	1.1	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Nickel	1.1	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Zinc	21	BU	20	2.8	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 - 008
Comp

Job ID: 570-131948-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230321_Comp

Date Collected: 03/21/23 08:50

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.1		1.0	0.36	mg/L			03/22/23 08:08	1
Nitrite as N	ND		0.10	0.043	mg/L			03/22/23 08:08	1
Nitrate as N	0.12		0.10	0.020	mg/L			03/22/23 08:08	1
Sulfate	5.1		1.0	0.24	mg/L			03/22/23 08:08	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-131948-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230321_Comp

Lab Sample ID: 570-131948-1

Date Collected: 03/21/23 08:50

Matrix: Water

Date Received: 03/21/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			03/22/23 18:57	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-131948-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230321_Comp

Lab Sample ID: 570-131948-1

Date Collected: 03/21/23 08:50

Matrix: Water

Date Received: 03/21/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.12		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

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

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

Client Sample ID: Outfall008_20230321_Comp

Date Collected: 03/21/23 08:50

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.58	J,DX	2.0	0.36	ug/L		03/22/23 10:04	03/22/23 13:32	1
Cadmium	ND		1.0	0.13	ug/L		03/22/23 10:04	03/22/23 13:32	1
Copper	1.3	J,DX	2.0	0.32	ug/L		03/22/23 10:04	03/22/23 13:32	1
Lead	ND		1.0	0.12	ug/L		03/22/23 10:04	03/22/23 13:32	1
Nickel	ND		2.0	0.17	ug/L		03/22/23 10:04	03/22/23 13:32	1
Selenium	ND		2.0	0.52	ug/L		03/22/23 10:04	03/22/23 13:32	1
Silver	ND		1.0	0.23	ug/L		03/22/23 10:04	03/22/23 13:32	1
Thallium	ND		1.0	0.11	ug/L		03/22/23 10:04	03/22/23 13:32	1
Zinc	3.5	J,DX	20	2.8	ug/L		03/22/23 10:04	03/22/23 13:32	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-131948-1

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

Client Sample ID: Outfall008_20230321_Comp_F

Date Collected: 03/21/23 08:50

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.1	J,DX BU	2.0	0.36	ug/L			03/22/23 13:34	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/22/23 13:34	1
Copper	1.1	J,DX BU	2.0	0.32	ug/L			03/22/23 13:34	1
Lead	ND	BU	1.0	0.12	ug/L			03/22/23 13:34	1
Nickel	1.1	J,DX BU	2.0	0.17	ug/L			03/22/23 13:34	1
Selenium	ND	BU	2.0	0.52	ug/L			03/22/23 13:34	1
Silver	ND	BU	1.0	0.23	ug/L			03/22/23 13:34	1
Thallium	ND	BU	1.0	0.11	ug/L			03/22/23 13:34	1
Zinc	21	BU	20	2.8	ug/L			03/22/23 13:34	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-131948-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230321_Comp

Date Collected: 03/21/23 08:50

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1

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 17:01	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-131948-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230321_Comp_F

Date Collected: 03/21/23 08:50

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-2

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 18:38	1

- 1
- 2
- 3
- 4
- 5
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- 7
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- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-131948-1

General Chemistry

Client Sample ID: Outfall008_20230321_Comp

Date Collected: 03/21/23 08:50

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1

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 16:26	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/27/23 15:59	1
Total Dissolved Solids (SM 2540C)	160		10	8.7	mg/L			03/23/23 17:39	1
Total Suspended Solids (SM 2540D)	2.9		1.0	0.83	mg/L			03/24/23 11:28	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

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 - 008
 Comp

Job ID: 570-131948-1

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 570-313733/1-A
Matrix: Water
Analysis Batch: 313834

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 313733

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		03/22/23 10:04	03/22/23 13:03	1
Cadmium	ND		1.0	0.13	ug/L		03/22/23 10:04	03/22/23 13:03	1
Copper	ND		2.0	0.32	ug/L		03/22/23 10:04	03/22/23 13:03	1
Lead	ND		1.0	0.12	ug/L		03/22/23 10:04	03/22/23 13:03	1
Nickel	ND		2.0	0.17	ug/L		03/22/23 10:04	03/22/23 13:03	1
Selenium	ND		2.0	0.52	ug/L		03/22/23 10:04	03/22/23 13:03	1
Silver	ND		1.0	0.23	ug/L		03/22/23 10:04	03/22/23 13:03	1
Thallium	ND		1.0	0.11	ug/L		03/22/23 10:04	03/22/23 13:03	1
Zinc	ND		20	2.8	ug/L		03/22/23 10:04	03/22/23 13:03	1

Lab Sample ID: LCS 570-313733/2-A
Matrix: Water
Analysis Batch: 313834

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 313733

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	76.3		ug/L		95	85 - 115
Cadmium	80.0	78.5		ug/L		98	85 - 115
Copper	80.0	75.2		ug/L		94	85 - 115
Lead	80.0	73.6		ug/L		92	85 - 115
Nickel	80.0	74.8		ug/L		94	85 - 115
Selenium	80.0	77.6		ug/L		97	85 - 115
Silver	80.0	77.6		ug/L		97	85 - 115
Thallium	80.0	77.4		ug/L		97	85 - 115
Zinc	80.0	76.3		ug/L		95	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

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

Lab Sample ID: LCSD 570-313733/3-A
Matrix: Water
Analysis Batch: 313834

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 313733

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Antimony	80.0	79.5		ug/L		99	85 - 115	4	20	
Cadmium	80.0	79.0		ug/L		99	85 - 115	1	20	
Copper	80.0	78.0		ug/L		97	85 - 115	4	20	
Lead	80.0	76.2		ug/L		95	85 - 115	3	20	
Nickel	80.0	76.5		ug/L		96	85 - 115	2	20	
Selenium	80.0	77.0		ug/L		96	85 - 115	1	20	
Silver	80.0	78.5		ug/L		98	85 - 115	1	20	
Thallium	80.0	79.3		ug/L		99	85 - 115	2	20	
Zinc	80.0	76.0		ug/L		95	85 - 115	0	20	

Lab Sample ID: 570-131948-1 MS
Matrix: Water
Analysis Batch: 313834

Client Sample ID: Outfall008_20230321_Comp
Prep Type: Total Recoverable
Prep Batch: 313733

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	0.58	J,DX	80.0	82.2		ug/L		102	80 - 120			
Cadmium	ND		80.0	76.5		ug/L		96	80 - 120			
Copper	1.3	J,DX	80.0	76.5		ug/L		94	80 - 120			
Lead	ND		80.0	73.3		ug/L		92	80 - 120			
Nickel	ND		80.0	74.4		ug/L		93	80 - 120			
Selenium	ND		80.0	77.0		ug/L		96	80 - 120			
Silver	ND		80.0	76.0		ug/L		95	80 - 120			
Thallium	ND		80.0	76.2		ug/L		95	80 - 120			
Zinc	3.5	J,DX	80.0	76.3		ug/L		91	80 - 120			

Lab Sample ID: 570-131948-1 MSD
Matrix: Water
Analysis Batch: 313834

Client Sample ID: Outfall008_20230321_Comp
Prep Type: Total Recoverable
Prep Batch: 313733

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	0.58	J,DX	80.0	83.7		ug/L		104	80 - 120	2	20	
Cadmium	ND		80.0	77.7		ug/L		97	80 - 120	2	20	
Copper	1.3	J,DX	80.0	78.1		ug/L		96	80 - 120	2	20	
Lead	ND		80.0	74.6		ug/L		93	80 - 120	2	20	
Nickel	ND		80.0	76.2		ug/L		95	80 - 120	2	20	
Selenium	ND		80.0	77.9		ug/L		97	80 - 120	1	20	
Silver	ND		80.0	77.0		ug/L		96	80 - 120	1	20	
Thallium	ND		80.0	77.5		ug/L		97	80 - 120	2	20	
Zinc	3.5	J,DX	80.0	76.4		ug/L		91	80 - 120	0	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	

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

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

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
Lead	ND		1.0	0.12	ug/L			03/22/23 13:05	1
Nickel	ND		2.0	0.17	ug/L			03/22/23 13:05	1
Selenium	ND		2.0	0.52	ug/L			03/22/23 13:05	1
Silver	ND		1.0	0.23	ug/L			03/22/23 13:05	1
Thallium	ND		1.0	0.11	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
Antimony	80.0	80.6		ug/L		101	85 - 115
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
Nickel	80.0	77.4		ug/L		97	85 - 115
Selenium	80.0	77.1		ug/L		96	85 - 115
Silver	80.0	81.7		ug/L		102	85 - 115
Thallium	80.0	74.0		ug/L		93	85 - 115
Zinc	80.0	79.2		ug/L		99	85 - 115

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
Antimony	80.0	80.8		ug/L		101	85 - 115	0	20
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
Nickel	80.0	79.1		ug/L		99	85 - 115	2	20
Selenium	80.0	76.9		ug/L		96	85 - 115	0	20
Silver	80.0	81.5		ug/L		102	85 - 115	0	20
Thallium	80.0	74.2		ug/L		93	85 - 115	0	20
Zinc	80.0	78.8		ug/L		98	85 - 115	1	20

Lab Sample ID: 570-131948-2 MS
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Outfall008_20230321_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.1	J,DX BU	80.0	63.9	BU LN	ug/L		79	80 - 120
Cadmium	ND	BU	80.0	68.1	BU	ug/L		85	80 - 120
Copper	1.1	J,DX BU	80.0	70.3	BU	ug/L		86	80 - 120
Lead	ND	BU	80.0	65.9	BU	ug/L		82	80 - 120
Nickel	1.1	J,DX BU	80.0	67.7	BU	ug/L		83	80 - 120
Selenium	ND	BU	80.0	67.2	BU	ug/L		84	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

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

Lab Sample ID: 570-131948-2 MS
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Outfall008_20230321_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND	BU	80.0	67.7	BU	ug/L		85	80 - 120
Thallium	ND	BU	80.0	63.5	BU LN	ug/L		79	80 - 120
Zinc	21	BU	80.0	68.6	BU LN	ug/L		60	80 - 120

Lab Sample ID: 570-131948-2 MSD
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Outfall008_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
Antimony	1.1	J,DX BU	80.0	64.6	BU LN	ug/L		79	80 - 120	1	20
Cadmium	ND	BU	80.0	67.9	BU	ug/L		85	80 - 120	0	20
Copper	1.1	J,DX BU	80.0	69.9	BU	ug/L		86	80 - 120	1	20
Lead	ND	BU	80.0	65.8	BU	ug/L		82	80 - 120	0	20
Nickel	1.1	J,DX BU	80.0	67.9	BU	ug/L		84	80 - 120	0	20
Selenium	ND	BU	80.0	68.4	BU	ug/L		85	80 - 120	2	20
Silver	ND	BU	80.0	68.7	BU	ug/L		86	80 - 120	2	20
Thallium	ND	BU	80.0	63.1	BU LN	ug/L		79	80 - 120	1	20
Zinc	21	BU	80.0	68.0	BU LN	ug/L		59	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

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: 570-131948-1 MS
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Outfall008_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	8.15		ug/L		102	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-131948-1 MSD
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Outfall008_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	7.90		ug/L		99	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: 570-131948-2 MS
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Outfall008_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	7.46	BU	ug/L		93	85 - 115

Lab Sample ID: 570-131948-2 MSD
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Outfall008_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	7.77	BU	ug/L		97	85 - 115	4	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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

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

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 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-314266/1
 Matrix: Water
 Analysis Batch: 314266

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 17:39	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

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

Lab Sample ID: LCS 570-314266/2
 Matrix: Water
 Analysis Batch: 314266

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 570-314266/3
 Matrix: Water
 Analysis Batch: 314266

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	1	10

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

Lab Sample ID: MB 570-314490/1
 Matrix: Water
 Analysis Batch: 314490

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 11:28	1

Lab Sample ID: LCS 570-314490/2
 Matrix: Water
 Analysis Batch: 314490

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	98.0		mg/L		98	77 - 116

Lab Sample ID: LCSD 570-314490/3
 Matrix: Water
 Analysis Batch: 314490

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	3	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

HPLC/IC

Analysis Batch: 313627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_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	
LCSD 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
570-131948-1	Outfall008_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	
LCSD 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
570-131948-1	Outfall008_20230321_Comp	Total/NA	Water	314.0	
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
570-131948-1	Outfall008_20230321_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Prep Batch: 313733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_20230321_Comp	Total Recoverable	Water	200.8	
MB 570-313733/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-313733/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-313733/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-131948-1 MS	Outfall008_20230321_Comp	Total Recoverable	Water	200.8	
570-131948-1 MSD	Outfall008_20230321_Comp	Total Recoverable	Water	200.8	

Filtration Batch: 313762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-2	Outfall008_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	
570-131948-2 MS	Outfall008_20230321_Comp_F	Dissolved	Water	Filtration	
570-131948-2 MSD	Outfall008_20230321_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 313834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_20230321_Comp	Total Recoverable	Water	200.8	313733
MB 570-313733/1-A	Method Blank	Total Recoverable	Water	200.8	313733
LCS 570-313733/2-A	Lab Control Sample	Total Recoverable	Water	200.8	313733
LCSD 570-313733/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	313733
570-131948-1 MS	Outfall008_20230321_Comp	Total Recoverable	Water	200.8	313733

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

Metals (Continued)

Analysis Batch: 313834 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1 MSD	Outfall008_20230321_Comp	Total Recoverable	Water	200.8	313733

Analysis Batch: 313835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-2	Outfall008_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
570-131948-2 MS	Outfall008_20230321_Comp_F	Dissolved	Water	200.8	313762
570-131948-2 MSD	Outfall008_20230321_Comp_F	Dissolved	Water	200.8	313762

Prep Batch: 314016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_20230321_Comp	Total/NA	Water	245.1	
MB 570-314016/1-A	Method Blank	Total/NA	Water	245.1	
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	
570-131948-1 MS	Outfall008_20230321_Comp	Total/NA	Water	245.1	
570-131948-1 MSD	Outfall008_20230321_Comp	Total/NA	Water	245.1	

Filtration Batch: 314019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-2	Outfall008_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	
570-131948-2 MS	Outfall008_20230321_Comp_F	Dissolved	Water	Filtration	
570-131948-2 MSD	Outfall008_20230321_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 314025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-2	Outfall008_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
570-131948-2 MS	Outfall008_20230321_Comp_F	Dissolved	Water	245.1	314019
570-131948-2 MSD	Outfall008_20230321_Comp_F	Dissolved	Water	245.1	314019

Analysis Batch: 314215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
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

Analysis Batch: 314463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_20230321_Comp	Total/NA	Water	245.1	314016
570-131948-2	Outfall008_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

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

Metals (Continued)

Analysis Batch: 314463 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-314019/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	314025
570-131948-1 MS	Outfall008_20230321_Comp	Total/NA	Water	245.1	314016
570-131948-1 MSD	Outfall008_20230321_Comp	Total/NA	Water	245.1	314016
570-131948-2 MS	Outfall008_20230321_Comp_F	Dissolved	Water	245.1	314025
570-131948-2 MSD	Outfall008_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
570-131948-1	Outfall008_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	

Analysis Batch: 314266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_20230321_Comp	Total/NA	Water	SM 2540C	
MB 570-314266/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-314266/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-314266/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 314490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_20230321_Comp	Total/NA	Water	SM 2540D	
MB 570-314490/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-314490/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-314490/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Prep Batch: 315112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_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
570-131948-1	Outfall008_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 - 008
 Comp

Job ID: 570-131948-1

Client Sample ID: Outfall008_20230321_Comp

Lab Sample ID: 570-131948-1

Date Collected: 03/21/23 08:50

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	Analysis	300.0		1	4 mL	4 mL	313627	03/22/23 08:08	PS	EET CAL 4
	Instrument ID: IC10									
Total/NA	Analysis	300.0		1	4 mL	4 mL	313628	03/22/23 08:08	PS	EET CAL 4
	Instrument ID: IC10									
Total/NA	Analysis	314.0		1	4 mL	4 mL	313743	03/22/23 18:57	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	313733	03/22/23 10:04	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			313834	03/22/23 13:32	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			314463	03/23/23 17:01	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 16:26	UXCH	EET CAL 4
	Instrument ID: ACA2									
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	309190	03/27/23 15:59	GG0B	EET CAL 4
	Instrument ID: LACHAT01									
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	314266	03/23/23 17:39	ZL7L	EET CAL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	314490	03/24/23 11:28	WVA4	EET CAL 4
	Instrument ID: BAL71									

Client Sample ID: Outfall008_20230321_Comp_F

Lab Sample ID: 570-131948-2

Date Collected: 03/21/23 08:50

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 13:34	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 18:38	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 - 008
Comp

Job ID: 570-131948-1

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.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-131948-1

Method	Method Description	Protocol	Laboratory
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	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

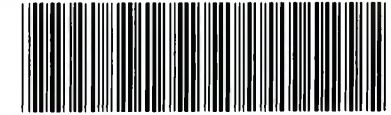
Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-131948-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131948-1	Outfall008_20230321_Comp	Water	03/21/23 08:50	03/21/23 17:10
570-131948-2	Outfall008_20230321_Comp_F	Water	03/21/23 08:50	03/21/23 17:10

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

CHAIN OF CUSTODY FORM



Client Name/Address:		Project:		ANALYSIS REQUIRED										Field Readings											
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall (008) Outfall 008 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)																							
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 #	MSMSD	Total Recoverable Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	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)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E /E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments					
Outfall 008	Outfall008_20230321_Comp	3/21/2023 0850	WM	500 mL Poly	1	HNO ₃	95	Yes	X								X								
			WM	1 L Glass Amber	2	None	110	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	155	No				X													
			WM	500 mL Poly	1	H ₂ SO ₄	160	No										X							
			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 MSMSD.	
			WM	1 L Glass Amber	1	None	230	No																	
			WM	1 L Poly	1	None	185	No																X	
			WM	1L Poly	1	None	205	Yes							X										Filter and preserve w/in 24hrs of receipt at lab
	Outfall008_20230321_Comp_F	3/21/2023 0850	WM	borosilicate vials	2	None	320	No									X					Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.			
	Outfall008_20230321_Comp_Extra	3/21/2023 0850	WM	1 L Glass Amber	2	None	110	No			H											Hold			

Legend: EP=Expert Panel, R=Routine			
Relinquished By <i>Michelle Dallalah</i>	Date/Time: 3/21/23 13:00	Company: H&A	Received By <i>[Signature]</i>
Relinquished By <i>[Signature]</i>	Date/Time: 3/21/23 17:10	Company: EC	Received By <i>[Signature]</i>
Relinquished By <i>[Signature]</i>	Date/Time: 3-21-23 17:10	Company: EC	Received By <i>[Signature]</i>

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

2-6/2.6 SC11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131948-1

Login Number: 131948

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 4/26/2023 9:29:27 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 Grab

JOB NUMBER

570-131948-2

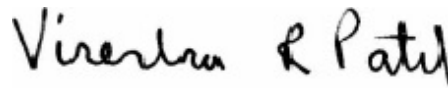
Job Notes

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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
4/26/2023 9:29:27 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: 570-131948-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

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 - 008 Grab

Job ID: 570-131948-2

Job ID: 570-131948-2

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-131948-2**

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 temperature of the cooler at receipt was 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 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: Outfall008_20230321_Comp (570-131948-1) 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 - 008 Grat

Job ID: 570-131948-2

Client Sample ID: Outfall008_20230321_Comp

Lab Sample ID: 570-131948-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000014	J,DX	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				060					
1,2,3,7,8,9-HxCDF	0.00000042	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				046					
OCDD	0.0000048	J,DX MB	0.000095	0.0000000	ug/L	1		1613B	Total/NA
				15					
OCDF	0.00000060	J,DX q	0.000095	0.0000000	ug/L	1		1613B	Total/NA
				21					
Total HxCDD	0.0000014	J,DX	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				054					
Total HxCDF	0.00000042	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				040					
Total HpCDD	0.00000067	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				13					

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 - 008 Grat

Job ID: 570-131948-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230321_Comp

Date Collected: 03/21/23 08:50

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1

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 05:07	1
				10					
2,3,7,8-TCDF	ND		0.0000095	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				091					
1,2,3,7,8-PeCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				13					
1,2,3,7,8-PeCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				069					
2,3,4,7,8-PeCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				077					
1,2,3,4,7,8-HxCDD	0.0000014	J,DX	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				060					
1,2,3,6,7,8-HxCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				059					
1,2,3,7,8,9-HxCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				054					
1,2,3,4,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				041					
1,2,3,6,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				040					
1,2,3,7,8,9-HxCDF	0.00000042	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				046					
2,3,4,6,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				042					
1,2,3,4,6,7,8-HpCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				13					
1,2,3,4,6,7,8-HpCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				034					
1,2,3,4,7,8,9-HpCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				037					
OCDD	0.0000048	J,DX MB	0.000095	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				15					
OCDF	0.00000060	J,DX q	0.000095	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				21					
Total TCDD	ND		0.0000095	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				10					
Total TCDF	ND		0.0000095	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				091					
Total PeCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				13					
Total PeCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				069					
Total HxCDD	0.0000014	J,DX	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				054					
Total HxCDF	0.00000042	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				040					
Total HpCDD	0.00000067	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				13					
Total HpCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 05:07	1
				034					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	70		25 - 164				04/19/23 04:39	04/23/23 05:07	1
13C-2,3,7,8-TCDF	66		24 - 169				04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,7,8-PeCDD	76		25 - 181				04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,7,8-PeCDF	75		24 - 185				04/19/23 04:39	04/23/23 05:07	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230321_Comp
Date Collected: 03/21/23 08:50
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1
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	76		21 - 178	04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,4,7,8-HxCDD	69		32 - 141	04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,6,7,8-HxCDD	68		28 - 130	04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,4,7,8-HxCDF	66		26 - 152	04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,6,7,8-HxCDF	65		26 - 123	04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,7,8,9-HxCDF	62		29 - 147	04/19/23 04:39	04/23/23 05:07	1
13C-2,3,4,6,7,8-HxCDF	64		28 - 136	04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,4,6,7,8-HpCDD	77		23 - 140	04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,4,6,7,8-HpCDF	61		28 - 143	04/19/23 04:39	04/23/23 05:07	1
13C-1,2,3,4,7,8,9-HpCDF	64		26 - 138	04/19/23 04:39	04/23/23 05:07	1
13C-OCDD	61		17 - 157	04/19/23 04:39	04/23/23 05:07	1
13C-OCDF	53		17 - 157	04/19/23 04:39	04/23/23 05:07	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	92		35 - 197	04/19/23 04:39	04/23/23 05:07	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-2

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)
570-131948-1	Outfall008_20230321_Comp	92
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 - 008 Grat

Job ID: 570-131948-2

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)
570-131948-1	Outfall008_20230321_Comp	70	66	76	75	76	69	68	66
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)
570-131948-1	Outfall008_20230321_Comp	65	62	64	77	61	64	61	53
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
- HxDF = 13C-1,2,3,6,7,8-HxCDF

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Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-2

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 NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-2

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
13C-1,2,3,7,8-PeCDD	69		25 - 181				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 - 008 Grat

Job ID: 570-131948-2

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-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	%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
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	75		25 - 163

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-2

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-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
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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-2

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>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	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>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	100		31 - 191

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-2

Specialty Organics

Prep Batch: 668480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_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
570-131948-1	Outfall008_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 - 008 Grat

Job ID: 570-131948-2

Client Sample ID: Outfall008_20230321_Comp

Lab Sample ID: 570-131948-1

Date Collected: 03/21/23 08:50

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			1055.7 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 05:07	GRB	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 NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-2

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 - 008 Grat

Job ID: 570-131948-2

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

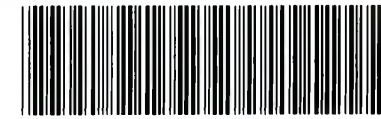
Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Grab

Job ID: 570-131948-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131948-1	Outfall008_20230321_Comp	Water	03/21/23 08:50	03/21/23 17:10

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CHAIN OF CUSTODY FORM



Client Name/Address:		Project:		ANALYSIS REQUIRED										Field Readings										
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall (008) Outfall 008 Comp		Total Recoverable Metals: (E200.8): Ni, Zn, (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	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)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E /E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments									
"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)																						
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 #	MSMSD	Total Recoverable Metals: (E200.8): Ni, Zn, (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	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)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E /E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments				
Outfall 008	Outfall008_20230321_Comp	3/21/2023 0850	WM	500 mL Poly	1	HNO ₃	95	Yes	X															
			WM	1 L Glass Amber	2	None	110	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	155	No				X												
			WM	500 mL Poly	1	H ₂ SO ₄	160	No										X						
			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 MSMSD.
	WM	1 L Glass Amber	1	None	230	No																		
	WM	1 L Poly	1	None	185	No																X		
	Outfall008_20230321_Comp_F	3/21/2023 0850	WM	1L Poly	1	None	205	Yes						X									Filter and preserve w/in 24hrs of receipt at lab	
WM			borosilicate vials	2	None	320	No											X					Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
Outfall008_20230321_Comp_Extra	3/21/2023 0850	WM	1 L Glass Amber	2	None	110	No			H													Hold	

Legend: EP=Expert Panel, R=Routine			
Relinquished By <i>Michelle Dallalah</i>	Date/Time 3/21/23 13:00	Company H&A	Received By <i>[Signature]</i>
Relinquished By <i>[Signature]</i>	Date/Time 3/21/23 1710	Company EC	Received By <i>[Signature]</i>
Relinquished By <i>[Signature]</i>	Date/Time 3-21-23 17:10	Company	Received By <i>[Signature]</i>

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 _____

2-6/2.6 SC11

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler: Patel, Virendra		Lab PM: Patel, Virendra		Carrier Tracking No(s): 570-211864.1	
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofins.com		State of Origin: California	
Company: Eurofins Environment Testing Northern Ca		Due Date Requested: 4/6/2023		Accreditations Required (See note): State Program - California		Job #: 570-131948-2	
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		TAI Requested (days):		Analysis Requested:		Preservation Codes:	
City: West Sacramento		PO #:		Field Filtered Sample (Yes or No)		M - Hexane	
State, Zip: CA, 95605		WO #:		Perform MS/MSD (Yes or No)		N - None	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		Project #:		1613B/1613B_Sox_Sep_P (MOD) Standard List w/		O - AsNaO2	
Email:		57013187		Totals		P - Na2O4S	
Project Name: Boeing NPDES SSFL - Routine Outfall - 008 Grab		SSOW#:		Field Filtered Sample (Yes or No)		Q - Na2SO3	
Site:		Sample Date: 3/21/23		Sample Time: 08:50 Pacific		R - Na2SO3	
Sample Identification - Client ID (Lab ID)		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=water/oil)		S - H2SO4	
Outfall008_20230321_Comp (570-131948-1)		Preservation Code: Water		Sample Type (C=Comp, G=grab)		T - TSP Dodecahydrate	
		Sample Date: 3/21/23		Sample Time: 08:50 Pacific		U - Acetone	
		Sample Date:		Sample Time:		V - MCAA	
		Sample Date:		Sample Time:		W - pH 4-5	
		Sample Date:		Sample Time:		Y - Trizma	
		Sample Date:		Sample Time:		Z - other (specify)	
		Sample Date:		Sample Time:		Other:	
		Sample Date:		Sample Time:		Total Number of containers	
		Sample Date:		Sample Time:		2	
		Sample Date:		Sample Time:		Special Instructions/Note:	
		Sample Date:		Sample Time:		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 subcontractor 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: 05/22/23 9:19
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____
 Custody Seals Intact: _____ Custody Seal No.: _____
 Δ Yes Δ No

Received by: _____ Date/Time: 3/23/23 5:40
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____
 Cooler Temperature(s) °C and Other Remarks: 10°C

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: 570-131948-2

Login Number: 131948

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: 570-131948-2

Login Number: 131948

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 </= 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 <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 4/26/2023 7:54:03 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 Grab

JOB NUMBER

570-131948-3

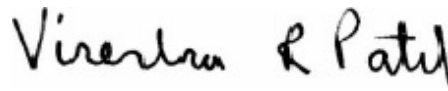
Job Notes

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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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4/26/2023 7:54:03 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.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Qualifiers

Rad

Qualifier	Qualifier Description
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 - 008 Grab

Job ID: 570-131948-3

Job ID: 570-131948-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-131948-3

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 temperature of the cooler at receipt was 2.6° 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: (570-131940-R-1-G) 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.

Outfall008_20230321_Comp (570-131948-1), (LCS 160-607422/2-A), (LCSB 160-607422/3-A), (MB 160-607422/1-A), (570-131940-R-1-G), (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
Th-227	Bi-211

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grab

Job ID: 570-131948-3

Job ID: 570-131948-3 (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.

Outfall008_20230321_Comp (570-131948-1), (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. Outfall008_20230321_Comp (570-131948-1), (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.

Outfall008_20230321_Comp (570-131948-1), (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.

Outfall008_20230321_Comp (570-131948-1), (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. Outfall008_20230321_Comp (570-131948-1), (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)

Methods A-01-R, U-02-RC: Isotopic Uranium batch 607182

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.

Outfall008_20230321_Comp (570-131948-1), (LCS 160-607182/2-A), (MB 160-607182/1-A), (570-131945-N-1-E) and (570-131945-N-1-F DU)

Method PrecSep_0: Radium 228 Prep Batch 160-605613

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230321_Comp (570-131948-1). 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 160-605610

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230321_Comp (570-131948-1). 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 - 008 Grab

Job ID: 570-131948-3

Job ID: 570-131948-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method PrecSep-7: Strontium-90 Prep Batch 606565

The following sample was prepared at a reduced aliquot due to Matrix: Outfall008_20230321_Comp (570-131948-1). 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 - 008 Grat

Job ID: 570-131948-3

Client Sample ID: Outfall008_20230321_Comp

Lab Sample ID: 570-131948-1

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 - 008 Grat

Job ID: 570-131948-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230321_Comp
Date Collected: 03/21/23 08:50
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.15	U	0.946	0.955	3.00	1.39	pCi/L	04/14/23 10:37	04/21/23 18:25	1
Gross Beta	1.82		0.663	0.687	4.00	0.872	pCi/L	04/14/23 10:37	04/21/23 18:25	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230321_Comp
Date Collected: 03/21/23 08:50
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.725	U	5.98	5.98	20.0	7.58	pCi/L	03/28/23 16:33	04/12/23 14:26	1
Potassium-40	-38.9	U	72.4	72.5		112	pCi/L	03/28/23 16:33	04/12/23 14:26	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230321_Comp
Date Collected: 03/21/23 08:50
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1
Matrix: Water

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.0703	U	0.0887	0.0889	1.00	0.146	pCi/L	03/30/23 08:51	04/25/23 14:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		30 - 110					03/30/23 08:51	04/25/23 14:07	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230321_Comp
Date Collected: 03/21/23 08:50
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.31		0.610	0.622	1.00	0.846	pCi/L	03/30/23 09:10	04/20/23 15:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		30 - 110					03/30/23 09:10	04/20/23 15:04	1
Y Carrier	80.0		30 - 110					03/30/23 09:10	04/20/23 15:04	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230321_Comp
Date Collected: 03/21/23 08:50
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	1.19	U	0.817	0.823	3.00	1.28	pCi/L	04/07/23 11:12	04/17/23 19:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	86.1		30 - 110					04/07/23 11:12	04/17/23 19:10	1
Y Carrier	50.8		30 - 110					04/07/23 11:12	04/17/23 19:10	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230321_Comp
Date Collected: 03/21/23 08:50
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-214	U	198	199	500	402	pCi/L	04/18/23 11:12	04/19/23 08:24	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230321_Comp
Date Collected: 03/21/23 08:50
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131948-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.401		0.204	0.206	1.00	0.167	pCi/L	04/12/23 15:01	04/17/23 22:47	1
Tracer	%Yield	Qualifier	Limits							
Uranium-232	97.5		30 - 110	Prepared	Analyzed	Dil Fac				
				04/12/23 15:01	04/17/23 22:47	1				

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

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)	
570-131948-1	Outfall008_20230321_Comp	92.9	
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)
570-131948-1	Outfall008_20230321_Comp	92.9	80.0
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)
570-131948-1	Outfall008_20230321_Comp	86.1	50.8
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)	
570-131948-1	Outfall008_20230321_Comp	97.5	
LCS 160-607182/2-A	Lab Control Sample	76.8	
MB 160-607182/1-A	Method Blank	81.7	

Tracer/Carrier Legend
U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

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+/-)						
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 Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
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 Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Gross Beta	73.4	74.69		8.01	4.00	1.10	pCi/L	102	75 - 125

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

Euofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

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

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 Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec 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 Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
Radium-226	11.3	8.720		0.965	1.00	0.125	pCi/L	77	75 - 125	0.29	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
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 Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
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

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
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

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

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

Carrier	LCS %Yield	LCS Qualifier	Limits
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

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	92.7		30 - 110
Y Carrier	84.9		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 Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
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 Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
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 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	75 - 125	0.04	1

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Method: 905 - Strontium-90 (GFPC) (Continued)

Carrier	LCSD		Limits
	%Yield	Qualifier	
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		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
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

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-607182/1-A
 Matrix: Water
 Analysis Batch: 607712

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 607182

Analyte	MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Total Uranium	0.08287	U	0.138	0.138	1.00	0.229	pCi/L	04/12/23 15:01	04/17/23 22:47	1

Tracer	MB		Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Uranium-232	81.7		30 - 110	04/12/23 15:01	04/17/23 22:47	1

Lab Sample ID: LCS 160-607182/2-A
 Matrix: Water
 Analysis Batch: 607726

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 607182

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Uranium-238	13.0	15.41		1.79	1.00	0.168	pCi/L	118	75 - 125

Tracer	LCS		Limits
	%Yield	Qualifier	
Uranium-232	76.8		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-131948-3

Rad

Prep Batch: 605283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_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
570-131948-1	Outfall008_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
570-131948-1	Outfall008_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
570-131948-1	Outfall008_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: 607182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_20230321_Comp	Total/NA	Water	ExtChrom	
MB 160-607182/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-607182/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 607422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_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	

Prep Batch: 607890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131948-1	Outfall008_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 - 008 Grat

Job ID: 570-131948-3

Client Sample ID: Outfall008_20230321_Comp

Lab Sample ID: 570-131948-1

Date Collected: 03/21/23 08:50

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			200.01 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			607192	04/12/23 14:26	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			756.21 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 14:07	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			756.21 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			497.67 mL	1.0 g	606565	04/07/23 11:12	DJP	EET SL
Total/NA	Analysis	905		1			607842	04/17/23 19:10	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			100.98 mL	1.0 g	607890	04/18/23 11:12	ZR	EET SL
Total/NA	Analysis	906.0		1			608161	04/19/23 08:24	REV	EET SL
Instrument ID: LSC3180										
Total/NA	Prep	ExtChrom			500.49 mL	1.0 mL	607182	04/12/23 15:01	SRE	EET SL
Total/NA	Analysis	A-01-R		1			607718	04/17/23 22:47	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 - 008 Grat

Job ID: 570-131948-3

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 - 008 Grat

Job ID: 570-131948-3

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

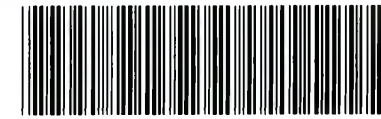
Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Grab

Job ID: 570-131948-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131948-1	Outfall008_20230321_Comp	Water	03/21/23 08:50	03/21/23 17:10

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

CHAIN OF CUSTODY FORM



Client Name/Address:		Project:		ANALYSIS REQUIRED										Field Readings										
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall (008) Outfall 008 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)																						
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 #	MSMSD	Total Recoverable Metals: (E200.8): Ni, Zn (E200.9): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	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)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E /E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments				
Outfall 008	Outfall008_20230321_Comp	3/21/2023 0850	WM	500 mL Poly	1	HNO ₃	95	Yes	X								X							
			WM	1 L Glass Amber	2	None	110	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	155	No				X												
			WM	500 mL Poly	1	H ₂ SO ₄	160	No										X						
			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 MSMSD.
			WM	1 L Glass Amber	1	None	230	No																
			WM	1 L Poly	1	None	185	No															X	
			WM	1L Poly	1	None	205	Yes							X									Filter and preserve w/in 24hrs of receipt at lab
	Outfall008_20230321_Comp_F	3/21/2023 0850	WM	borosilicate vials	2	None	320	No									X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.			
	Outfall008_20230321_Comp_Extra	3/21/2023 0850	WM	1 L Glass Amber	2	None	110	No			H										Hold			

Legend: EP=Expert Panel, 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: <u>X</u> 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: <u>X</u>
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	
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	

2-6/2.6 SC11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131948-3

Login Number: 131948

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: 570-131948-3

Login Number: 131948

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/23/23 12:22 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

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 Comp

JOB NUMBER

570-133054-1

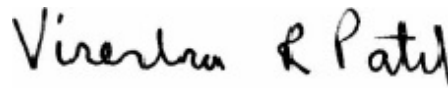
Job Notes

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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 - 008
Comp

Job ID: 570-133054-1

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 - 008 Comp

Job ID: 570-133054-1

Job ID: 570-133054-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-133054-1

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 1.8° C and 2.0° 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.

HPLC/IC

Method 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Nitrite as N for analytical batch 570-315979 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 300.0: The following sample was diluted due to the nature of the sample matrix: Outfall008_20230330_Comp (570-133054-1). 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.

Metals

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall008_20230330_Comp_F (570-133054-2), Outfall008_20230330_Comp_F (570-133054-2[MS]) and Outfall008_20230330_Comp_F (570-133054-2[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.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

Client Sample ID: Outfall008_20230330_Comp

Lab Sample ID: 570-133054-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.8		2.0	0.72	mg/L	2		300.0	Total/NA
Nitrate as N	0.23		0.20	0.039	mg/L	2		300.0	Total/NA
Sulfate	4.5		2.0	0.47	mg/L	2		300.0	Total/NA
Nitrate Nitrite as N	0.23		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	0.71	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	1.5	J,DX	2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.43	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	1.5	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Silver	0.31	J,DX	1.0	0.23	ug/L	1		200.8	Total Recoverable
Zinc	4.0	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	170		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.7		1.0	0.83	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall008_20230330_Comp_F

Lab Sample ID: 570-133054-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	1.5	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Cadmium	0.36	J,DX BU	1.0	0.13	ug/L	1		200.8	Dissolved
Copper	1.3	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.35	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Nickel	1.4	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Silver	0.40	J,DX BU	1.0	0.23	ug/L	1		200.8	Dissolved
Thallium	0.23	J,DX BU	1.0	0.11	ug/L	1		200.8	Dissolved
Zinc	4.2	J,DX BU	20	2.8	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 - 008
Comp

Job ID: 570-133054-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall008_20230330_Comp

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.8		2.0	0.72	mg/L			03/31/23 00:42	2
Nitrite as N	ND		0.20	0.086	mg/L			03/31/23 00:42	2
Nitrate as N	0.23		0.20	0.039	mg/L			03/31/23 00:42	2
Sulfate	4.5		2.0	0.47	mg/L			03/31/23 00:42	2

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall008_20230330_Comp

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			04/01/23 00:05	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall008_20230330_Comp

Lab Sample ID: 570-133054-1

Date Collected: 03/30/23 07:35

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.23		0.10	0.020	mg/L			04/11/23 12:02	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

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

Client Sample ID: Outfall008_20230330_Comp

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.71	J,DX	2.0	0.36	ug/L		03/31/23 06:19	03/31/23 12:15	1
Cadmium	ND		1.0	0.13	ug/L		03/31/23 06:19	03/31/23 12:15	1
Copper	1.5	J,DX	2.0	0.32	ug/L		03/31/23 06:19	03/31/23 12:15	1
Lead	0.43	J,DX	1.0	0.12	ug/L		03/31/23 06:19	03/31/23 12:15	1
Nickel	1.5	J,DX	2.0	0.17	ug/L		03/31/23 06:19	03/31/23 12:15	1
Selenium	ND		2.0	0.52	ug/L		03/31/23 06:19	03/31/23 12:15	1
Silver	0.31	J,DX	1.0	0.23	ug/L		03/31/23 06:19	03/31/23 12:15	1
Thallium	ND		1.0	0.11	ug/L		03/31/23 06:19	03/31/23 12:15	1
Zinc	4.0	J,DX	20	2.8	ug/L		03/31/23 06:19	03/31/23 12:15	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-1

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

Client Sample ID: Outfall008_20230330_Comp_F

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.5	J,DX BU	2.0	0.36	ug/L			03/31/23 09:51	1
Cadmium	0.36	J,DX BU	1.0	0.13	ug/L			03/31/23 09:51	1
Copper	1.3	J,DX BU	2.0	0.32	ug/L			03/31/23 09:51	1
Lead	0.35	J,DX BU	1.0	0.12	ug/L			03/31/23 09:51	1
Nickel	1.4	J,DX BU	2.0	0.17	ug/L			03/31/23 09:51	1
Selenium	ND	BU	2.0	0.52	ug/L			03/31/23 09:51	1
Silver	0.40	J,DX BU	1.0	0.23	ug/L			03/31/23 09:51	1
Thallium	0.23	J,DX BU	1.0	0.11	ug/L			03/31/23 09:51	1
Zinc	4.2	J,DX BU	20	2.8	ug/L			03/31/23 09:51	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall008_20230330_Comp

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1

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 18:13	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall008_20230330_Comp_F

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-2

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 16:42	1

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-1

General Chemistry

Client Sample ID: Outfall008_20230330_Comp

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1

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 14:00	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			04/03/23 13:37	1
Total Dissolved Solids (SM 2540C)	170		10	8.7	mg/L			03/30/23 21:09	1
Total Suspended Solids (SM 2540D)	2.7		1.0	0.83	mg/L			04/05/23 16:40	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-315979/5
Matrix: Water
Analysis Batch: 315979

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 07:04	1
Nitrate as N	ND		0.10	0.020	mg/L			03/30/23 07:04	1

Lab Sample ID: LCS 570-315979/6
Matrix: Water
Analysis Batch: 315979

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	4.89		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-315979/7
Matrix: Water
Analysis Batch: 315979

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	2.57		mg/L		103	90 - 110	1	15
Nitrate as N	5.00	4.88		mg/L		98	90 - 110	0	15

Lab Sample ID: MB 570-315980/5
Matrix: Water
Analysis Batch: 315980

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 07:04	1
Sulfate	ND		1.0	0.24	mg/L			03/30/23 07:04	1

Lab Sample ID: LCS 570-315980/6
Matrix: Water
Analysis Batch: 315980

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	48.4		mg/L		97	90 - 110
Sulfate	50.0	48.5		mg/L		97	90 - 110

Lab Sample ID: LCSD 570-315980/7
Matrix: Water
Analysis Batch: 315980

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	48.5		mg/L		97	90 - 110	0	15

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

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 570-316386/1-A
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		03/31/23 06:19	03/31/23 11:25	1
Cadmium	ND		1.0	0.13	ug/L		03/31/23 06:19	03/31/23 11:25	1
Copper	ND		2.0	0.32	ug/L		03/31/23 06:19	03/31/23 11:25	1
Lead	ND		1.0	0.12	ug/L		03/31/23 06:19	03/31/23 11:25	1
Nickel	ND		2.0	0.17	ug/L		03/31/23 06:19	03/31/23 11:25	1
Selenium	ND		2.0	0.52	ug/L		03/31/23 06:19	03/31/23 11:25	1
Silver	ND		1.0	0.23	ug/L		03/31/23 06:19	03/31/23 11:25	1
Thallium	ND		1.0	0.11	ug/L		03/31/23 06:19	03/31/23 11:25	1
Zinc	ND		20	2.8	ug/L		03/31/23 06:19	03/31/23 11:25	1

Lab Sample ID: LCS 570-316386/2-A
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	82.7		ug/L		103	85 - 115
Cadmium	80.0	82.0		ug/L		102	85 - 115
Copper	80.0	80.5		ug/L		101	85 - 115
Lead	80.0	82.7		ug/L		103	85 - 115
Nickel	80.0	81.0		ug/L		101	85 - 115
Selenium	80.0	83.5		ug/L		104	85 - 115
Silver	80.0	81.4		ug/L		102	85 - 115
Thallium	80.0	82.7		ug/L		103	85 - 115
Zinc	80.0	83.7		ug/L		105	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

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

Lab Sample ID: LCSD 570-316386/3-A
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Antimony	80.0	84.7		ug/L		106	85 - 115	2	20	
Cadmium	80.0	83.6		ug/L		105	85 - 115	2	20	
Copper	80.0	82.4		ug/L		103	85 - 115	2	20	
Lead	80.0	83.8		ug/L		105	85 - 115	1	20	
Nickel	80.0	82.1		ug/L		103	85 - 115	1	20	
Selenium	80.0	84.4		ug/L		106	85 - 115	1	20	
Silver	80.0	82.0		ug/L		103	85 - 115	1	20	
Thallium	80.0	83.9		ug/L		105	85 - 115	1	20	
Zinc	80.0	84.2		ug/L		105	85 - 115	1	20	

Lab Sample ID: 570-133054-1 MS
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Outfall008_20230330_Comp
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	0.71	J,DX	80.0	84.9		ug/L		105	80 - 120			
Cadmium	ND		80.0	80.8		ug/L		101	80 - 120			
Copper	1.5	J,DX	80.0	82.0		ug/L		101	80 - 120			
Lead	0.43	J,DX	80.0	81.5		ug/L		101	80 - 120			
Nickel	1.5	J,DX	80.0	81.0		ug/L		99	80 - 120			
Selenium	ND		80.0	81.2		ug/L		101	80 - 120			
Silver	0.31	J,DX	80.0	80.8		ug/L		101	80 - 120			
Thallium	ND		80.0	82.1		ug/L		103	80 - 120			
Zinc	4.0	J,DX	80.0	85.1		ug/L		101	80 - 120			

Lab Sample ID: 570-133054-1 MSD
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Outfall008_20230330_Comp
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits	RPD		
Antimony	0.71	J,DX	80.0	86.7		ug/L		108	80 - 120	2	20	
Cadmium	ND		80.0	82.2		ug/L		103	80 - 120	2	20	
Copper	1.5	J,DX	80.0	83.0		ug/L		102	80 - 120	1	20	
Lead	0.43	J,DX	80.0	83.3		ug/L		104	80 - 120	2	20	
Nickel	1.5	J,DX	80.0	81.7		ug/L		100	80 - 120	1	20	
Selenium	ND		80.0	81.3		ug/L		102	80 - 120	0	20	
Silver	0.31	J,DX	80.0	81.3		ug/L		101	80 - 120	1	20	
Thallium	ND		80.0	83.3		ug/L		104	80 - 120	1	20	
Zinc	4.0	J,DX	80.0	85.2		ug/L		102	80 - 120	0	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	

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

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
Lead	ND		1.0	0.12	ug/L			03/31/23 09:17	1
Nickel	ND		2.0	0.17	ug/L			03/31/23 09:17	1
Selenium	ND		2.0	0.52	ug/L			03/31/23 09:17	1
Silver	ND		1.0	0.23	ug/L			03/31/23 09:17	1
Thallium	ND		1.0	0.11	ug/L			03/31/23 09:17	1
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
Antimony	80.0	78.9		ug/L		99	85 - 115
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
Nickel	80.0	79.4		ug/L		99	85 - 115
Selenium	80.0	77.9		ug/L		97	85 - 115
Silver	80.0	79.4		ug/L		99	85 - 115
Thallium	80.0	80.7		ug/L		101	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
Antimony	80.0	82.4		ug/L		103	85 - 115	4	20
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
Nickel	80.0	79.8		ug/L		100	85 - 115	1	20
Selenium	80.0	79.2		ug/L		99	85 - 115	2	20
Silver	80.0	78.7		ug/L		98	85 - 115	1	20
Thallium	80.0	81.3		ug/L		102	85 - 115	1	20
Zinc	80.0	78.2		ug/L		98	85 - 115	1	20

Lab Sample ID: 570-133054-2 MS
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Outfall008_20230330_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.5	J,DX BU	80.0	78.1	BU	ug/L		96	80 - 120
Cadmium	0.36	J,DX BU	80.0	75.8	BU	ug/L		94	80 - 120
Copper	1.3	J,DX BU	80.0	76.6	BU	ug/L		94	80 - 120
Lead	0.35	J,DX BU	80.0	76.7	BU	ug/L		95	80 - 120
Nickel	1.4	J,DX BU	80.0	75.6	BU	ug/L		93	80 - 120
Selenium	ND	BU	80.0	76.6	BU	ug/L		96	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

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

Lab Sample ID: 570-133054-2 MS
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Outfall008_20230330_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	0.40	J,DX BU	80.0	74.2	BU	ug/L		92	80 - 120
Thallium	0.23	J,DX BU	80.0	75.5	BU	ug/L		94	80 - 120
Zinc	4.2	J,DX BU	80.0	77.6	BU	ug/L		92	80 - 120

Lab Sample ID: 570-133054-2 MSD
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Outfall008_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
Antimony	1.5	J,DX BU	80.0	77.6	BU	ug/L		95	80 - 120	1	20
Cadmium	0.36	J,DX BU	80.0	74.9	BU	ug/L		93	80 - 120	1	20
Copper	1.3	J,DX BU	80.0	74.5	BU	ug/L		91	80 - 120	3	20
Lead	0.35	J,DX BU	80.0	75.0	BU	ug/L		93	80 - 120	2	20
Nickel	1.4	J,DX BU	80.0	73.8	BU	ug/L		90	80 - 120	2	20
Selenium	ND	BU	80.0	77.6	BU	ug/L		97	80 - 120	1	20
Silver	0.40	J,DX BU	80.0	74.1	BU	ug/L		92	80 - 120	0	20
Thallium	0.23	J,DX BU	80.0	74.3	BU	ug/L		93	80 - 120	2	20
Zinc	4.2	J,DX BU	80.0	76.2	BU	ug/L		90	80 - 120	2	20

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: 570-133054-1 MS
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Outfall008_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	8.43		ug/L		105	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-133054-1 MSD
 Matrix: Water
 Analysis Batch: 317032

Client Sample ID: Outfall008_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	8.34		ug/L		104	85 - 115	1	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

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

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

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 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

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

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

Lab Sample ID: MB 570-317779/1
Matrix: Water
Analysis Batch: 317779

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			04/05/23 16:40	1

Lab Sample ID: LCS 570-317779/2
Matrix: Water
Analysis Batch: 317779

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	103		mg/L		103	77 - 116

Lab Sample ID: LCSD 570-317779/3
Matrix: Water
Analysis Batch: 317779

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	94.0		mg/L		94	77 - 116	9	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

HPLC/IC

Analysis Batch: 315979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total/NA	Water	300.0	
MB 570-315979/5	Method Blank	Total/NA	Water	300.0	
LCS 570-315979/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-315979/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 315980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total/NA	Water	300.0	
MB 570-315980/5	Method Blank	Total/NA	Water	300.0	
LCS 570-315980/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-315980/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 316506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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	

Analysis Batch: 319249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 316343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-2	Outfall008_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
570-133054-2	Outfall008_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

Prep Batch: 316386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total Recoverable	Water	200.8	
MB 570-316386/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-316386/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-316386/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-133054-1 MS	Outfall008_20230330_Comp	Total Recoverable	Water	200.8	
570-133054-1 MSD	Outfall008_20230330_Comp	Total Recoverable	Water	200.8	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

Metals

Filtration Batch: 316389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-2	Outfall008_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	
570-133054-2 MS	Outfall008_20230330_Comp_F	Dissolved	Water	Filtration	
570-133054-2 MSD	Outfall008_20230330_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 316490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-2	Outfall008_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
570-133054-2 MS	Outfall008_20230330_Comp_F	Dissolved	Water	200.8	316389
570-133054-2 MSD	Outfall008_20230330_Comp_F	Dissolved	Water	200.8	316389

Analysis Batch: 316551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total Recoverable	Water	200.8	316386
MB 570-316386/1-A	Method Blank	Total Recoverable	Water	200.8	316386
LCS 570-316386/2-A	Lab Control Sample	Total Recoverable	Water	200.8	316386
LCSD 570-316386/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	316386
570-133054-1 MS	Outfall008_20230330_Comp	Total Recoverable	Water	200.8	316386
570-133054-1 MSD	Outfall008_20230330_Comp	Total Recoverable	Water	200.8	316386

Prep Batch: 316587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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	
570-133054-1 MS	Outfall008_20230330_Comp	Total/NA	Water	245.1	
570-133054-1 MSD	Outfall008_20230330_Comp	Total/NA	Water	245.1	

Analysis Batch: 317032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total/NA	Water	245.1	316587
570-133054-2	Outfall008_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
570-133054-1 MS	Outfall008_20230330_Comp	Total/NA	Water	245.1	316587
570-133054-1 MSD	Outfall008_20230330_Comp	Total/NA	Water	245.1	316587

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

General Chemistry

Analysis Batch: 316212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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: 317039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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	

Prep Batch: 317753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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	

Analysis Batch: 317754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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

Analysis Batch: 317779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total/NA	Water	SM 2540D	
MB 570-317779/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-317779/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-317779/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-1

Client Sample ID: Outfall008_20230330_Comp

Lab Sample ID: 570-133054-1

Date Collected: 03/30/23 07:35

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	Analysis	300.0		2	4 mL	4 mL	315979	03/31/23 00:42	UIP1	EET CAL 4
	Instrument ID: IC10									
Total/NA	Analysis	300.0		2	4 mL	4 mL	315980	03/31/23 00:42	UIP1	EET CAL 4
	Instrument ID: IC10									
Total/NA	Analysis	314.0		1	4 mL	4 mL	316506	04/01/23 00:05	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	316386	03/31/23 06:19	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			316551	03/31/23 12:15	Y2WS	EET CAL 4
	Instrument ID: ICPMS09									
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 18:13	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 14:00	UXCH	EET CAL 4
	Instrument ID: ACA2									
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	317039	04/03/23 13:37	GG0B	EET CAL 4
	Instrument ID: LACHAT01									
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	316212	03/30/23 21:09	ZL7L	EET CAL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	317779	04/05/23 16:40	UWCT	EET CAL 4
	Instrument ID: BAL71									

Client Sample ID: Outfall008_20230330_Comp_F

Lab Sample ID: 570-133054-2

Date Collected: 03/30/23 07:35

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 09:51	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 16:42	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 - 008
Comp

Job ID: 570-133054-1

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.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-1

Method	Method Description	Protocol	Laboratory
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 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Distill/Ammonia	Distillation, Ammonia	None	EET CAL 4
Filtration	Sample Filtration	None	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 - 008
Comp

Job ID: 570-133054-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133054-1	Outfall008_20230330_Comp	Water	03/30/23 07:35	03/30/23 17:10
570-133054-2	Outfall008_20230330_Comp_F	Water	03/30/23 07:35	03/30/23 17:10

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

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133054-1

Login Number: 133054

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	





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 - 008 Comp

JOB NUMBER

570-133054-2

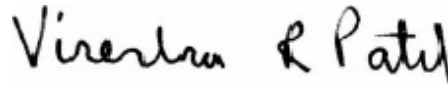
Job Notes

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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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(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-2

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 - 008 Comp

Job ID: 570-133054-2

Job ID: 570-133054-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-133054-2

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 1.8° C and 2.0° 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: Outfall008_20230330_Comp (570-133054-1), (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: Outfall008_20230330_Comp (570-133054-1), (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: Outfall008_20230330_Comp (570-133054-1), (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.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-2

Client Sample ID: Outfall008_20230330_Comp

Lab Sample ID: 570-133054-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.0000019	J,DX LR	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				24					
1,2,3,4,7,8-HxCDD	0.0000020	J,DX q LR BA	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				50					
1,2,3,7,8,9-HxCDF	0.0000015	J,DX q LR	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				71					
1,2,3,4,6,7,8-HpCDD	0.0000024	J,DX q MB LR BA	0.000047	0.0000003	ug/L	1		1613B	Total/NA
				2					
OCDD	0.000027	J,DX MB LF BA	0.000094	0.0000017	ug/L	1		1613B	Total/NA
Total PeCDF	0.0000019	J,DX	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				24					
Total HxCDD	0.0000020	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				46					
Total HxCDF	0.0000015	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				63					
Total HpCDD	0.0000051	J,DX q MB	0.000047	0.0000003	ug/L	1		1613B	Total/NA
				2					

This Detection Summary does not include radiochemical test results.



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall008_20230330_Comp

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000094	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				61					
2,3,7,8-TCDF	ND	LR	0.0000094	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				082					
1,2,3,7,8-PeCDD	ND	LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				27					
1,2,3,7,8-PeCDF	0.0000019	J,DX LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				24					
2,3,4,7,8-PeCDF	ND	LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				31					
1,2,3,4,7,8-HxCDD	0.0000020	J,DX q LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				50					
1,2,3,6,7,8-HxCDD	ND	LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				51					
1,2,3,7,8,9-HxCDD	ND	LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				46					
1,2,3,4,7,8-HxCDF	ND	LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				75					
1,2,3,6,7,8-HxCDF	ND	LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				69					
1,2,3,7,8,9-HxCDF	0.0000015	J,DX q LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				71					
2,3,4,6,7,8-HxCDF	ND	LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				63					
1,2,3,4,6,7,8-HpCDD	0.0000024	J,DX q MB LR BA	0.000047	0.0000003	ug/L		04/21/23 06:35	04/27/23 04:00	1
				2					
1,2,3,4,6,7,8-HpCDF	ND	LR	0.000047	0.0000003	ug/L		04/21/23 06:35	04/27/23 04:00	1
				8					
1,2,3,4,7,8,9-HpCDF	ND	LR BA	0.000047	0.0000004	ug/L		04/21/23 06:35	04/27/23 04:00	1
				0					
OCDD	0.0000027	J,DX MB LR BA	0.000094	0.0000017	ug/L		04/21/23 06:35	04/27/23 04:00	1
OCDF	ND	LR BA	0.000094	0.0000011	ug/L		04/21/23 06:35	04/27/23 04:00	1
Total TCDD	ND		0.0000094	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				61					
Total TCDF	ND		0.0000094	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				082					
Total PeCDD	ND		0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				27					
Total PeCDF	0.0000019	J,DX	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				24					
Total HxCDD	0.0000020	J,DX q	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				46					
Total HxCDF	0.0000015	J,DX q	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:00	1
				63					
Total HpCDD	0.0000051	J,DX q MB	0.000047	0.0000003	ug/L		04/21/23 06:35	04/27/23 04:00	1
				2					
Total HpCDF	ND		0.000047	0.0000003	ug/L		04/21/23 06:35	04/27/23 04:00	1
				8					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	80		25 - 164				04/21/23 06:35	04/27/23 04:00	1
13C-2,3,7,8-TCDF	102		24 - 169				04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,7,8-PeCDD	106		25 - 181				04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,7,8-PeCDF	121		24 - 185				04/21/23 06:35	04/27/23 04:00	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall008_20230330_Comp

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1

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	107		21 - 178	04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,4,7,8-HxCDD	75		32 - 141	04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,6,7,8-HxCDD	74		28 - 130	04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,4,7,8-HxCDF	89		26 - 152	04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,6,7,8-HxCDF	96		26 - 123	04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,7,8,9-HxCDF	102		29 - 147	04/21/23 06:35	04/27/23 04:00	1
13C-2,3,4,6,7,8-HxCDF	101		28 - 136	04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,4,6,7,8-HpCDD	68		23 - 140	04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,4,6,7,8-HpCDF	72		28 - 143	04/21/23 06:35	04/27/23 04:00	1
13C-1,2,3,4,7,8,9-HpCDF	77		26 - 138	04/21/23 06:35	04/27/23 04:00	1
13C-OCDD	100		17 - 157	04/21/23 06:35	04/27/23 04:00	1
13C-OCDF	115		17 - 157	04/21/23 06:35	04/27/23 04:00	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	97		35 - 197	04/21/23 06:35	04/27/23 04:00	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-2

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)
570-133054-1	Outfall008_20230330_Comp	97
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 - 008
 Comp

Job ID: 570-133054-2

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)
570-133054-1	Outfall008_20230330_Comp	80	102	106	121	107	75	74	89
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)
570-133054-1	Outfall008_20230330_Comp	96	102	101	68	72	77	100	115
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 - 008

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: 570-133054-2

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-2

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

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-2

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 - 008
 Comp

Job ID: 570-133054-2

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

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
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

Surrogate	LCS		Limits
	%Recovery	Qualifier	
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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
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	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
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 - 008
 Comp

Job ID: 570-133054-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

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

<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	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

<u>Surrogate</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
37Cl4-2,3,7,8-TCDD	78		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-2

Specialty Organics

Prep Batch: 669114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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
570-133054-1	Outfall008_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 - 008
Comp

Job ID: 570-133054-2

Client Sample ID: Outfall008_20230330_Comp

Lab Sample ID: 570-133054-1

Date Collected: 03/30/23 07:35

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			1061 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 04:00	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 - 008
 Comp

Job ID: 570-133054-2

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 - 008
Comp

Job ID: 570-133054-2

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 - 008
Comp

Job ID: 570-133054-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133054-1	Outfall008_20230330_Comp	Water	03/30/23 07:35	03/30/23 17:10

- 1
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CHAIN OF CUSTODY FORM



133054

Client Name/Address:		Project:							ANALYSIS REQUIRED										Field Readings							
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2033 Routine Outfall (008) Outfall 008 Comp							Total Recoverable Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti TCDD (end all congeners) (E1613B) Cl ⁻ , SO ₄ , Nitrate-N, Nitrite-N, NO ₃ +NO ₂ -N, Perchlorate (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti 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) Ammonia-N (350.2) Cyanide (SM4500-CN-E / E335.2) Total Recoverable Metals: Mercury (E245.1) Total Dissolved Metals: Mercury (E245.1) TSS (160.2 (SM2540D))										Comments							
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)																								
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: Neal Smith		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: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (end all congeners) (E1613B)	Cl ⁻ , SO ₄ , Nitrate-N, Nitrite-N, NO ₃ +NO ₂ -N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	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)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Field Readings	Comments					
1 Outfall 008	Outfall008_20230330_Comp	3/30/2023 /0735	WM	500 mL Poly	1	HNO ₃	95	Yes	X																	
			WM	1 L Glass Amber	2	None	110	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	155	No				X														
			WM	500 mL Poly	1	H ₂ SO ₄	160	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																		Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 Gal Cube	0	None	235	No	END																	
			WM	1 L Poly	1	None	185	No																		
2	Outfall008_20230330_Comp_F	3/30/2023 /0735	WM	1L Poly	1	None	205	Yes					X										Filter and preserve w/in 24hrs of receipt at lab			
			WM	borosilicate vials	2	None	320	No											X					Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
3	Outfall008_20230330_Comp_Extra	3/30/2023 /0735	WM	1 L Glass Amber	2	None	110	No			H												Hold			
			WM	1 L Glass Amber	2	None	110	No																		

Relinquished By			Date/Time			Company			Received By			Date/Time			Company			Turn-around time: (Check)		
<i>Mark Dominick</i>			3-30-2023			/1210			<i>H.A</i>			3/30/23			1210 EC			24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> _____ 48 Hour: _____ 5 Day: _____ Normal: _____		
<i>Mark</i>			3/30/23			1710 EC			<i>Mark</i>			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"/> _____		

1.8 / 1.8 2.0 / 2.0 SC11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133054-2

Login Number: 133054

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: 570-133054-2

Login Number: 133054

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

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 Comp

JOB NUMBER

570-133054-3

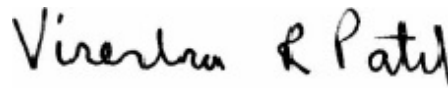
Job Notes

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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 - 008
Comp

Job ID: 570-133054-3

Qualifiers

Rad

Qualifier	Qualifier Description
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 - 008 Comp

Job ID: 570-133054-3

Job ID: 570-133054-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-133054-3

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 1.8° C and 2.0° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: Outfall008_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

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.

Outfall008_20230330_Comp (570-133054-1), (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
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 NPDES SSFL - Routine Outfall - 008 Comp

Job ID: 570-133054-3

Job ID: 570-133054-3 (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.

Outfall008_20230330_Comp (570-133054-1), (570-133036-R-1-D) and (570-133036-R-1-F DU)

Methods 903.0, 9315: Radium-226 batch 606633

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.

Outfall008_20230330_Comp (570-133054-1), (LCS 160-606633/2-A), (MB 160-606633/1-A), (310-252375-E-7-A), (310-252375-E-7-B MS) and (310-252375-E-7-C MSD)

Methods 904.0, 9320: Radium-228 batch 606636

The LCS recovered at (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 160-606636/2-A)

Methods 904.0, 9320: Radium-228 batch 606636

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.

Outfall008_20230330_Comp (570-133054-1), (LCS 160-606636/2-A), (MB 160-606636/1-A), (310-252375-E-7-D), (310-252375-E-7-E MS) and (310-252375-E-7-F MSD)

Method 905: Strontium-90 batch 607355

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.

Outfall008_20230330_Comp (570-133054-1), (LCS 160-607355/2-A), (MB 160-607355/1-A), (280-174032-D-4-A) and (280-174032-C-4-A DU)

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. Outfall008_20230330_Comp (570-133054-1), (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.

Outfall008_20230330_Comp (570-133054-1), (LCS 160-608325/2-A), (MB 160-608325/1-A), (570-133036-R-1-G) and (570-133036-R-1-I DU)

Method ExtChrom:

Method ExtChrom: Uranium Prep Batch 160-608325:

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall008_20230330_Comp (570-133054-1).

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Comp

Job ID: 570-133054-3

Job ID: 570-133054-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

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.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-3

Client Sample ID: Outfall008_20230330_Comp

Lab Sample ID: 570-133054-1

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 - 008
Comp

Job ID: 570-133054-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall008_20230330_Comp

Date Collected: 03/30/23 07:35

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.64	U	1.21	1.23	3.00	1.78	pCi/L	04/25/23 11:01	05/01/23 21:48	1
Gross Beta	1.88		0.668	0.694	4.00	0.861	pCi/L	04/25/23 11:01	05/01/23 21:48	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall008_20230330_Comp
 Date Collected: 03/30/23 07:35
 Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	4.73	U	8.85	8.87	20.0	10.7	pCi/L	04/12/23 12:53	04/19/23 03:12	1
Potassium-40	-118	U	136	136		196	pCi/L	04/12/23 12:53	04/19/23 03:12	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall008_20230330_Comp
Date Collected: 03/30/23 07:35
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.138	U	0.259	0.260	1.00	0.457	pCi/L	04/10/23 09:38	05/02/23 08:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.7		30 - 110					04/10/23 09:38	05/02/23 08:04	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall008_20230330_Comp
Date Collected: 03/30/23 07:35
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.241	U	0.455	0.455	1.00	0.790	pCi/L	04/10/23 10:47	05/01/23 12:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.7		30 - 110					04/10/23 10:47	05/01/23 12:38	1
Y Carrier	85.2		30 - 110					04/10/23 10:47	05/01/23 12:38	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall008_20230330_Comp
Date Collected: 03/30/23 07:35
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.126	U	0.349	0.349	3.00	0.607	pCi/L	04/13/23 14:59	04/24/23 19:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	88.2		30 - 110					04/13/23 14:59	04/24/23 19:27	1
Y Carrier	87.1		30 - 110					04/13/23 14:59	04/24/23 19:27	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
Comp

Job ID: 570-133054-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall008_20230330_Comp
Date Collected: 03/30/23 07:35
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133054-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-172	U	209	210	500	418	pCi/L	04/18/23 11:12	04/19/23 12:18	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall008_20230330_Comp

Lab Sample ID: 570-133054-1

Date Collected: 03/30/23 07:35

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	0.512		0.339	0.340	1.00	0.295	pCi/L	04/20/23 16:08	04/24/23 23:27	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	77.9		30 - 110					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 - 008
Comp

Job ID: 570-133054-3

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)							
570-133054-1	Outfall008_20230330_Comp	77.7							
LCS 160-606633/2-A	Lab Control Sample	88.6							
MB 160-606633/1-A	Method Blank	94.7							

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)						
570-133054-1	Outfall008_20230330_Comp	77.7	85.2						
LCS 160-606636/2-A	Lab Control Sample	88.6	83.7						
MB 160-606636/1-A	Method Blank	94.7	80.7						

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)						
570-133054-1	Outfall008_20230330_Comp	88.2	87.1						
LCS 160-607355/2-A	Lab Control Sample	86.2	84.1						
MB 160-607355/1-A	Method Blank	87.8	85.6						

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)							
570-133054-1	Outfall008_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 - 008
 Comp

Job ID: 570-133054-3

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

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-606633/1-A
Matrix: Water
Analysis Batch: 609636

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606633

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.03862	U	0.116	0.116	1.00	0.221	pCi/L	04/10/23 09:38	05/02/23 07:58	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	94.7		30 - 110					04/10/23 09:38	05/02/23 07:58	1

Lab Sample ID: LCS 160-606633/2-A
Matrix: Water
Analysis Batch: 609636

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606633

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.00		1.33	1.00	0.198	pCi/L	97	70 - 113
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	88.6		30 - 110					04/10/23 09:38	05/02/23 07:58

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-606636/1-A
Matrix: Water
Analysis Batch: 609533

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606636

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.1946	U	0.258	0.258	1.00	0.546	pCi/L	04/10/23 10:47	05/01/23 12:32	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	94.7		30 - 110					04/10/23 10:47	05/01/23 12:32	1
Y Carrier	80.7		30 - 110		04/10/23 10:47	05/01/23 12:32	1			

Lab Sample ID: LCS 160-606636/2-A
Matrix: Water
Analysis Batch: 609533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606636

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-228	7.99	10.33		1.40	1.00	0.547	pCi/L	129	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	88.6		30 - 110					04/10/23 10:47	05/01/23 12:32
Y Carrier	83.7		30 - 110		04/10/23 10:47	05/01/23 12:32	1		

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-607355/1-A
Matrix: Water
Analysis Batch: 608494

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 607355

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.1022	U	0.206	0.206	3.00	0.351	pCi/L	04/13/23 14:59	04/24/23 19:21	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier								
Sr Carrier	87.8		30 - 110		04/13/23 14:59	04/24/23 19:21	1			
Y Carrier	85.6		30 - 110		04/13/23 14:59	04/24/23 19:21	1			

Lab Sample ID: LCS 160-607355/2-A
Matrix: Water
Analysis Batch: 608494

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607355

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Strontium-90	7.33	7.451		0.832	3.00	0.288	pCi/L	102	77 - 125
Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier							
Sr Carrier	86.2		30 - 110						
Y Carrier	84.1		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

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	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
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 MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
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

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

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

<i>Tracer</i>	<i>MB MB</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	81.8		30 - 110

<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
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

<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	14.93		1.68	1.00	0.150	pCi/L	115	75 - 125

<i>Tracer</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	87.6		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Rad

Prep Batch: 606633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total/NA	Water	PrecSep-21	
MB 160-606633/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-606633/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 606636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total/NA	Water	PrecSep_0	
MB 160-606636/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-606636/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 607146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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	

Prep Batch: 607355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_20230330_Comp	Total/NA	Water	PrecSep-7	
MB 160-607355/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-607355/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	

Prep Batch: 607890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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
570-133054-1	Outfall008_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	

Prep Batch: 608682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133054-1	Outfall008_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	
LCSB 160-608682/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008
 Comp

Job ID: 570-133054-3

Client Sample ID: Outfall008_20230330_Comp

Lab Sample ID: 570-133054-1

Date Collected: 03/30/23 07:35

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			200.04 mL	1.0 g	608682	04/25/23 11:01	MST	EET SL
Total/NA	Analysis	900.0		1			609530	05/01/23 21:48	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			608045	04/19/23 03:12	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			755.36 mL	1.0 g	606633	04/10/23 09:38	KAC	EET SL
Total/NA	Analysis	903.0		1			609638	05/02/23 08:04	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			755.36 mL	1.0 g	606636	04/10/23 10:47	KAC	EET SL
Total/NA	Analysis	904.0		1			609531	05/01/23 12:38	FLC	EET SL
Instrument ID: GFPCORANGE										
Total/NA	Prep	PrecSep-7			498.13 mL	1.0 g	607355	04/13/23 14:59	KAC	EET SL
Total/NA	Analysis	905		1			608494	04/24/23 19:27	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			99.93 mL	1.0 g	607890	04/18/23 11:12	ZR	EET SL
Total/NA	Analysis	906.0		1			608161	04/19/23 12:18	REV	EET SL
Instrument ID: LSC3180										
Total/NA	Prep	ExtChrom			250.7 mL	1.0 mL	608325	04/20/23 16:08	SEH	EET SL
Total/NA	Analysis	A-01-R		1			608539	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 - 008
 Comp

Job ID: 570-133054-3

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 - 008
Comp

Job ID: 570-133054-3

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 - 008
Comp

Job ID: 570-133054-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133054-1	Outfall008_20230330_Comp	Water	03/30/23 07:35	03/30/23 17:10

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CHAIN OF CUSTODY FORM



133054

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2033 Routine Outfall (008) Outfall 008 Comp		ANALYSIS REQUIRED										Field Readings											
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: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti TCDD (end all congeners) (E1613B) Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti 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) Ammonia-N (350.2) Cyanide (SM4500-CN-E / E335.2) Total Recoverable Metals: Mercury (E245.1) Total Dissolved Metals: Mercury (E245.1) TSS (160.2 (SM2540D))										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: Neal Smith																									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (end all congeners) (E1613B)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	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)	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Field Readings	Comments				
1 Outfall 008	Outfall008_20230330_Comp	3/30/2023 /0735	WM	500 mL Poly	1	HNO ₃	95	Yes	X																
			WM	1 L Glass Amber	2	None	110	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	155	No				X													
			WM	500 mL Poly	1	H ₂ SO ₄	160	No						X											
			WM	500 mL Poly	1	NaOH	220	No										X							
			WM	2.5 Gal Cube	1	None	225	No											X						
			WM	1 L Glass Amber	1	None	230	No																	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 Gal Cube	0	None	235	No	END																
			WM	1 L Poly	1	None	185	No													X				
2	Outfall008_20230330_Comp_F	3/30/2023 /0735	WM	1L Poly	1	None	205	Yes					X									Filter and preserve w/in 24hrs of receipt at lab			
			WM	borosilicate vials	2	None	320	No										X					Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
3	Outfall008_20230330_Comp_Extra	3/30/2023 /0735	WM	1 L Glass Amber	2	None	110	No			H											Hold			
			WM	1 L Glass Amber	2	None	110	No																	

Relinquished By: <i>[Signature]</i> Date/Time: 3-30-2023/1210 Company: H:A		Received By: <i>[Signature]</i> Date/Time: 3/30/23 1210 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: 3/30/23 1710 EC Company: EC		Received By: <i>[Signature]</i> Date/Time: 3/30/23 17:10 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>	

1.8/1.8 2.0/2.0 SC11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133054-3

Login Number: 133054

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	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133054-3

Login Number: 133054

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 \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 4/8/2023 8:49:23 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 008 Grab

JOB NUMBER

570-133104-1

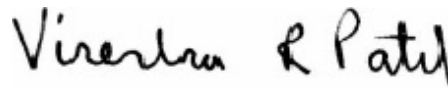
Job Notes

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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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4/8/2023 8:49:23 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: 570-133104-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 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 - 008 Grab

Job ID: 570-133104-1

Job ID: 570-133104-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-133104-1

Comments

No additional comments.

Receipt

The sample was received on 3/30/2023 5:10 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.4° C.

GC Semi VOA

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 570-317260.

Method: 1664.

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 - 008 Grat

Job ID: 570-133104-1

Client Sample ID: Outfall008_20230329_Grab

Lab Sample ID: 570-133104-1

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 - 008 Grat

Job ID: 570-133104-1

General Chemistry

Client Sample ID: Outfall008_20230329_Grab
Date Collected: 03/29/23 10:45
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133104-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.98	0.50	mg/L		04/04/23 10:31	04/05/23 13:31	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-133104-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-317260/1-A
Matrix: Water
Analysis Batch: 317720

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317260

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 10:31	04/05/23 13:31	1

Lab Sample ID: LCS 570-317260/2-A
Matrix: Water
Analysis Batch: 317720

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317260

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	38.1		mg/L		95	78 - 114

Lab Sample ID: LCSD 570-317260/3-A
Matrix: Water
Analysis Batch: 317720

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 317260

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	34.8		mg/L		87	78 - 114	9	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-133104-1

General Chemistry

Prep Batch: 317260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133104-1	Outfall008_20230329_Grab	Total/NA	Water	1664A	
MB 570-317260/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-317260/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-317260/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 317720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133104-1	Outfall008_20230329_Grab	Total/NA	Water	1664A	317260
MB 570-317260/1-A	Method Blank	Total/NA	Water	1664A	317260
LCS 570-317260/2-A	Lab Control Sample	Total/NA	Water	1664A	317260
LCSD 570-317260/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	317260



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 008 Grat

Job ID: 570-133104-1

Client Sample ID: Outfall008_20230329_Grab

Lab Sample ID: 570-133104-1

Date Collected: 03/29/23 10:45

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	1664A			1023 mL	1000 mL	317260	04/04/23 10:31	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			317720	04/05/23 13:31	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

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 - 008 Grat

Job ID: 570-133104-1

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 - 008 Grat

Job ID: 570-133104-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

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 - 008
Grab

Job ID: 570-133104-1

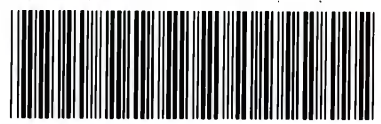
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133104-1	Outfall008_20230329_Grab	Water	03/29/23 10:45	03/30/23 17:10

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133104

CHAIN OF CUSTODY FORM

EDBPJ6UX

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [008] Outfall 008 Grab				R				ANALYSIS REQUIRED				Field Readings		Meter serial #	
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)				Oil & Grease (E1664A-HEM)								Field Readings: (Include units) Time of Readings: 1045 pH 6.58 pH unit Temp 53.7 °C		Field readings QC Checked by: <i>[Signature]</i> Date/Time: 3-29-2023/1130	
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)												Field readings QC Checked by: <i>[Signature]</i> Date/Time: 3-29-2023/1130		Comments	
Sampler: michelle dallalah				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)												Field readings QC Checked by: <i>[Signature]</i> Date/Time: 3-29-2023/1130		Comments	
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD											
Outfall 008	Outfall008_20230329_Grab	3/29/2023 <i>10:15</i>	WM	1 L Glass Amber	2	HCl	15	No	X										
 570-133104 Chain of Custody																			
Legend: R=Routine																			
Relinquished By: <i>[Signature]</i> Date/Time: 3-30-2023/1210 Company: H.A.				Received By: <i>[Signature]</i> Date/Time: 3/30/23 1216 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 1710 Company: EC				Received By: <i>[Signature]</i> Date/Time: 3/30/23 1710				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 _____											

2.4/2.4 SC11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133104-1

Login Number: 133104

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	

