

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT AREA II ISRA OUTFALL 009 PLANNED EXCAVATION AP/STP-1C-1-WEST

Introduction

This report presents supporting detailed information for the July 29, 2010 in-situ characterization sampling of prospective soil wastes from planned SSFL Area II ISRA excavations in the vicinity of the former Area II incinerator.

Background

In-situ characterization was performed for soil destined to be excavated from designated locations in SSFL Area II in accordance with the ISRA Workplan. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in or near planned excavation sites. The objective was to identify all substances potentially impacting the soil in each planned excavation footprint to the degree that hazardous waste regulatory thresholds would be exceeded.

The next step was to develop and implement a random sampling plan for each of the planned excavation footprints. The collected soil samples were analyzed by a state certified laboratory and the results evaluated to determine whether any of the identified substances were present at concentrations requiring further investigation. In addition, the initial random sampling results were evaluated to determine the statistical adequacy of the data provided for waste characterization based on the guidelines presented in U.S. EPA SW-846. Soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples would be collected and subjected to analysis, or in lieu of further testing, the soil was summarily characterized as hazardous. Statistical analyses described in SW-846 are performed as necessary to determine minimum sample point requirements and the upper confidence levels of analytical results.

AP/STP-1C-1-West is part of a larger planned excavation footprint, AP/STP-1C-1. The footprint was subdivided into three (3) areas for sampling purposes: AP/STP-1C-1-East, AP/STP-1C-1-West, and AP/STP-1C-1-Main. This was necessary because the highly irregular shape of the original footprint suggested the possibility of a characteristically heterogeneous wastestream. To assure that randomly identified sample collection points did not cluster in any particular area to the exclusion of other areas, thereby potentially voiding the representativeness of the analytical results, the two significant protuberances from the main body of the planned excavation were addressed independently.

The review of historical information and existing analytical data relevant to planned excavation AP/STP-1C-1-West was based partly on the Group 2 RFI results. Evaluation of these data and other sources of relevant information, including recent sampling conducted specifically for ISRA, suggested that Regulated Metals (CAM17), Volatile Organic Compounds (VOC), Polychlorinated Biphenyls (PCB), and Petroleum Hydrocarbons should be addressed in the AP/STP-1C-1-West excavation footprint. A random sampling plan was developed for collection of five (5) samples from the planned excavation footprint, taking into account the relatively small area to be excavated. The samples were analyzed for CAM 17 metals, VOCs, PCBs, and Petroleum Hydrocarbons. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the planned excavation area at AP/STP-1C-1-West are presented in Test America report ITG2802 issued on 8/9/10. Regulated Metals were below 10-Times their respective California Soluble Threshold Limit Concentration (STLC) threshold in two of the samples, but in the three remaining samples, elevated concentrations of Silver were detected at 110 parts per million (ppm), 69 ppm, and 66 ppm. Also, in the same three samples, Chromium was detected above its 10X STLC threshold at 93 ppm, 55 ppm, and 50 ppm. Leachate tests, the California Waste Extraction Test (WET) and the RCRA Toxicity Characteristic Leaching Procedure (TCLP), were performed as required on the samples with elevated Silver and Chromium. The one required TCLP resulted in a non-detection for Silver. The required WET results for Silver yielded concentrations of 0.42 mg/L, 0.55 mg/L, and 2.3 mg/L, all of which are below the STLC hazardous waste limit of 5 mg/L. Similar leachate test results were obtained for the samples with elevated Chromium concentrations, although only the WET was required. Chromium in the WET leachate was detected at 1.5 mg/L, 1.5 mg/L, and 3.2 mg/L. These concentrations are below the STLC limit for Chromium, which is 5 mg/L.

With two exceptions, both from the same sample, no VOCs were detected. In one case, p-Isopropyltoluene was detected at a concentration of 0.00079 ppm, which is insignificant with respect to hazardous waste regulations. Acetone was also detected, exhibiting a concentration of 0.0089 ppm. This result was "J-flagged," meaning the concentration was so close to the detection capability of the laboratory test that the reported concentration was estimated and not reliably measured. The Acetone was not detected in any of the other samples despite the satisfactorily low analytical Method Detection Limits (range 0.0078 ppm - 0.0088 ppm), no historical records have been found suggesting any kind of solvent related activities in the area, and the very low concentration detected in the sample is consistent with soil vapor migration or volatilization of a groundwater transported contaminant from an unknown source. Furthermore, Acetone is potentially a laboratory artifact, unrelated to the soil from which samples were collected, especially at the very low concentrations that were detected. For these reasons, the soils excavated from AP/STP-1C-1-West are not being characterized as "F-Listed" wastes.

Four of the samples exhibited low concentrations of PCBs in the form of Aroclor 1254. The detections were 0.040 ppm, 0.082 ppm, 0.110 ppm, and 0.150 ppm. All of these detected concentrations are well below the 50 ppm 10X STLC threshold. Very low Petroleum Hydrocarbon detections were observed. The Petroleum Hydrocarbon concentrations for the C10-C40 fraction ranged between 6.2 ppm and 68 ppm.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of SSFL Area II AP/STP-1C-1-West:

- Is Not a Listed Waste (analytical results and generator knowledge)
- Is Not ignitable (generator knowledge)
- Is Not corrosive (generator knowledge)
- Is Not reactive (generator knowledge)
- Is Not toxic (analytical results and generator knowledge)
 - Is Not Extremely or Acutely Hazardous Waste
 - Does not exceed any RCRA or Title 22 characteristic thresholds
 - Is Not subject to the Prop. 65 listing if it is applied to 22 CCR 66261.24(a)(7)
 - Is Not subject to Title 22 Appendix X list
 - Is Not known by experience or testing to pose a hazard to human health or environment

because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in AP/STP-1C-1-West is NON-HAZARDOUS.

Outfall 009
Sample Locations for AP/STP - 1C,
AP/STP - 1B, and AP/STP - 1D

Base Map Legend











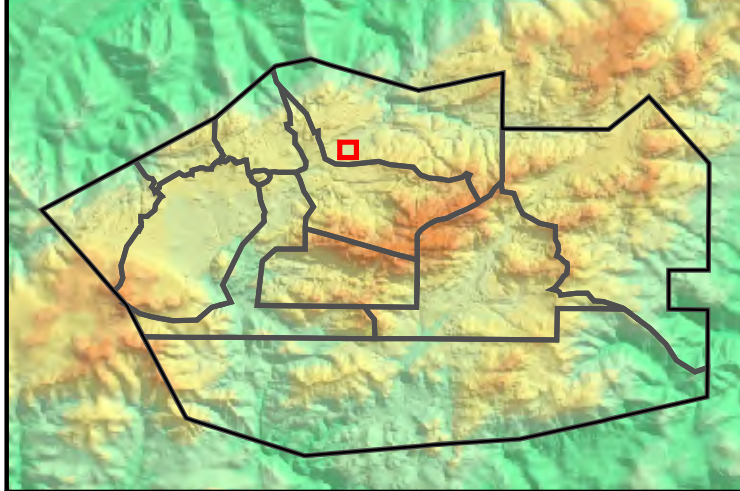
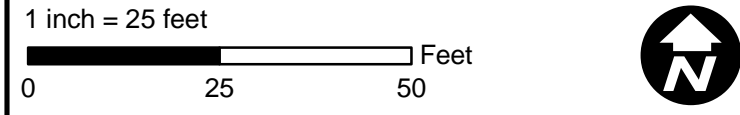
-  Administrative Area Boundary
-  RFI Site Boundary
-  Report Group Boundary
-  NPDES Outfall
-  A/C Paving
-  Drainage
-  Non Jurisdictional Surface Water Pathway
-  Surface Water Divide
-  Elevation Contour

Figure Legend

-  Waste Characterization Sample



Document: ISRA_Plots_Working_AP-STP-1C_SampleLocations.mxd Date: Sep 02, 2010



INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

**WASTE CHARACTERIZATION SAMPLE RESULTS – AP/STP-1C-1 (West)
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY**

							Object Name:	APWC0001	APWC0002	APWC0003	APWC0004	APWC0005
							Sample Name:	APWC0001S001	APWC0002S001	APWC0003S001	APWC0004S001	APWC0005S001
							Collection Date:	7/30/2010	7/30/2010	7/30/2010	7/30/2010	7/30/2010
							Sample Depth (feet):	0.5 - 1.0	0.0 - 0.5	0.5 - 1.0	0.5 - 1.0	0.5 - 1.0
ANALYTE	UNITS	TCLC	WET Leachate Testing Trigger ^a	TCLP Leachate Testing Trigger ^b	STLC	TCLP	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	
METALS												
Antimony	mg/kg	500	150	--	--	--	<0.88	<0.87	0.88 J	<0.88	<0.87	
Arsenic	mg/kg	500	50	100	--	--	4.5	4.6	5.2	4.2	4.7	
Barium	mg/kg	10,000	1,000	2,000	--	--	93	86	89	96	87	
Beryllium	mg/kg	75	7.5	--	--	--	0.56	0.59	0.63	0.52	0.6	
Cadmium	mg/kg	100	10	20	--	--	1.4	0.21 J	1.9	3.8	<0.20	
Chromium	mg/kg	500	50	100	--	--	50	26	55	93	20	
Chromium, WET	mg/L	--	--	--	5	--	1.5	--	1.5	3.2	--	
Cobalt	mg/kg	8,000	800	--	--	--	4.5	4.7	5.1	4.5	4.9	
Copper	mg/kg	2,500	250	--	--	--	14	9.5	39	22	9.6	
Lead	mg/kg	1,000	50	100	--	--	13	7.7	16	16	6.4	
Mercury	mg/kg	20	2	4	--	--	0.25	0.019 J	1.4	0.62	<0.012	
Molybdenum	mg/kg	3,500	3,500	--	--	--	1.1 J	0.88 J	1.3 J	1.2 J	0.67 J	
Nickel	mg/kg	2,000	200	--	--	--	15	12	16	15	12	
Selenium	mg/kg	100	10	20	--	--	1.1 J	<0.99	1.4 J	<1	1.1 J	
Silver	mg/kg	500	50	100	--	--	69	33	110	66	1.8	
Silver, WET	mg/L	--	--	--	5	--	0.55	--	0.42	2.3	--	
Silver, TCLP	mg/L	--	--	--	--	5	--	--	<0.060	--	--	
Thallium	mg/kg	700	70	--	--	--	<0.8	<0.79	<0.79	<0.8	<0.79	
Vanadium	mg/kg	2,400	240	--	--	--	31	34	33	28	32	
Zinc	mg/kg	5,000	2,500	--	--	--	72 B	57 B	110 B	110 B	46 B	
PCBs												
Aroclor 1016	ug/kg	50,000	50,000	--	--	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	
Aroclor 1221	ug/kg	50,000	50,000	--	--	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	
Aroclor 1232	ug/kg	50,000	50,000	--	--	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	
Aroclor 1242	ug/kg	50,000	50,000	--	--	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	
Aroclor 1248	ug/kg	50,000	50,000	--	--	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	
Aroclor 1254	ug/kg	50,000	50,000	--	--	--	110	40 J	82	150	<50 {<12}	
Aroclor 1260	ug/kg	50,000	50,000	--	--	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	
TPH												
Gasoline Range Organics (C6-C12)	mg/kg	--	--	--	--	--	<0.37 {<0.14}	0.12 J	<0.42 {<0.16}	<0.31 {<0.12}	<0.34 {<0.13}	
EFH (C10 - C24)	mg/kg	--	--	--	--	--	5	4.5 J	10	17	<5 {<3.5}	
EFH (C10 - C40)	mg/kg	--	--	--	--	--	29	21	47	68	6.2	
EFH (C25 - C40)	mg/kg	--	--	--	--	--	24	16	37	51	5.4	
VOCs												
1,1,1,2-Tetrachloroethane	ug/kg	--	--	--	--	--	<2.2 {<0.63}	<2.2 {<0.62}	<2.2 {<0.63}	<2 {<0.57}	<2 {<0.56}	

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

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							Sample Name:	APWC0001S001	APWC0002S001	APWC0003S001	APWC0004S001	APWC0005S001
							Collection Date:	7/30/2010	7/30/2010	7/30/2010	7/30/2010	7/30/2010
							Sample Depth (feet):	0.5 - 1.0	0.0 - 0.5	0.5 - 1.0	0.5 - 1.0	0.5 - 1.0
ANALYTE	UNITS	TCLC	WET Leachate Testing Trigger ^a	TCLP Leachate Testing Trigger ^b	STLC	TCLP	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	
1,1,1-Trichloroethane	ug/kg	--	--	--	--	--	<1.1 {<0.77}	<1.1 {<0.77}	<1.1 {<0.77}	<0.99 {<0.69}	<0.98 {<0.68}	
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	--	--	<2.2 {<0.95}	<2.2 {<0.94}	<2.2 {<0.95}	<2 {<0.85}	<2 {<0.84}	
1,1,2-Trichloroethane	ug/kg	--	--	--	--	--	<1.1 {<0.96}	<1.1 {<0.95}	<1.1 {<0.96}	<0.99 {<0.86}	<0.98 {<0.85}	
1,1-Dichloroethane	ug/kg	--	--	--	--	--	<1.1 {<0.55}	<1.1 {<0.55}	<1.1 {<0.55}	<0.99 {<0.5}	<0.98 {<0.49}	
1,1-Dichloroethene	ug/kg	--	--	14,000	--	--	<2.2 {<0.66}	<2.2 {<0.66}	<2.2 {<0.66}	<2 {<0.6}	<2 {<0.59}	
1,1-Dichloropropene	ug/kg	--	--	--	--	--	<1.1 {<0.44}	<1.1 {<0.44}	<1.1 {<0.44}	<0.99 {<0.4}	<0.98 {<0.39}	
1,2,3-Trichlorobenzene	ug/kg	--	--	--	--	--	<2.2 {<1.1}	<2.2 {<1.1}	<2.2 {<1.1}	<2 {<0.99}	<2 {<0.98}	
1,2,3-Trichloropropane	ug/kg	--	--	--	--	--	<2.2 {<1.1}	<2.2 {<1.1}	<2.2 {<1.1}	<2 {<0.99}	<2 {<0.98}	
1,2,4-Trichlorobenzene	ug/kg	--	--	--	--	--	<2.2 {<1.1}	<2.2 {<1.1}	<2.2 {<1.1}	<2 {<0.99}	<2 {<0.98}	
1,2,4-Trimethylbenzene	ug/kg	--	--	--	--	--	<1.1 {<0.86}	<1.1 {<0.86}	<1.1 {<0.86}	<0.99 {<0.77}	<0.98 {<0.76}	
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	--	--	<11 {<1.7}	<11 {<1.6}	<11 {<1.7}	<9.9 {<1.5}	<9.8 {<1.5}	
1,2-Dibromoethane (EDB)	ug/kg	--	--	--	--	--	<1.1 {<0.88}	<1.1 {<0.88}	<1.1 {<0.88}	<0.99 {<0.79}	<0.98 {<0.78}	
1,2-Dichlorobenzene	ug/kg	--	--	--	--	--	<1.1 {<1}	<1.1 {<1}	<1.1 {<1}	<0.99 {<0.94}	<0.98 {<0.93}	
1,2-Dichloroethane	ug/kg	--	--	10,000	--	--	<1.1 {<0.88}	<1.1 {<0.88}	<1.1 {<0.88}	<0.99 {<0.79}	<0.98 {<0.78}	
1,2-Dichloropropane	ug/kg	--	--	--	--	--	<1.1 {<0.88}	<1.1 {<0.88}	<1.1 {<0.88}	<0.99 {<0.79}	<0.98 {<0.78}	
1,3,5-Trimethylbenzene	ug/kg	--	--	--	--	--	<1.1 {<0.69}	<1.1 {<0.69}	<1.1 {<0.7}	<0.99 {<0.62}	<0.98 {<0.62}	
1,3-Dichlorobenzene	ug/kg	--	--	--	--	--	<1.1 {<0.93}	<1.1 {<0.92}	<1.1 {<0.93}	<0.99 {<0.83}	<0.98 {<0.82}	
1,3-Dichloropropane	ug/kg	--	--	--	--	--	<1.1 {<0.69}	<1.1 {<0.69}	<1.1 {<0.7}	<0.99 {<0.62}	<0.98 {<0.62}	
1,4-Dichlorobenzene	ug/kg	--	--	--	--	--	<1.1 {<1}	<1.1 {<1}	<1.1 {<1}	<0.99 {<0.93}	<0.98 {<0.92}	
2,2-Dichloropropane	ug/kg	--	--	--	--	--	<1.1 {<0.66}	<1.1 {<0.66}	<1.1 {<0.66}	<0.99 {<0.6}	<0.98 {<0.59}	
2-Butanone (MEK)	ug/kg	--	--	4,000,000	--	--	<11 {<6.6}	<11 {<6.6}	<11 {<6.6}	<9.9 {<6}	<9.8 {<5.9}	
2-Chlorotoluene	ug/kg	--	--	--	--	--	<2.2 {<0.96}	<2.2 {<0.95}	<2.2 {<0.96}	<2 {<0.86}	<2 {<0.85}	
2-Hexanone	ug/kg	--	--	--	--	--	<11 {<10}	<11 {<10}	<11 {<10}	<9.9 {<9}	<9.8 {<8.9}	
4-Chlorotoluene	ug/kg	--	--	--	--	--	<2.2 {<0.81}	<2.2 {<0.81}	<2.2 {<0.82}	<2 {<0.73}	<2 {<0.72}	
4-Methyl-2-pentanone (MIBK)	ug/kg	--	--	--	--	--	<5.5 {<5}	<5.5 {<4.9}	<5.5 {<5}	<5 {<4.5}	<4.9 {<4.4}	
Acetone	ug/kg	--	--	--	--	--	<11 {<8.8}	8.9 J	<11 {<8.8}	<9.9 {<7.9}	<9.8 {<7.8}	
Benzene	ug/kg	--	--	10,000	--	--	<1.1 {<0.55}	<1.1 {<0.55}	<1.1 {<0.55}	<0.99 {<0.5}	<0.98 {<0.49}	
Bromobenzene	ug/kg	--	--	--	--	--	<2.2 {<0.93}	<2.2 {<0.92}	<2.2 {<0.93}	<2 {<0.83}	<2 {<0.82}	
Bromochloromethane	ug/kg	--	--	--	--	--	<2.2 {<0.99}	<2.2 {<0.99}	<2.2 {<0.99}	<2 {<0.89}	<2 {<0.88}	
Bromodichloromethane	ug/kg	--	--	--	--	--	<1.1 {<0.55}	<1.1 {<0.55}	<1.1 {<0.55}	<0.99 {<0.5}	<0.98 {<0.49}	
Bromoform	ug/kg	--	--	--	--	--	<2.2 {<0.88}	<2.2 {<0.88}	<2.2 {<0.88}	<2 {<0.79}	<2 {<0.78}	
Bromomethane	ug/kg	--	--	--	--	--	<2.2 {<1}	<2.2 {<1}	<2.2 {<1}	<2 {<0.91}	<2 {<0.9}	
Carbon Disulfide	ug/kg	--	--	--	--	--	<5.5 {<1.1}	<5.5 {<1.1}	<5.5 {<1.1}	<5 {<0.96}	<4.9 {<0.95}	
Carbon tetrachloride	ug/kg	--	--	10,000	--	--	<2.2 {<0.55}	<2.2 {<0.55}	<2.2 {<0.55}	<2 {<0.5}	<2 {<0.49}	
Chlorobenzene	ug/kg	--	--	2,000,000	--	--	<1.1 {<0.57}	<1.1 {<0.57}	<1.1 {<0.57}	<0.99 {<0.52}	<0.98 {<0.51}	
Chloroethane	ug/kg	--	--	--	--	--	<2.2 {<1.7}	<2.2 {<1.6}	<2.2 {<1.7}	<2 {<1.5}	<2 {<1.5}	

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							Sample Depth (feet):	0.5 - 1.0	0.0 - 0.5	0.5 - 1.0	0.5 - 1.0	0.5 - 1.0
ANALYTE	UNITS	TTLIC	WET Leachate Testing Trigger ^a	TCLP Leachate Testing Trigger ^b	STLC	TCLP	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	
Chloroform	ug/kg	--	--	120,000	--	--	<1.1 {<0.55}	<1.1 {<0.55}	<1.1 {<0.55}	<0.99 {<0.5}	<0.98 {<0.49}	
Chloromethane	ug/kg	--	--	--	--	--	<2.2 {<1.1}	<2.2 {<1.1}	<2.2 {<1.1}	<2 {<0.99}	<2 {<0.98}	
cis-1,2-Dichloroethene	ug/kg	--	--	--	--	--	<1.1 {<0.91}	<1.1 {<0.91}	<1.1 {<0.92}	<0.99 {<0.82}	<0.98 {<0.81}	
cis-1,3-Dichloropropene	ug/kg	--	--	--	--	--	<1.1 {<0.48}	<1.1 {<0.48}	<1.1 {<0.49}	<0.99 {<0.44}	<0.98 {<0.43}	
Dibromochloromethane	ug/kg	--	--	--	--	--	<1.1 {<0.77}	<1.1 {<0.77}	<1.1 {<0.77}	<0.99 {<0.69}	<0.98 {<0.68}	
Dibromomethane	ug/kg	--	--	--	--	--	<1.1 {<0.99}	<1.1 {<0.99}	<1.1 {<0.99}	<0.99 {<0.89}	<0.98 {<0.88}	
Dichlorodifluoromethane	ug/kg	--	--	--	--	--	<5.5 {<1.7}	<5.5 {<1.6}	<5.5 {<1.7}	<5 {<1.5}	<4.9 {<1.5}	
Ethylbenzene	ug/kg	--	--	--	--	--	<1.1 {<0.55}	<1.1 {<0.55}	<1.1 {<0.55}	<0.99 {<0.5}	<0.98 {<0.49}	
Hexachlorobutadiene	ug/kg	--	--	--	--	--	<2.2 {<0.88}	<2.2 {<0.88}	<2.2 {<0.88}	<2 {<0.79}	<2 {<0.78}	
Isopropylbenzene	ug/kg	--	--	--	--	--	<1.1 {<0.59}	<1.1 {<0.59}	<1.1 {<0.6}	<0.99 {<0.54}	<0.98 {<0.53}	
m,p-Xylenes	ug/kg	--	--	--	--	--	<2.2 {<0.88}	<2.2 {<0.88}	<2.2 {<0.88}	<2 {<0.79}	<2 {<0.78}	
Methylene chloride	ug/kg	--	--	--	--	--	<11 {<7.2}	<11 {<7.1}	<11 {<7.2}	<9.9 {<6.4}	<9.8 {<6.4}	
Methyl-tert-butyl Ether (MTBE)	ug/kg	--	--	--	--	--	<2.2 {<1.1}	<2.2 {<1.1}	<2.2 {<1.1}	<2 {<0.99}	<2 {<0.98}	
n-Butylbenzene	ug/kg	--	--	--	--	--	<2.2 {<0.79}	<2.2 {<0.79}	<2.2 {<0.79}	<2 {<0.71}	<2 {<0.7}	
n-Propylbenzene	ug/kg	--	--	--	--	--	<1.1 {<0.67}	<1.1 {<0.67}	<1.1 {<0.67}	<0.99 {<0.61}	<0.98 {<0.6}	
Naphthalene	ug/kg	--	--	--	--	--	<2.2 {<1.2}	<2.2 {<1.2}	<2.2 {<1.2}	<2 {<1.1}	<2 {<1.1}	
o-Xylene	ug/kg	--	--	--	--	--	<1.1 {<0.55}	<1.1 {<0.55}	<1.1 {<0.55}	<0.99 {<0.5}	<0.98 {<0.49}	
p-Isopropyltoluene	ug/kg	--	--	--	--	--	<1.1 {<0.79}	0.79 J	<1.1 {<0.79}	<0.99 {<0.71}	<0.98 {<0.7}	
sec-Butylbenzene	ug/kg	--	--	--	--	--	<2.2 {<0.74}	<2.2 {<0.73}	<2.2 {<0.74}	<2 {<0.66}	<2 {<0.66}	
Styrene	ug/kg	--	--	--	--	--	<1.1 {<0.64}	<1.1 {<0.64}	<1.1 {<0.64}	<0.99 {<0.58}	<0.98 {<0.57}	
tert-Butylbenzene	ug/kg	--	--	--	--	--	<2.2 {<0.68}	<2.2 {<0.68}	<2.2 {<0.68}	<2 {<0.62}	<2 {<0.61}	
Tetrachloroethene	ug/kg	--	--	14,000	--	--	<1.1 {<0.54}	<1.1 {<0.54}	<1.1 {<0.54}	<0.99 {<0.49}	<0.98 {<0.48}	
Toluene	ug/kg	--	--	--	--	--	<1.1 {<0.55}	<1.1 {<0.55}	<1.1 {<0.55}	<0.99 {<0.5}	<0.98 {<0.49}	
trans-1,2-Dichloroethene	ug/kg	--	--	--	--	--	<1.1 {<0.77}	<1.1 {<0.77}	<1.1 {<0.77}	<0.99 {<0.69}	<0.98 {<0.68}	
trans-1,3-Dichloropropene	ug/kg	--	--	--	--	--	<1.1 {<0.67}	<1.1 {<0.67}	<1.1 {<0.67}	<0.99 {<0.61}	<0.98 {<0.6}	
Trichloroethene	ug/kg	2,040,000	2,040,000	10,000	--	--	<1.1 {<0.55}	<1.1 {<0.55}	<1.1 {<0.55}	<0.99 {<0.5}	<0.98 {<0.49}	
Trichlorofluoromethane	ug/kg	--	--	--	--	--	<2.2 {<0.59}	<2.2 {<0.59}	<2.2 {<0.6}	<2 {<0.54}	<2 {<0.53}	
Vinyl acetate	ug/kg	--	--	--	--	--	<5.5 {<2.8}	<5.5 {<2.7}	<5.5 {<2.8}	<5 {<2.5}	<4.9 {<2.4}	
Vinyl chloride	ug/kg	--	--	4,000	--	--	<2.2 {<1}	<2.2 {<1}	<2.2 {<1}	<2 {<0.9}	<2 {<0.89}	
RADIONUCLIDES	--	--	--	--	--	--	R	R	R	R	R	

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

**WASTE CHARACTERIZATION SAMPLE RESULTS – AP/STP
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY**

Notes:

--" - not analyzed / not applicable

<5 - Analyte not detected at or above the stated method detection limit (metals) or analyte not detected at or above the stated reporting limit (organics)

{<1} - Analyte not detected at or above the stated method detection limit (organics)

^a - WET Leachate Testing Trigger = STLC limit * 10

^b - TCLP Leachate Testing Trigger = TCLP limit * 20

^c Waste characterization sample results not validated

B - Analyte was detected in the associated method blank

J - Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

M1 - The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).

µg/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

mg/L - milligrams per liter

R - Radiological analysis includes gamma spectroscopy (Na-22, K-40, Mn-54, Co-60, Cs-134, Cs-137, Eu-152, Eu-154, Th-228, Th-232, U-235, U-238 and Am-241), strontium-90, and tritium. Boeing will be preparing a document that provides the radiological results and statistical analysis of these waste characterization samples.

R-3 - The RPD exceeded the acceptance limit due to sample matrix effects