

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA AREA II PLANNED EXCAVATION LOX-1B-2

Introduction

This report presents supporting detailed information relating to the October 11 through October 12, 2010 in-situ characterization of prospective soil wastes at the planned ISRA excavation LOX-1B-2 in SSFL Area II.

Background

Soil to be excavated from designated locations in accordance with the ISRA Workplan for SSFL Area II was characterized prior to excavation. A step-by-step approach was followed to accomplish the in-situ characterization. The first step was to review available historical activity and chemical usage information, as well as existing analytical data from past soil sampling in the area. The objective was to identify all substances that could have an impact on determining whether soil in the planned excavation footprint was hazardous or not.

Once potential impacts to the soil were identified, the next step was to develop a random sampling plan for each planned excavation footprint. Samples were collected according to the plan and analyzed by a state certified laboratory. Analytical results provided by the laboratory were evaluated to determine whether any regulated substances were present at concentrations exceeding regulatory thresholds governing waste management. Furthermore, the results were also evaluated to assure adequacy for waste characterization purposes based upon the guidelines presented in U.S. EPA SW-846. If the number of samples was not sufficient, additional samples would be collected and analyzed. In lieu of further sampling, the soil could be characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation LOX-1B-2 was based largely on the Group 2 RFI results. Evaluation of these data and other sources of relevant information suggested that Regulated Metals, Petroleum Hydrocarbons (TPH), and Volatile Organic Compounds (VOC) should be addressed in the LOX-1B-2 excavation footprint. A random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. The samples were analyzed for CAM 17 metals, TPH, and VOCs. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the LOX-1B-2 planned excavation area are presented in TestAmerica reports ITJ1144, issued on 10/18/10, and ITJ1207, issued on 10/20/10. Regulated metals were detected, but in no case exceeded any applicable regulatory thresholds. With respect to hazardous waste regulations, Chromium was the most significant detection, with concentrations ranging from 19 mg/kg to 27 mg/kg. Lead was detected at a maximum concentration of 11 mg/kg. Both metals were below the California 10 X STLC hazardous waste threshold of 50 ppm. Low concentrations of TPH were detected. C10 - C40 Petroleum Hydrocarbons concentrations ranged from nondetect to 130 mg/kg. TPH itself is not directly regulated and does not begin to affect waste disposal until concentrations attain 100 mg/kg. However, the 100 mg/kg limit relates to Subtitle D (MSW) landfill acceptance of gasoline and diesel impacted soils. The Petroleum fraction driving the elevated concentration at LOX-1B-1 is in the C25 - C40 range,

which is in the Oil range. The Subtitle D landfill acceptance limit for oil impacted soil is 1,000 mg/kg. Despite very low Method Detection Limits, no VOCs were detected.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of SSFL Area II LOX-1B-2:

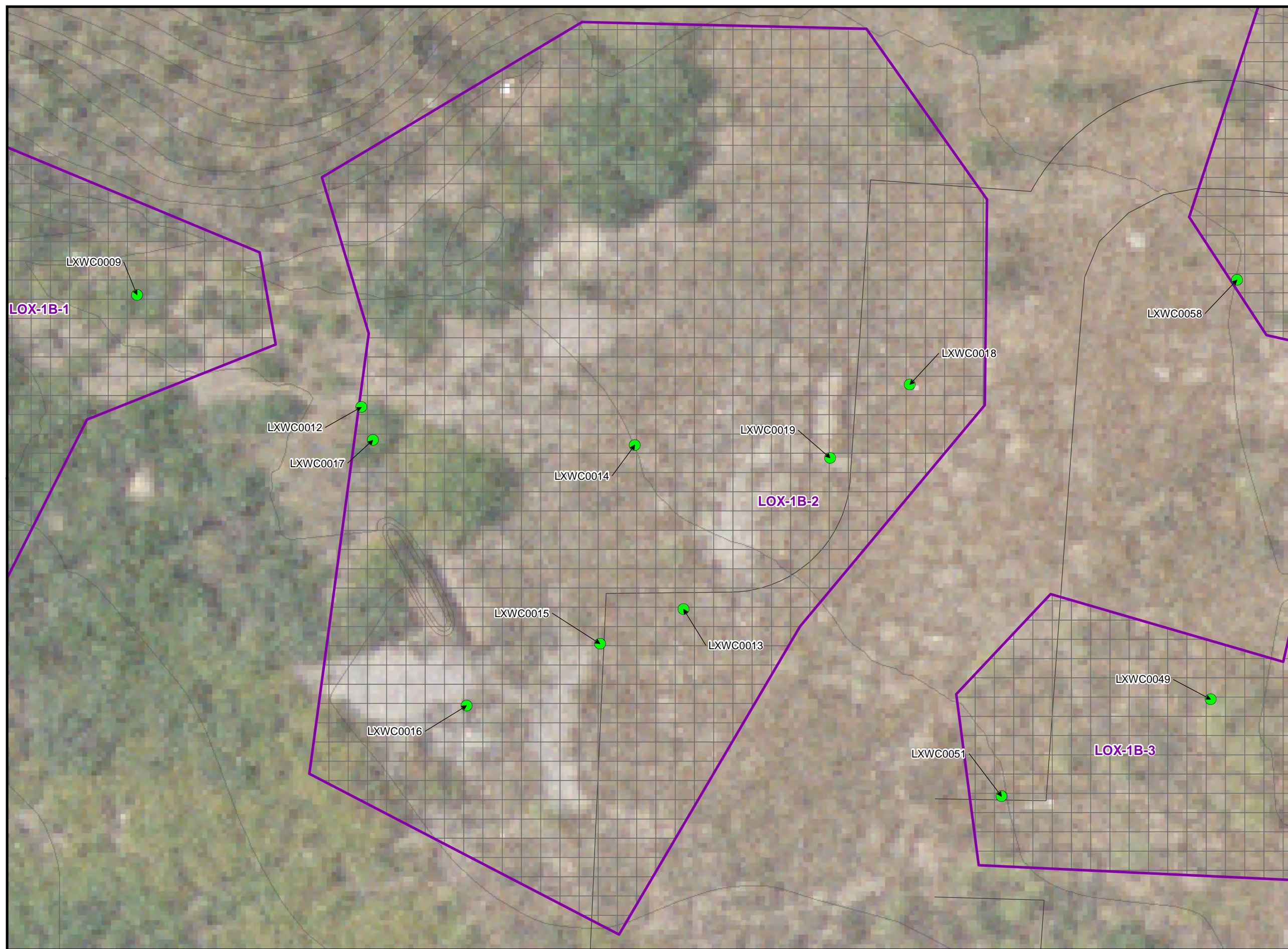
- Is Not a Listed Waste (analytical results and generator knowledge)
- Is Not ignitable (generator knowledge)
- Is Not corrosive (generator knowledge)
- Is Not reactive (generator knowledge)
- Is Not toxic (analytical results and generator knowledge)
 - Is Not Extremely or Acutely Hazardous Waste
 - Does not exceed any RCRA or Title 22 characteristic thresholds
 - Is Not subject to the Prop. 65 listing
 - 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 SSFL Area II LOX-1B-2 is NON-HAZARDOUS.

Outfall 009 Waste Characterization Sample Locations for LOX-1B-2

- 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

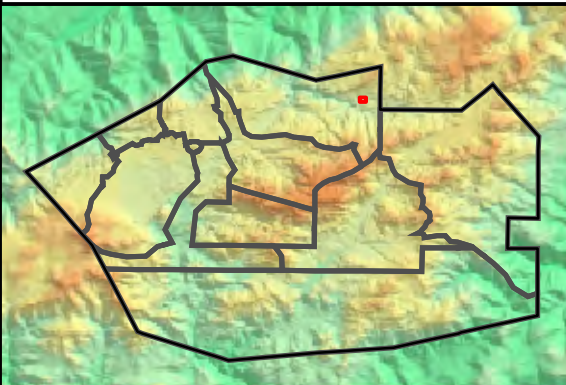
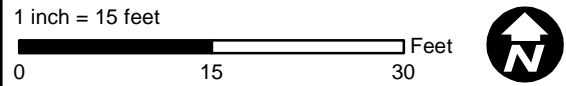
- Base Map Legend**
- ISRA Excavation Boundary
 - Waste Characterization Sample Location



Note:

1. Sample locations and depths were randomly selected. The 3ft x 3ft grid used in the sample location selection process is shown.
2. Aerial imagery from Google Earth, 2010.
3. Topographic contours from Lidar data, 2008.

Document: ISRA_Plots_Working_LOX-1-B2_SampleLocations_WC.mxd Date: Nov 05, 2010



INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

WASTE CHARACTERIZATION SAMPLE RESULTS – LOX-1B-2
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

		Object Name: Sample Name: Collection Date: Sample Depth (feet):			LXWC0012 LXWC0012S001 10/12/2010 1.3 - 1.8	LXWC0013 LXWC0013S001 10/12/2010 1.1 - 1.6	LXWC0014 LXWC0014S001 10/12/2010 1.3 - 1.8	LXWC0015 LXWC0015S001 10/12/2010 0.3 - 0.8	LXWC0016 LXWC0016S001 10/12/2010 0.8 - 1.3	LXWC0017 LXWC0017S001 10/12/2010 0 - 0.4	LXWC0018 LXWC0018S001 10/11/2010 0.7 - 1.2	LXWC0019 LXWC0019S001 10/11/2010 0 - 0.3
ANALYTE	UNITS	TTLIC	WET Leachate Testing Trigger ^a	TCLP Leachate Testing Trigger ^b	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c
METALS												
Antimony	mg/kg	500	150	--	<0.87	<0.87	<0.87	<0.87	<0.88	<0.88	<0.87	1.5 J
Arsenic	mg/kg	500	50	100	4	5.7	5.7	5.1	4.7	5.8	6.6	5.4
Barium	mg/kg	10,000	1,000	2,000	63	75	88	85	77	92	69	89
Beryllium	mg/kg	75	7.5	--	0.42 J	0.53	0.57	0.54	0.47 J	0.39 J	0.55	0.52
Cadmium	mg/kg	100	10	20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	mg/kg	500	50	100	20	24	25	27	24	25	19	25
Cobalt	mg/kg	8,000	800	--	5.3	5.6	6.6	6.1	5.6	5.2	5.4	6.2
Copper	mg/kg	2,500	250	--	7.4	8.3	9.8	9.6	9.2	8.4	7.3	15
Lead	mg/kg	1,000	50	100	4.9	4.9	6.2	6.4	5.1	4.6	4.9	11
Mercury	mg/kg	20	2	4	<0.012	<0.012	<0.012	<0.012	0.17	<0.012	<0.012	<0.012
Molybdenum	mg/kg	3,500	3,500	--	0.86 J	0.71 J	0.64 J	1.2 J	2	0.65 J	0.51 J	1.9 J
Nickel	mg/kg	2,000	200	--	13	16	18	19	17	18	12	17
Selenium	mg/kg	100	10	20	<0.99	<0.99	<0.99	<0.99	<1	<1	<0.99	<0.99
Silver	mg/kg	500	50	100	<0.79	<0.79	<0.79	<0.79	<0.8	<0.8	<0.79	<0.79
Thallium	mg/kg	700	70	--	2.9 J	1 J	1.2 J	1.5 J	1.1 J	1.7 J	0.92 J	2 J
Vanadium	mg/kg	2,400	240	--	31	36	37	38	34	39	33	37
Zinc	mg/kg	5,000	2,500	--	34 B	37 B	42 B	39 B	40 B	43 B	44 B	52 B
TPH												
Gasoline Range Organics (C6-C12)	mg/kg	--	--	--	<0.38 {<0.14}	<0.39 {<0.15}	<0.39 {<0.14}	<0.39 {<0.15}	<0.39 {<0.15}	<0.39 {<0.15}	<0.4 {<0.15}	<0.39 {<0.15}
EFH (C10 - C24)	mg/kg	--	--	--	<5 {<3.5}	<5 {<3.5}	<5 {<3.5}	<5 {<3.5}	<5 {<3.5}	<5 {<3.5}	<5 {<3.5}	14
EFH (C25 - C40)	mg/kg	--	--	--	<5 {<3.5}	15	<5 {<3.5}	<5 {<3.5}	5.8	<5 {<3.5}	3.8 J	120
EFH (C10 - C40)	mg/kg	--	--	--	<5 {<3.5}	16	<5 {<3.5}	<5 {<3.5}	6.8	<5 {<3.5}	4.3 J	130
VOCs												
1,1,1,2-Tetrachloroethane	ug/kg	--	--	--	<2 {<0.57}	<2 {<0.57}	<2 {<0.56}	<2 {<0.56}	<2 {<0.57}	<2 {<0.57}	<2 {<0.57}	<2 {<0.57}
1,1,1-Trichloroethane	ug/kg	--	--	--	<0.99 {<0.69}	<1 {<0.7}	<0.99 {<0.69}	<0.98 {<0.69}	<0.99 {<0.7}	<0.99 {<0.7}	<1 {<0.7}	<1 {<0.7}
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	<2 {<0.85}	<2 {<0.86}	<2 {<0.85}	<2 {<0.84}	<2 {<0.85}	<2 {<0.85}	<2 {<0.86}	<2 {<0.86}
1,1,2-Trichloroethane	ug/kg	--	--	--	<0.99 {<0.86}	<1 {<0.87}	<0.99 {<0.86}	<0.98 {<0.85}	<0.99 {<0.86}	<0.99 {<0.86}	<1 {<0.87}	<1 {<0.87}
1,1-Dichloroethane	ug/kg	--	--	--	<0.99 {<0.5}	<1 {<0.5}	<0.99 {<0.5}	<0.98 {<0.49}	<0.99 {<0.5}	<0.99 {<0.5}	<1 {<0.5}	<1 {<0.5}
1,1-Dichloroethene	ug/kg	--	--	14,000	<2 {<0.6}	<2 {<0.6}	<2 {<0.59}	<2 {<0.59}	<2 {<0.6}	<2 {<0.6}	<2 {<0.6}	<2 {<0.6}
1,1-Dichloropropene	ug/kg	--	--	--	<0.99 {<0.4}	<1 {<0.4}	<0.99 {<0.4}	<0.98 {<0.39}	<0.99 {<0.4}	<0.99 {<0.4}	<1 {<0.4}	<1 {<0.4}
1,2,3-Trichlorobenzene	ug/kg	--	--	--	<2 {<0.99}	<2 {<1}	<2 {<0.99}	<2 {<0.98}	<2 {<0.99}	<2 {<0.99}	<2 {<1}	<2 {<1}
1,2,3-Trichloropropane	ug/kg	--	--	--	<2 {<0.99}	<2 {<1}	<2 {<0.99}	<2 {<0.98}	<2 {<0.99}	<2 {<0.99}	<2 {<1}	<2 {<1}
1,2,4-Trichlorobenzene	ug/kg	--	--	--	<2 {<0.99}	<2 {<1}	<2 {<0.99}	<2 {<0.98}	<2 {<0.99}	<2 {<0.99}	<2 {<1}	<2 {<1}
1,2,4-Trimethylbenzene	ug/kg	--	--	--	<0.99 {<0.77}	<1 {<0.78}	<0.99 {<0.77}	<0.98 {<0.77}	<0.99 {<0.78}	<0.99 {<0.78}	<1 {<0.78}	<1 {<0.78}
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	<9.9 {<1.5}	<10 {<1.5}	<9.9 {<1.5}	<9.8 {<1.5}	<9.9 {<1.5}	<9.9 {<1.5}	<10 {<1.5}	<10 {<1.5}

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ANALYTE	UNITS	TCLC	WET Leachate Testing Trigger ^a	TCLP Leachate Testing Trigger ^b	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c
1,2-Dibromoethane (EDB)	ug/kg	--	--	--	<0.99 {<0.79}	<1 {<0.8}	<0.99 {<0.79}	<0.98 {<0.79}	<0.99 {<0.8}	<0.99 {<0.8}	<1 {<0.8}	<1 {<0.8}
1,2-Dichlorobenzene	ug/kg	--	--	--	<0.99 {<0.94}	<1 {<0.95}	<0.99 {<0.94}	<0.98 {<0.93}	<0.99 {<0.94}	<0.99 {<0.94}	<1 {<0.95}	<1 {<0.95}
1,2-Dichloroethane	ug/kg	--	--	10,000	<0.99 {<0.79}	<1 {<0.8}	<0.99 {<0.79}	<0.98 {<0.79}	<0.99 {<0.8}	<0.99 {<0.8}	<1 {<0.8}	<1 {<0.8}
1,2-Dichloropropane	ug/kg	--	--	--	<0.99 {<0.79}	<1 {<0.8}	<0.99 {<0.79}	<0.98 {<0.79}	<0.99 {<0.8}	<0.99 {<0.8}	<1 {<0.8}	<1 {<0.8}
1,3,5-Trimethylbenzene	ug/kg	--	--	--	<0.99 {<0.62}	<1 {<0.63}	<0.99 {<0.62}	<0.98 {<0.62}	<0.99 {<0.63}	<0.99 {<0.63}	<1 {<0.63}	<1 {<0.63}
1,3-Dichlorobenzene	ug/kg	--	--	--	<0.99 {<0.83}	<1 {<0.84}	<0.99 {<0.83}	<0.98 {<0.83}	<0.99 {<0.83}	<0.99 {<0.83}	<1 {<0.84}	<1 {<0.84}
1,3-Dichloropropane	ug/kg	--	--	--	<0.99 {<0.62}	<1 {<0.63}	<0.99 {<0.62}	<0.98 {<0.62}	<0.99 {<0.63}	<0.99 {<0.63}	<1 {<0.63}	<1 {<0.63}
1,4-Dichlorobenzene	ug/kg	--	--	--	<0.99 {<0.93}	<1 {<0.94}	<0.99 {<0.93}	<0.98 {<0.92}	<0.99 {<0.93}	<0.99 {<0.93}	<1 {<0.94}	<1 {<0.94}
2-Butanone (MEK)	ug/kg	--	--	4,000,000	<9.9 {<6}	<10 {<6}	<9.9 {<5.9}	<9.8 {<5.9}	<9.9 {<6}	<9.9 {<6}	<10 {<6}	<10 {<6}
2-Hexanone	ug/kg	--	--	--	<9.9 {<9}	<10 {<9.1}	<9.9 {<9}	<9.8 {<8.9}	<9.9 {<9}	<9.9 {<9}	<10 {<9.1}	<10 {<9.1}
4-Methyl-2-pentanone (MIBK)	ug/kg	--	--	--	<5 {<4.5}	<5 {<4.5}	<5 {<4.5}	<4.9 {<4.4}	<5 {<4.5}	<5 {<4.5}	<5 {<4.5}	<5 {<4.5}
Acetone	ug/kg	--	--	--	<9.9 {<7.9}	<10 {<8}	<9.9 {<7.9}	<9.8 {<7.9}	<9.9 {<8}	<9.9 {<8}	<10 {<8}	<10 {<8}
Benzene	ug/kg	--	--	10,000	<0.99 {<0.5}	<1 {<0.5}	<0.99 {<0.5}	<0.98 {<0.49}	<0.99 {<0.5}	<0.99 {<0.5}	<1 {<0.5}	<1 {<0.5}
Bromobenzene	ug/kg	--	--	--	<2 {<0.83}	<2 {<0.84}	<2 {<0.83}	<2 {<0.83}	<2 {<0.83}	<2 {<0.83}	<2 {<0.84}	<2 {<0.84}
Bromochloromethane	ug/kg	--	--	--	<2 {<0.89}	<2 {<0.9}	<2 {<0.89}	<2 {<0.88}	<2 {<0.89}	<2 {<0.89}	<2 {<0.9}	<2 {<0.9}
Bromodichloromethane	ug/kg	--	--	--	<0.99 {<0.5}	<1 {<0.5}	<0.99 {<0.5}	<0.98 {<0.49}	<0.99 {<0.5}	<0.99 {<0.5}	<1 {<0.5}	<1 {<0.5}
Bromoform	ug/kg	--	--	--	<2 {<0.79}	<2 {<0.8}	<2 {<0.79}	<2 {<0.79}	<2 {<0.8}	<2 {<0.8}	<2 {<0.8}	<2 {<0.8}
Bromomethane	ug/kg	--	--	--	<2 {<0.91}	<2 {<0.92}	<2 {<0.91}	<2 {<0.9}	<2 {<0.91}	<2 {<0.91}	<2 {<0.92}	<2 {<0.92}
Carbon Disulfide	ug/kg	--	--	--	<5 {<0.96}	<5 {<0.97}	<5 {<0.96}	<4.9 {<0.95}	<5 {<0.96}	<5 {<0.96}	<5 {<0.97}	<5 {<0.97}
Carbon tetrachloride	ug/kg	--	--	10,000	<2 {<0.5}	<2 {<0.5}	<2 {<0.5}	<2 {<0.49}	<2 {<0.5}	<2 {<0.5}	<2 {<0.5}	<2 {<0.5}
Chlorobenzene	ug/kg	--	--	2,000,000	<0.99 {<0.52}	<1 {<0.52}	<0.99 {<0.51}	<0.98 {<0.51}	<0.99 {<0.52}	<0.99 {<0.52}	<1 {<0.52}	<1 {<0.52}
Chloroethane	ug/kg	--	--	--	<2 {<1.5}	<2 {<1.5}	<2 {<1.5}	<2 {<1.5}	<2 {<1.5}	<2 {<1.5}	<2 {<1.5}	<2 {<1.5}
Chloroform	ug/kg	--	--	120,000	<0.99 {<0.5}	<1 {<0.5}	<0.99 {<0.5}	<0.98 {<0.49}	<0.99 {<0.5}	<0.99 {<0.5}	<1 {<0.5}	<1 {<0.5}
Chloromethane	ug/kg	--	--	--	<2 {<0.99}	<2 {<1}	<2 {<0.99}	<2 {<0.98}	<2 {<0.99}	<2 {<0.99}	<2 {<1}	<2 {<1}
cis-1,2-Dichloroethene	ug/kg	--	--	--	<0.99 {<0.82}	<1 {<0.83}	<0.99 {<0.82}	<0.98 {<0.82}	<0.99 {<0.83}	<0.99 {<0.83}	<1 {<0.83}	<1 {<0.83}
cis-1,3-Dichloropropene	ug/kg	--	--	--	<0.99 {<0.44}	<1 {<0.44}	<0.99 {<0.44}	<0.98 {<0.43}	<0.99 {<0.44}	<0.99 {<0.44}	<1 {<0.44}	<1 {<0.44}
Dibromochloromethane	ug/kg	--	--	--	<0.99 {<0.69}	<1 {<0.7}	<0.99 {<0.69}	<0.98 {<0.69}	<0.99 {<0.7}	<0.99 {<0.7}	<1 {<0.7}	<1 {<0.7}
Dibromomethane	ug/kg	--	--	--	<0.99 {<0.89}	<1 {<0.9}	<0.99 {<0.89}	<0.98 {<0.88}	<0.99 {<0.89}	<0.99 {<0.89}	<1 {<0.9}	<1 {<0.9}
Dichlorodifluoromethane	ug/kg	--	--	--	<5 {<1.5}	<5 {<1.5}	<5 {<1.5}	<4.9 {<1.5}	<5 {<1.5}	<5 {<1.5}	<5 {<1.5}	<5 {<1.5}
Ethylbenzene	ug/kg	--	--	--	<0.99 {<0.5}	<1 {<0.5}	<0.99 {<0.5}	<0.98 {<0.49}	<0.99 {<0.5}	<0.99 {<0.5}	<1 {<0.5}	<1 {<0.5}
Hexachlorobutadiene	ug/kg	--	--	--	<2 {<0.79}	<2 {<0.8}	<2 {<0.79}	<2 {<0.79}	<2 {<0.8}	<2 {<0.8}	<2 {<0.8}	<2 {<0.8}
Isopropylbenzene	ug/kg	--	--	--	<0.99 {<0.54}	<1 {<0.54}	<0.99 {<0.53}	<0.98 {<0.53}	<0.99 {<0.54}	<0.99 {<0.54}	<1 {<0.54}	<1 {<0.54}
m,p-Xylenes	ug/kg	--	--	--	<2 {<0.79}	<2 {<0.8}	<2 {<0.79}	<2 {<0.79}	<2 {<0.8}	<2 {<0.8}	<2 {<0.8}	<2 {<0.8}
Methylene chloride	ug/kg	--	--	--	<9.9 {<6.4}	<10 {<6.5}	<9.9 {<6.4}	<9.8 {<6.4}	<9.9 {<6.5}	<9.9 {<6.5}	<10 {<6.5}	<10 {<6.5}
Methyl-tert-butyl Ether (MTBE)	ug/kg	--	--	--	<2 {<0.99}	<2 {<1}	<2 {<0.99}	<2 {<0.98}	<2 {<0.99}	<2 {<0.99}	<2 {<1}	<2 {<1}
n-Butylbenzene	ug/kg	--	--	--	<2 {<0.71}	<2 {<0.72}	<2 {<0.71}	<2 {<0.71}	<2 {<0.72}	<2 {<0.72}	<2 {<0.72}	<2 {<0.72}

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 SANTA SUSANA FIELD LABORATORY

		Object Name: Sample Name: Collection Date: Sample Depth (feet):			LXWC0012 LXWC0012S001 10/12/2010 1.3 - 1.8	LXWC0013 LXWC0013S001 10/12/2010 1.1 - 1.6	LXWC0014 LXWC0014S001 10/12/2010 1.3 - 1.8	LXWC0015 LXWC0015S001 10/12/2010 0.3 - 0.8	LXWC0016 LXWC0016S001 10/12/2010 0.8 - 1.3	LXWC0017 LXWC0017S001 10/12/2010 0 - 0.4	LXWC0018 LXWC0018S001 10/11/2010 0.7 - 1.2	LXWC0019 LXWC0019S001 10/11/2010 0 - 0.3
ANALYTE	UNITS	TTLC	WET Leachate Testing Trigger ^a	TCLP Leachate Testing Trigger ^b	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c	RESULT ^c
n-Propylbenzene	ug/kg	--	--	--	<0.99 {<0.61}	<1 {<0.61}	<0.99 {<0.6}	<0.98 {<0.6}	<0.99 {<0.61}	<0.99 {<0.61}	<1 {<0.61}	<1 {<0.61}
Naphthalene	ug/kg	--	--	--	<2 {<1.1}	<2 {<1.1}	<2 {<1.1}	<2 {<1.1}	<2 {<1.1}	<2 {<1.1}	<2 {<1.1}	<2 {<1.1}
o-Xylene	ug/kg	--	--	--	<0.99 {<0.5}	<1 {<0.5}	<0.99 {<0.5}	<0.98 {<0.49}	<0.99 {<0.5}	<0.99 {<0.5}	<1 {<0.5}	<1 {<0.5}
p-Isopropyltoluene	ug/kg	--	--	--	<0.99 {<0.71}	<1 {<0.72}	<0.99 {<0.71}	<0.98 {<0.71}	<0.99 {<0.72}	<0.99 {<0.72}	<1 {<0.72}	<1 {<0.72}
sec-Butylbenzene	ug/kg	--	--	--	<2 {<0.66}	<2 {<0.67}	<2 {<0.66}	<2 {<0.66}	<2 {<0.67}	<2 {<0.67}	<2 {<0.67}	<2 {<0.67}
Styrene	ug/kg	--	--	--	<0.99 {<0.58}	<1 {<0.58}	<0.99 {<0.57}	<0.98 {<0.57}	<0.99 {<0.58}	<0.99 {<0.58}	<1 {<0.58}	<1 {<0.58}
tert-Butylbenzene	ug/kg	--	--	--	<2 {<0.62}	<2 {<0.62}	<2 {<0.61}	<2 {<0.61}	<2 {<0.62}	<2 {<0.62}	<2 {<0.62}	<2 {<0.62}
Tetrachloroethene	ug/kg	--	--	14,000	<0.99 {<0.49}	<1 {<0.49}	<0.99 {<0.49}	<0.98 {<0.48}	<0.99 {<0.49}	<0.99 {<0.49}	<1 {<0.49}	<1 {<0.49}
Toluene	ug/kg	--	--	--	<0.99 {<0.5}	<1 {<0.5}	<0.99 {<0.5}	<0.98 {<0.49}	<0.99 {<0.5}	<0.99 {<0.5}	<1 {<0.5}	<1 {<0.5}
trans-1,2-Dichloroethene	ug/kg	--	--	--	<0.99 {<0.69}	<1 {<0.7}	<0.99 {<0.69}	<0.98 {<0.69}	<0.99 {<0.7}	<0.99 {<0.7}	<1 {<0.7}	<1 {<0.7}
trans-1,3-Dichloropropene	ug/kg	--	--	--	<0.99 {<0.61}	<1 {<0.61}	<0.99 {<0.6}	<0.98 {<0.6}	<0.99 {<0.61}	<0.99 {<0.61}	<1 {<0.61}	<1 {<0.61}
Trichloroethene	ug/kg	2,040,000	2,040,000	10,000	<0.99 {<0.5}	<1 {<0.5}	<0.99 {<0.5}	<0.98 {<0.49}	<0.99 {<0.5}	<0.99 {<0.5}	<1 {<0.5}	<1 {<0.5}
Trichlorofluoromethane	ug/kg	--	--	--	<2 {<0.54}	<2 {<0.54}	<2 {<0.53}	<2 {<0.53}	<2 {<0.54}	<2 {<0.54}	<2 {<0.54}	<2 {<0.54}
Vinyl acetate	ug/kg	--	--	--	<5 {<2.5}	<5 {<2.5}	<5 {<2.5}	<4.9 {<2.5}	<5 {<2.5}	<5 {<2.5}	<5 {<2.5}	<5 {<2.5}
Vinyl chloride	ug/kg	--	--	4,000	<2 {<0.9}	<2 {<0.91}	<2 {<0.9}	<2 {<0.89}	<2 {<0.9}	<2 {<0.9}	<2 {<0.91}	<2 {<0.91}
RADIONUCLIDES	--	--	--	--	R	R	R	R	R	R	R	R

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

**WASTE CHARACTERIZATION SAMPLE RESULTS – LOX
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.

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.

SU - standard units