

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA AREA I PLANNED EXCAVATION IEL-3

Introduction

This report presents supporting detailed information relating to the October 22 and 23, 2012 in-situ characterization of prospective soil wastes at the planned ISRA excavation IEL-3 in SSFL Area I.

Background

Soil to be excavated from the designated location in accordance with the ISRA Workplan for SSFL Area I 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 sampling plan for the planned excavation footprint. Both random and a combination authoritative/random sample collection location identification methods were employed. In the latter case, the bottoms of trenches where drainpipes were removed during demolition of SSFL Building 1300 were targeted. Trenches corresponding to significant pipe runs were identified and a random sample collection location identified at some point along each run. Standard random sampling methodology was relied upon within the remaining planned excavation footprint, excluding the open trenches. 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 according to SW-846 criteria, 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 IEL-3 was based largely on Group 1A RFI results, previous ISRA-related sampling, and Building 1300 chemical usage and demolition records. Evaluation of these data and other sources of relevant information suggested that waste characterization efforts should focus on Regulated Metals, Volatile Organic Compounds (VOC), and Polychlorinated Biphenyls (PCB) in the IEL-3 excavation footprint. A random sampling plan was developed for collection of 29 samples from the planned excavation footprint. The samples were analyzed for CAM 17 metals, VOCs, and PCBs. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the IEL-3 planned excavation area are presented in TestAmerica reports 440-27479 issued on 11/5/12, 440-27510 issued on 11/5/12, and 440-27512 issued on 11/5/12. Regulated metals were detected, but did not exceed any applicable regulatory thresholds. Significant detected Regulated Metals included Lead at a maximum concentration of 34 mg/kg, below the 50 ppm 10 X STLC and 100 ppm 20 X TCLP thresholds. Mercury was detected at a

maximum concentration of 1.3 mg/kg, below the 10 X STLC threshold of 2 ppm and the 20 X TCLP threshold of 4 ppm. Chromium was detected at a maximum concentration of 25 mg/kg, compared to the 10 X STLC threshold of 50 ppm and the 20 X TCLP threshold of 100 ppm.

VOC detections were limited to trace detections of three analytes, including Toluene, which ranged from non-detect to 0.0029 mg/kg. One sample exhibited 1,2,3-Trichlorobenzene, which was detected at 0.0071 mg/kg, and Naphthalene, which was detected at 0.011 mg/kg. PCBs were detected in only one case, with a single detection of Aroclor 1260 at 0.033 mg/kg. These detections are not significant with respect to hazardous waste management regulations.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of SSFL Area I IEL-3:

Is Not a Listed Waste (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

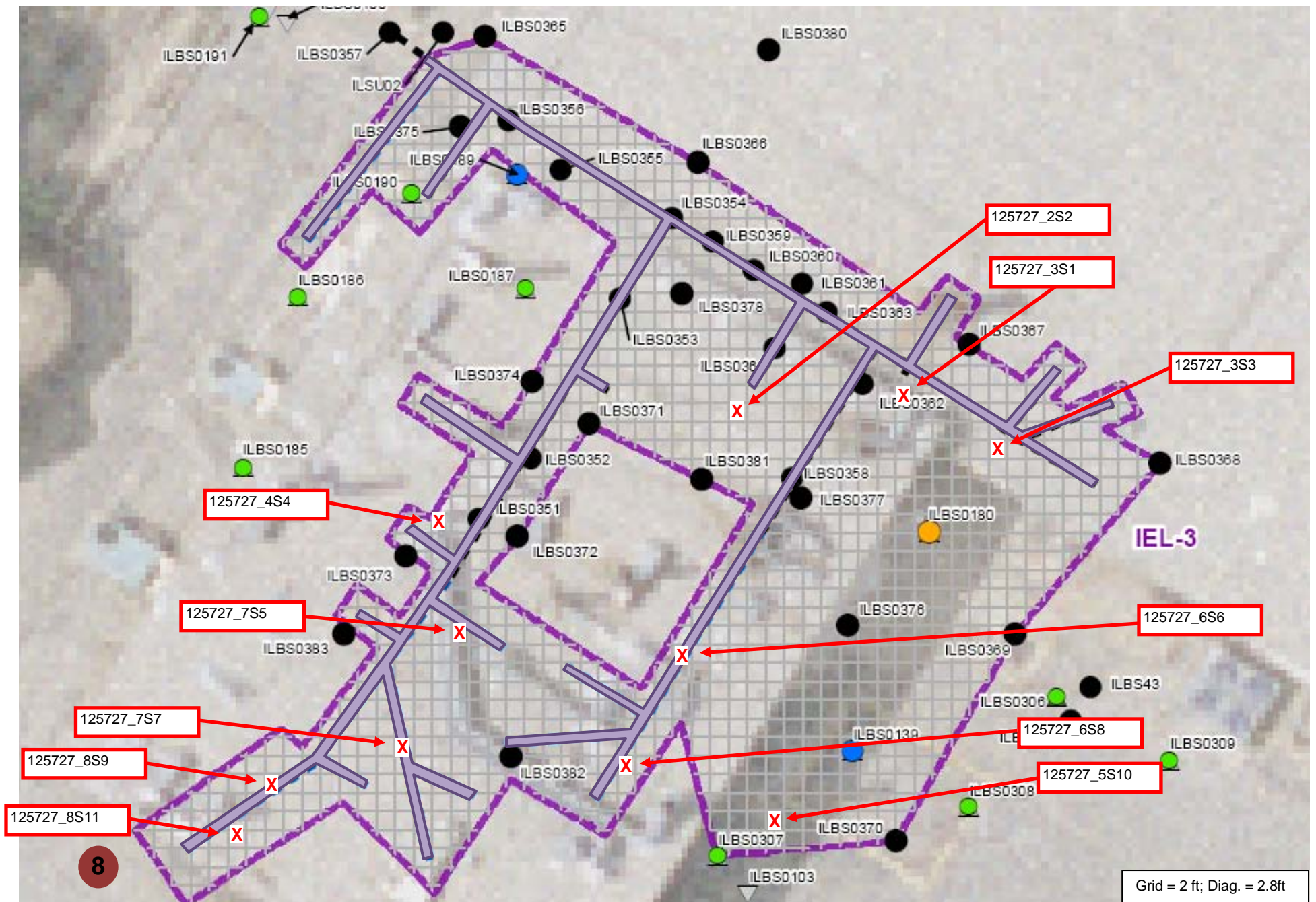
Is Not subject to the Prop. 65 listing

Is Not subject to the Title 22 Appendix X list

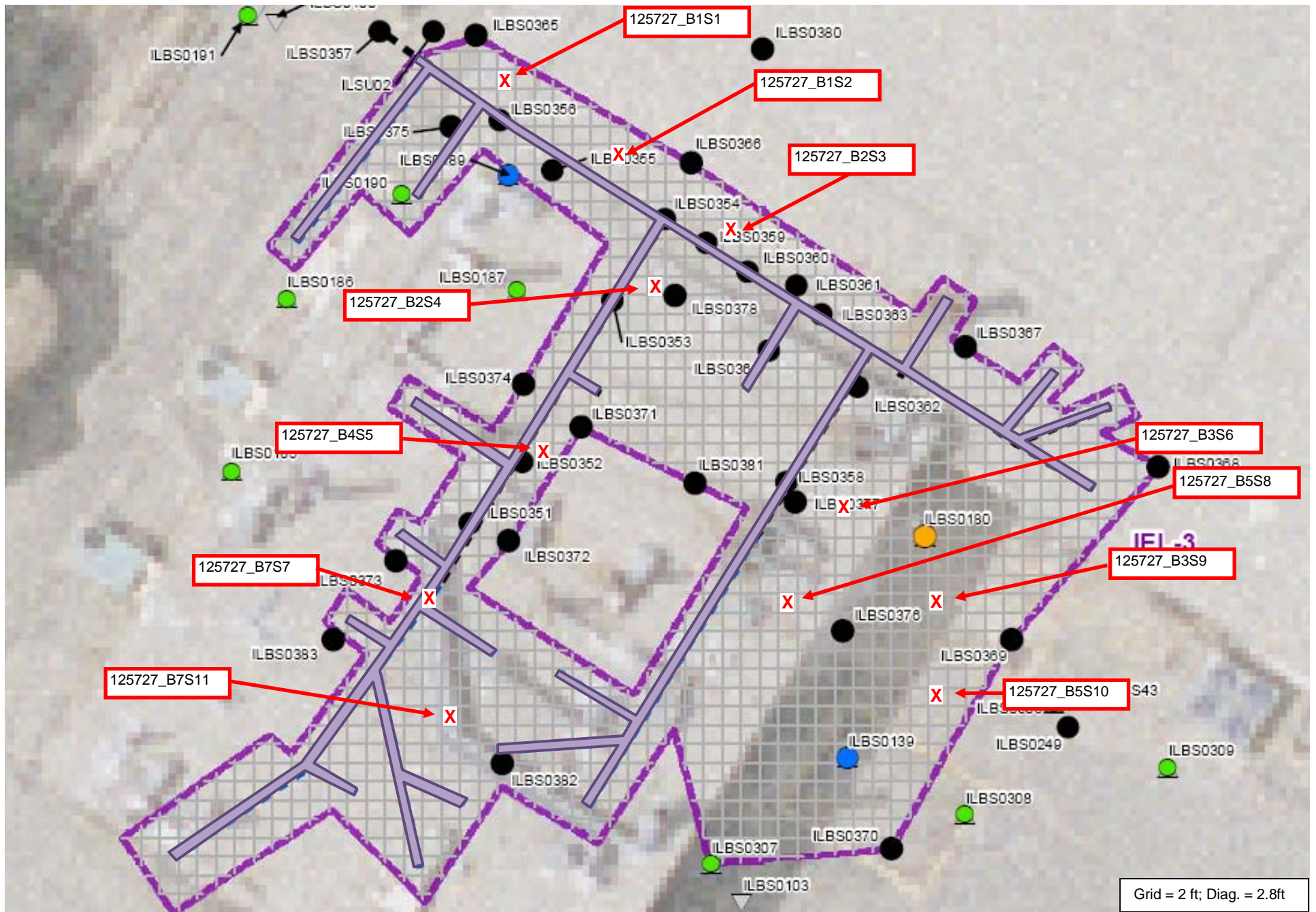
Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in SSFL Area I IEL-3 is NON-HAZARDOUS.

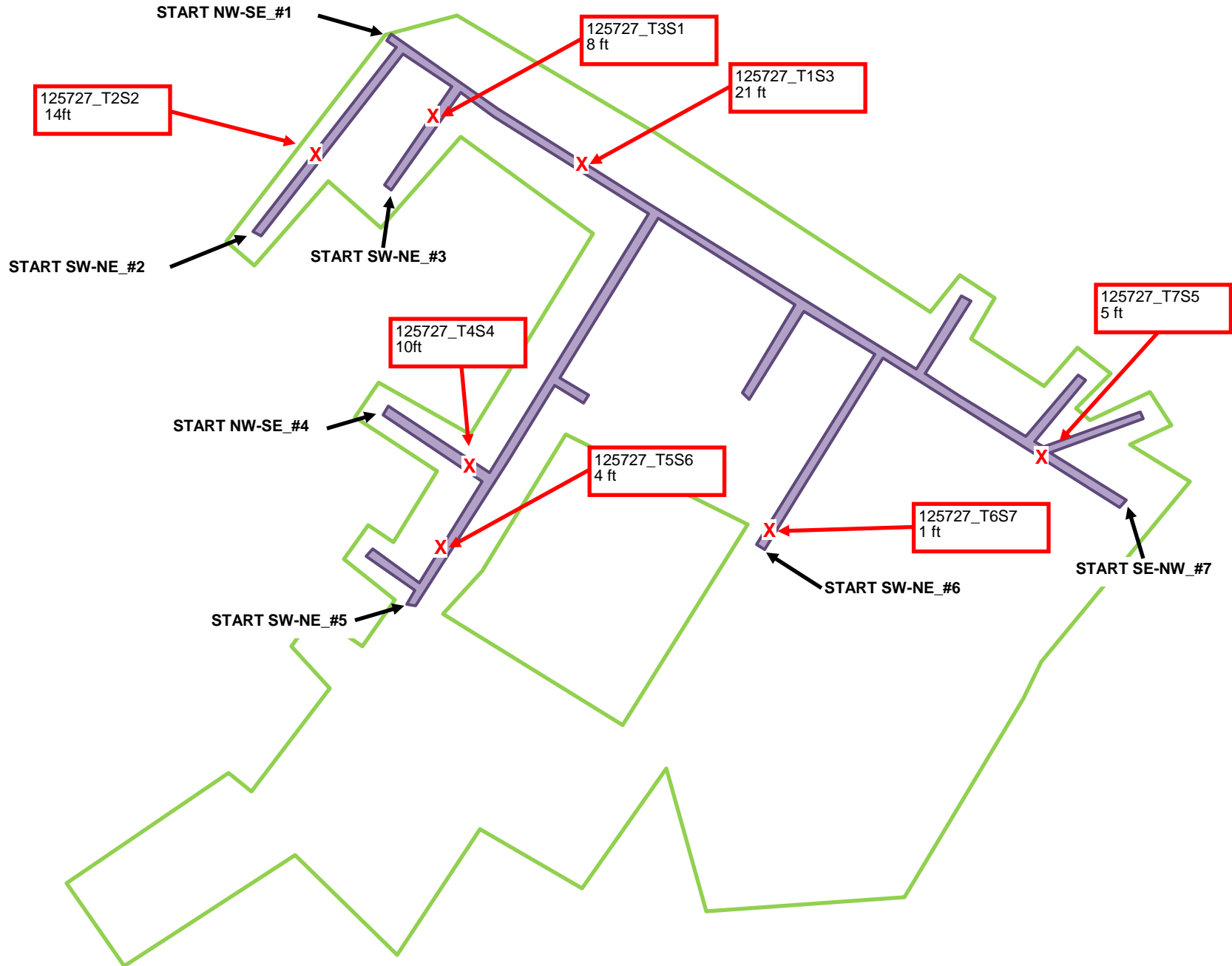
B/1300 ISRA (IEL-3) Shallow Soil Near Surface Sample Collection Points



B/1300 ISRA (IEL-3) Shallow Soil Bottom Sample Collection Points



B/1300 ISRA (IEL-3) Trench Sample Collection Points



INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

**WASTE CHARACTERIZATION SAMPLE RESULTS – IEL-3
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY**

					Object Name: Sample Name: Collection Date: Sample Depth (feet):	125727 125727_2S2 10/22/2012 1 - 1.5	125727 125727_3S1 10/22/2012 1 - 1.5	125727 125727_3S3 10/22/2012 1 - 1.5	125727 125727_4S4 10/22/2012 1 - 1.5	125727 125727_5S10 10/22/2012 1 - 1.5	125727 125727_6S6 10/22/2012 1 - 1.5	125727 125727_6S8 10/22/2012 1 - 1.5	125727 125727_7S5 10/22/2012 1 - 1.5	125727 125727_7S7 10/22/2012 1 - 1.5
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	RESULT ^c	RESULT ^c
METALS														
Antimony	mg/kg	500	150	--	2.2 J	1.4 J	1.2 J	1.2 J	1.7 J	<10	1.1 J	1.4 J	1.4 J	<10
Arsenic	mg/kg	500	50	100	6.8	12	7.1	7.3	12	6.2	8.8	7.6	7.6	3.1
Barium	mg/kg	10,000	1,000	2,000	89	63	51	91	80	64	66	91	91	71
Beryllium	mg/kg	75	7.5	--	0.42 J	0.49 J	0.43 J	0.8	0.85	0.52	0.53	0.55	0.55	0.31 J
Cadmium	mg/kg	100	10	20	0.21 J	0.28 J	0.31 J	<0.5	0.22 J	<0.51	0.29 J	0.32 J	0.32 J	<0.51
Chromium	mg/kg	500	50	100	14	15	13	18	25	14	14	14	14	9
Cobalt	mg/kg	8,000	800	--	3.7	3.8	3.5	5.1	5.5	3.9	3.6	4.6	4.6	3.5
Copper	mg/kg	2,500	250	--	10	9.8	15	7.6	14	7.2	9	12	12	10
Lead	mg/kg	1,000	50	100	12	18	4.8	5.3	5.7	6.5	5.3	5.9	5.9	3.2
Mercury	mg/kg	20	2	4	0.026	0.04	0.029	0.023	0.012 J	0.47	0.12	0.048	0.048	1.3
Molybdenum	mg/kg	3,500	3,500	--	1.5 J	1.4 J	1.1 J	1.6 J	1.5 J	1.1 J	1.2 J	1.4 J	1.4 J	1.1 J
Nickel	mg/kg	2,000	200	--	9	9.4	8.4	13	15	9.4	9.7	10	10	5.4
Selenium	mg/kg	100	10	20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Silver	mg/kg	500	50	100	<1	<1	<1	<0.99	<0.99	<1	<0.98	<1	<1	<1
Thallium	mg/kg	700	70	--	<10	<10	<10	<9.9	<9.9	<10	<9.8	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	30	27	25	34	33	27	26	34	34	30
Zinc	mg/kg	5,000	2,500	--	300	310	180	41	55	180	74	640	640	47
PCBs														
Aroclor 1016	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<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}	<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}	<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}	<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}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}
Aroclor 1254	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}
Aroclor 1260	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}
VOCs														
1,1,1,2-Tetrachloroethane	ug/kg	--	--	--	<25 {<2.9}	<25 {<2.9}	<24 {<2.7}	<25 {<2.9}	<25 {<2.9}	<25 {<2.9}	<26 {<2.9}	<25 {<2.8}	<25 {<2.8}	<25 {<2.9}
1,1,1-Trichloroethane	ug/kg	--	--	--	<10 {<3.5}	<10 {<3.5}	<9.6 {<3.4}	<10 {<3.5}	<10 {<3.5}	<10 {<3.5}	<10 {<3.6}	<9.8 {<3.4}	<9.8 {<3.4}	<10 {<3.5}
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	<10 {<4.3}	<10 {<4.3}	<9.6 {<4.1}	<10 {<4.3}	<10 {<4.3}	<10 {<4.3}	<10 {<4.4}	<9.8 {<4.2}	<9.8 {<4.2}	<10 {<4.3}
1,1,2-Trichloroethane	ug/kg	--	--	--	<10 {<4.4}	<10 {<4.4}	<9.6 {<4.2}	<10 {<4.4}	<10 {<4.4}	<10 {<4.4}	<10 {<4.5}	<9.8 {<4.3}	<9.8 {<4.3}	<10 {<4.4}
1,1-Dichloroethane	ug/kg	--	--	--	<10 {<2.5}	<10 {<2.5}	<9.6 {<2.4}	<10 {<2.5}	<10 {<2.5}	<10 {<2.5}	<10 {<2.6}	<9.8 {<2.5}	<9.8 {<2.5}	<10 {<2.5}
1,1-Dichloroethene	ug/kg	--	--	14,000	<25 {<3}	<25 {<3}	<24 {<2.9}	<25 {<3}	<25 {<3}	<25 {<3}	<26 {<3.1}	<25 {<2.9}	<25 {<2.9}	<25 {<3}
1,1-Dichloropropene	ug/kg	--	--	--	<10 {<2}	<10 {<2}	<9.6 {<1.9}	<10 {<2}	<10 {<2}	<10 {<2}	<10 {<2.1}	<9.8 {<2}	<9.8 {<2}	<10 {<2}
1,2,3-Trichlorobenzene	ug/kg	--	--	--	<25 {<5}	<25 {<5.1}	<24 {<4.8}	<25 {<5.1}	<25 {<5.1}	<25 {<5}	<26 {<5.2}	<25 {<4.9}	<25 {<4.9}	<25 {<5}

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

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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	RESULT ^c
1,2,3-Trichloropropane	ug/kg	--	--	--	<50 {<5}	<51 {<5.1}	<48 {<4.8}	<51 {<5.1}	<51 {<5.1}	<50 {<5}	<52 {<5.2}	<49 {<4.9}	<50 {<5}
1,2,4-Trichlorobenzene	ug/kg	--	--	--	<25 {<5}	<25 {<5.1}	<24 {<4.8}	<25 {<5.1}	<25 {<5.1}	<25 {<5}	<26 {<5.2}	<25 {<4.9}	<25 {<5}
1,2,4-Trimethylbenzene	ug/kg	--	--	--	<10 {<3.9}	<10 {<3.9}	<9.6 {<3.8}	<10 {<3.9}	<10 {<3.9}	<10 {<3.9}	<10 {<4}	<9.8 {<3.8}	<10 {<3.9}
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	<25 {<7.5}	<25 {<7.6}	<24 {<7.2}	<25 {<7.6}	<25 {<7.6}	<25 {<7.5}	<26 {<7.7}	<25 {<7.4}	<25 {<7.5}
1,2-Dibromoethane	ug/kg	--	--	--	<10 {<4}	<10 {<4}	<9.6 {<3.8}	<10 {<4}	<10 {<4}	<10 {<4}	<10 {<4.1}	<9.8 {<3.9}	<10 {<4}
1,2-Dichlorobenzene	ug/kg	--	--	--	<10 {<4.8}	<10 {<4.8}	<9.6 {<4.6}	<10 {<4.8}	<10 {<4.8}	<10 {<4.8}	<10 {<4.9}	<9.8 {<4.7}	<10 {<4.8}
1,2-Dichloroethane	ug/kg	--	--	10,000	<10 {<4}	<10 {<4}	<9.6 {<3.8}	<10 {<4}	<10 {<4}	<10 {<4}	<10 {<4.1}	<9.8 {<3.9}	<10 {<4}
1,2-Dichloropropane	ug/kg	--	--	--	<10 {<4}	<10 {<4}	<9.6 {<3.8}	<10 {<4}	<10 {<4}	<10 {<4}	<10 {<4.1}	<9.8 {<3.9}	<10 {<4}
1,3,5-Trimethylbenzene	ug/kg	--	--	--	<10 {<3.2}	<10 {<3.2}	<9.6 {<3}	<10 {<3.2}	<10 {<3.2}	<10 {<3.2}	<10 {<3.2}	<9.8 {<3.1}	<10 {<3.2}
1,3-Dichlorobenzene	ug/kg	--	--	--	<10 {<4.2}	<10 {<4.2}	<9.6 {<4}	<10 {<4.2}	<10 {<4.2}	<10 {<4.2}	<10 {<4.3}	<9.8 {<4.1}	<10 {<4.2}
1,3-Dichloropropane	ug/kg	--	--	--	<10 {<3.2}	<10 {<3.2}	<9.6 {<3}	<10 {<3.2}	<10 {<3.2}	<10 {<3.2}	<10 {<3.2}	<9.8 {<3.1}	<10 {<3.2}
1,4-Dichlorobenzene	ug/kg	--	--	150,000	<10 {<4.7}	<10 {<4.7}	<9.6 {<4.5}	<10 {<4.7}	<10 {<4.7}	<10 {<4.7}	<10 {<4.8}	<9.8 {<4.6}	<10 {<4.7}
2,2-Dichloropropane	ug/kg	--	--	--	<10 {<3}	<10 {<3}	<9.6 {<2.9}	<10 {<3}	<10 {<3}	<10 {<3}	<10 {<3.1}	<9.8 {<2.9}	<10 {<3}
2-Butanone (MEK)	ug/kg	--	--	4,000,000	<50 {<30}	<51 {<30}	<48 {<29}	<51 {<30}	<51 {<30}	<50 {<30}	<52 {<31}	<49 {<29}	<50 {<30}
2-Chlorotoluene	ug/kg	--	--	--	<25 {<4.4}	<25 {<4.4}	<24 {<4.2}	<25 {<4.4}	<25 {<4.4}	<25 {<4.4}	<26 {<4.5}	<25 {<4.3}	<25 {<4.4}
2-Hexanone	ug/kg	--	--	--	<130 {<46}	<130 {<46}	<120 {<44}	<130 {<46}	<130 {<46}	<130 {<46}	<130 {<47}	<120 {<45}	<130 {<46}
4-Chlorotoluene	ug/kg	--	--	--	<25 {<3.7}	<25 {<3.7}	<24 {<3.6}	<25 {<3.7}	<25 {<3.7}	<25 {<3.7}	<26 {<3.8}	<25 {<3.6}	<25 {<3.7}
4-Methyl-2-pentanone	ug/kg	--	--	--	<25 {<23}	<25 {<23}	<24 {<22}	<25 {<23}	<25 {<23}	<25 {<23}	<26 {<23}	<25 {<22}	<25 {<23}
Acetone	ug/kg	--	--	--	<50 {<40}	<51 {<40}	<48 {<38}	<51 {<40}	<51 {<40}	<50 {<40}	<52 {<41}	<49 {<39}	<50 {<40}
Benzene	ug/kg	--	--	10,000	<10 {<2.5}	<10 {<2.5}	<9.6 {<2.4}	<10 {<2.5}	<10 {<2.5}	<10 {<2.5}	<10 {<2.6}	<9.8 {<2.5}	<10 {<2.5}
Bromobenzene	ug/kg	--	--	--	<25 {<4.2}	<25 {<4.2}	<24 {<4}	<25 {<4.2}	<25 {<4.2}	<25 {<4.2}	<26 {<4.3}	<25 {<4.1}	<25 {<4.2}
Bromochloromethane	ug/kg	--	--	--	<25 {<4.5}	<25 {<4.5}	<24 {<4.3}	<25 {<4.5}	<25 {<4.5}	<25 {<4.5}	<26 {<4.6}	<25 {<4.4}	<25 {<4.5}
Bromodichloromethane	ug/kg	--	--	--	<10 {<2.5}	<10 {<2.5}	<9.6 {<2.4}	<10 {<2.5}	<10 {<2.5}	<10 {<2.5}	<10 {<2.6}	<9.8 {<2.5}	<10 {<2.5}
Bromoform	ug/kg	--	--	--	<25 {<4}	<25 {<4}	<24 {<3.8}	<25 {<4}	<25 {<4}	<25 {<4}	<26 {<4.1}	<25 {<3.9}	<25 {<4}
Bromomethane	ug/kg	--	--	--	<25 {<4.6}	<25 {<4.6}	<24 {<4.4}	<25 {<4.6}	<25 {<4.6}	<25 {<4.6}	<26 {<4.7}	<25 {<4.5}	<25 {<4.6}
Carbon disulfide	ug/kg	--	--	--	<25 {<4.9}	<25 {<4.9}	<24 {<4.7}	<25 {<4.9}	<25 {<4.9}	<25 {<4.9}	<26 {<5}	<25 {<4.8}	<25 {<4.9}
Carbon tetrachloride	ug/kg	--	--	10,000	<25 {<2.5}	<25 {<2.5}	<24 {<2.4}	<25 {<2.5}	<25 {<2.5}	<25 {<2.5}	<26 {<2.6}	<25 {<2.5}	<25 {<2.5}
Chlorobenzene	ug/kg	--	--	2,000,000	<10 {<2.6}	<10 {<2.6}	<9.6 {<2.5}	<10 {<2.6}	<10 {<2.6}	<10 {<2.6}	<10 {<2.7}	<9.8 {<2.5}	<10 {<2.6}
Chloroethane	ug/kg	--	--	--	<25 {<7.5}	<25 {<7.6}	<24 {<7.2}	<25 {<7.6}	<25 {<7.6}	<25 {<7.5}	<26 {<7.7}	<25 {<7.4}	<25 {<7.5}
Chloroform	ug/kg	--	--	120,000	<10 {<2.5}	<10 {<2.5}	<9.6 {<2.4}	<10 {<2.5}	<10 {<2.5}	<10 {<2.5}	<10 {<2.6}	<9.8 {<2.5}	<10 {<2.5}
Chloromethane	ug/kg	--	--	--	<25 {<5}	<25 {<5.1}	<24 {<4.8}	<25 {<5.1}	<25 {<5.1}	<25 {<5}	<26 {<5.2}	<25 {<4.9}	<25 {<5}
cis-1,2-Dichloroethene	ug/kg	--	--	--	<10 {<4.2}	<10 {<4.2}	<9.6 {<4}	<10 {<4.2}	<10 {<4.2}	<10 {<4.2}	<10 {<4.3}	<9.8 {<4.1}	<10 {<4.2}
cis-1,3-Dichloropropene	ug/kg	--	--	--	<10 {<2.2}	<10 {<2.2}	<9.6 {<2.1}	<10 {<2.2}	<10 {<2.2}	<10 {<2.2}	<10 {<2.3}	<9.8 {<2.2}	<10 {<2.2}

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

WASTE CHARACTERIZATION SAMPLE RESULTS – IEL-3
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

					Object Name: Sample Name: Collection Date: Sample Depth (feet):	125727 125727_8S11 10/22/2012 1 - 1.5	125727 125727_8S9 10/22/2012 1 - 1_5	125727 125727_B1S1 10/23/2012 2.5 - 3	125727 125727_B1S2 10/23/2012 2.5 - 3	125727 125727_B2S3 10/23/2012 2.5 - 3	125727 125727_B2S4 10/23/2012 2.5 - 3	125727 125727_B3S6 10/23/2012 2.5 - 3	125727 125727_B3S9 10/23/2012 2.5 - 3	125727 125727_B4S5 10/23/2012 2.5 - 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	RESULT ^c	RESULT ^c
METALS														
Antimony	mg/kg	500	150	--	1.4 J	1.1 J	<9.9	<10	1.6 J	1.3 J	<10	<10	<10	<9.8
Arsenic	mg/kg	500	50	100	4	9.8	11	8.6	11	12	7.3	9.9	9.9	11
Barium	mg/kg	10,000	1,000	2,000	100	46	67	67	62	70	54	77	77	83
Beryllium	mg/kg	75	7.5	--	0.33 J	0.61	0.5	0.54	0.56	0.57	0.42 J	0.44 J	0.44 J	0.58
Cadmium	mg/kg	100	10	20	1	<0.5	0.24 J	0.23 J	0.22 J	0.24 J	0.26 J	0.3 J	0.3 J	0.22 J
Chromium	mg/kg	500	50	100	11	15	17	16	17	18	13	15	15	16
Cobalt	mg/kg	8,000	800	--	4.6	4.3	4.3	4.2	4.2	6.2	3.6	4.1	4.1	4.5
Copper	mg/kg	2,500	250	--	20	7.7	8.9	8.3	10	11	7	9.5	9.5	8.5
Lead	mg/kg	1,000	50	100	20	3.7	4.1	4.6	4	6.4	6.3	6.1	6.1	4.4
Mercury	mg/kg	20	2	4	0.63	0.03	0.89	0.012 J	<0.02	0.014 J	0.035	0.023	0.023	0.013 J
Molybdenum	mg/kg	3,500	3,500	--	1.3 J	0.98 J	1.3 J	1.2 J	1.3 J	1.7 J	0.97 J	1.1 J	1.1 J	1.2 J
Nickel	mg/kg	2,000	200	--	9.4	8.9	12	11	11	10	9.6	11	11	12
Selenium	mg/kg	100	10	20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Silver	mg/kg	500	50	100	<1	<1	<0.99	<1	<0.98	<1	<1	<0.99	<0.99	<1
Thallium	mg/kg	700	70	--	<10	<10	<9.9	<10	<9.9	<10	<10	<10	<10	<9.8
Vanadium	mg/kg	2,400	240	--	32	26	29	29	29	32	23	27	27	29
Zinc	mg/kg	5,000	2,500	--	160	45	48	48	47	61	45	55	55	64
PCBs														
Aroclor 1016	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<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}	<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}	<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}	<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}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}
Aroclor 1254	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}
Aroclor 1260	ug/kg	50,000	50,000	--	33 J	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}
VOCs														
1,1,1,2-Tetrachloroethane	ug/kg	--	--	--	<24 {<2.7}	<25 {<2.8}	<24 {<2.7}	<22 {<2.5}	<13 {<1.5}	<15 {<1.7}	<15 {<1.7}	<15 {<1.7}	<25 {<2.8}	<10 {<1.1}
1,1,1-Trichloroethane	ug/kg	--	--	--	<9.6 {<3.4}	<9.8 {<3.4}	<9.4 {<3.3}	<8.6 {<3}	<5.2 {<1.8}	<5.9 {<2.1}	<5.9 {<2.1}	<5.9 {<2.1}	<9.9 {<3.5}	<4 {<1.4}
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	<9.6 {<4.1}	<9.8 {<4.2}	<9.4 {<4.1}	<8.6 {<3.7}	<5.2 {<2.2}	<5.9 {<2.5}	<5.9 {<2.5}	<5.9 {<2.5}	<9.9 {<4.3}	<4 {<1.7}
1,1,2-Trichloroethane	ug/kg	--	--	--	<9.6 {<4.2}	<9.8 {<4.3}	<9.4 {<4.1}	<8.6 {<3.8}	<5.2 {<2.2}	<5.9 {<2.6}	<5.9 {<2.6}	<5.9 {<2.6}	<9.9 {<4.3}	<4 {<1.8}
1,1-Dichloroethane	ug/kg	--	--	--	<9.6 {<2.4}	<9.8 {<2.5}	<9.4 {<2.4}	<8.6 {<2.2}	<5.2 {<1.3}	<5.9 {<1.5}	<5.9 {<1.5}	<5.9 {<1.5}	<9.9 {<2.5}	<4 {<1}
1,1-Dichloroethene	ug/kg	--	--	14,000	<24 {<2.9}	<25 {<2.9}	<24 {<2.8}	<22 {<2.6}	<13 {<1.5}	<15 {<1.8}	<15 {<1.8}	<15 {<1.8}	<25 {<3}	<10 {<1.2}
1,1-Dichloropropene	ug/kg	--	--	--	<9.6 {<1.9}	<9.8 {<2}	<9.4 {<1.9}	<8.6 {<1.7}	<5.2 {<1}	<5.9 {<1.2}	<5.9 {<1.2}	<5.9 {<1.2}	<9.9 {<2}	<4 {<0.81}
1,2,3-Trichlorobenzene	ug/kg	--	--	--	<24 {<4.8}	<25 {<4.9}	<24 {<4.7}	<22 {<4.3}	<13 {<2.6}	<15 {<2.9}	<15 {<2.9}	<15 {<2.9}	<25 {<5}	<10 {<2}

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

WASTE CHARACTERIZATION SAMPLE RESULTS – IEL-3
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

Object Name: Sample Name: Collection Date: Sample Depth (feet):					125727 125727_8S11 10/22/2012 1 - 1.5	125727 125727_8S9 10/22/2012 1 - 1_5	125727 125727_B1S1 10/23/2012 2.5 - 3	125727 125727_B1S2 10/23/2012 2.5 - 3	125727 125727_B2S3 10/23/2012 2.5 - 3	125727 125727_B2S4 10/23/2012 2.5 - 3	125727 125727_B3S6 10/23/2012 2.5 - 3	125727 125727_B3S9 10/23/2012 2.5 - 3	125727 125727_B4S5 10/23/2012 2.5 - 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	RESULT ^c
1,2,3-Trichloropropane	ug/kg	--	--	--	<48 {<4.8}	<49 {<4.9}	<47 {<4.7}	<43 {<4.3}	<26 {<2.6}	<29 {<2.9}	<29 {<2.9}	<50 {<5}	<20 {<2}
1,2,4-Trichlorobenzene	ug/kg	--	--	--	<24 {<4.8}	<25 {<4.9}	<24 {<4.7}	<22 {<4.3}	<13 {<2.6}	<15 {<2.9}	<15 {<2.9}	<25 {<5}	<10 {<2}
1,2,4-Trimethylbenzene	ug/kg	--	--	--	<9.6 {<3.8}	<9.8 {<3.8}	<9.4 {<3.7}	<8.6 {<3.4}	<5.2 {<2}	<5.9 {<2.3}	<5.9 {<2.3}	<9.9 {<3.9}	<4 {<1.6}
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	<24 {<7.2}	<25 {<7.4}	<24 {<7.1}	<22 {<6.5}	<13 {<3.9}	<15 {<4.4}	<15 {<4.4}	<25 {<7.4}	<10 {<3}
1,2-Dibromoethane	ug/kg	--	--	--	<9.6 {<3.8}	<9.8 {<3.9}	<9.4 {<3.8}	<8.6 {<3.4}	<5.2 {<2.1}	<5.9 {<2.4}	<5.9 {<2.4}	<9.9 {<4}	<4 {<1.6}
1,2-Dichlorobenzene	ug/kg	--	--	--	<9.6 {<4.6}	<9.8 {<4.7}	<9.4 {<4.5}	<8.6 {<4.1}	<5.2 {<2.4}	<5.9 {<2.8}	<5.9 {<2.8}	<9.9 {<4.7}	<4 {<1.9}
1,2-Dichloroethane	ug/kg	--	--	10,000	<9.6 {<3.8}	<9.8 {<3.9}	<9.4 {<3.8}	<8.6 {<3.4}	<5.2 {<2.1}	<5.9 {<2.4}	<5.9 {<2.4}	<9.9 {<4}	<4 {<1.6}
1,2-Dichloropropane	ug/kg	--	--	--	<9.6 {<3.8}	<9.8 {<3.9}	<9.4 {<3.8}	<8.6 {<3.4}	<5.2 {<2.1}	<5.9 {<2.4}	<5.9 {<2.4}	<9.9 {<4}	<4 {<1.6}
1,3,5-Trimethylbenzene	ug/kg	--	--	--	<9.6 {<3}	<9.8 {<3.1}	<9.4 {<3}	<8.6 {<2.7}	<5.2 {<1.6}	<5.9 {<1.9}	<5.9 {<1.9}	<9.9 {<3.1}	<4 {<1.3}
1,3-Dichlorobenzene	ug/kg	--	--	--	<9.6 {<4}	<9.8 {<4.1}	<9.4 {<4}	<8.6 {<3.6}	<5.2 {<2.2}	<5.9 {<2.5}	<5.9 {<2.5}	<9.9 {<4.2}	<4 {<1.7}
1,3-Dichloropropane	ug/kg	--	--	--	<9.6 {<3}	<9.8 {<3.1}	<9.4 {<3}	<8.6 {<2.7}	<5.2 {<1.6}	<5.9 {<1.9}	<5.9 {<1.9}	<9.9 {<3.1}	<4 {<1.3}
1,4-Dichlorobenzene	ug/kg	--	--	150,000	<9.6 {<4.5}	<9.8 {<4.6}	<9.4 {<4.4}	<8.6 {<4.1}	<5.2 {<2.4}	<5.9 {<2.8}	<5.9 {<2.8}	<9.9 {<4.7}	<4 {<1.9}
2,2-Dichloropropane	ug/kg	--	--	--	<9.6 {<2.9}	<9.8 {<2.9}	<9.4 {<2.8}	<8.6 {<2.6}	<5.2 {<1.5}	<5.9 {<1.8}	<5.9 {<1.8}	<9.9 {<3}	<4 {<1.2}
2-Butanone (MEK)	ug/kg	--	--	4,000,000	<48 {<29}	<49 {<29}	<47 {<28}	<43 {<26}	<26 {<15}	<29 {<18}	<29 {<18}	<50 {<30}	<20 {<12}
2-Chlorotoluene	ug/kg	--	--	--	<24 {<4.2}	<25 {<4.3}	<24 {<4.1}	<22 {<3.8}	<13 {<2.2}	<15 {<2.6}	<15 {<2.6}	<25 {<4.3}	<10 {<1.8}
2-Hexanone	ug/kg	--	--	--	<120 {<44}	<120 {<45}	<120 {<43}	<110 {<39}	<64 {<23}	<74 {<27}	<74 {<27}	<120 {<45}	<50 {<18}
4-Chlorotoluene	ug/kg	--	--	--	<24 {<3.6}	<25 {<3.6}	<24 {<3.5}	<22 {<3.2}	<13 {<1.9}	<15 {<2.2}	<15 {<2.2}	<25 {<3.7}	<10 {<1.5}
4-Methyl-2-pentanone	ug/kg	--	--	--	<24 {<22}	<25 {<22}	<24 {<21}	<22 {<19}	<13 {<12}	<15 {<13}	<15 {<13}	<25 {<22}	<10 {<9.1}
Acetone	ug/kg	--	--	--	<48 {<38}	<49 {<39}	<47 {<38}	<43 {<34}	<26 {<21}	<29 {<24}	<29 {<24}	<50 {<40}	<20 {<16}
Benzene	ug/kg	--	--	10,000	<9.6 {<2.4}	<9.8 {<2.5}	<9.4 {<2.4}	<8.6 {<2.2}	<5.2 {<1.3}	<5.9 {<1.5}	<5.9 {<1.5}	<9.9 {<2.5}	<4 {<1}
Bromobenzene	ug/kg	--	--	--	<24 {<4}	<25 {<4.1}	<24 {<4}	<22 {<3.6}	<13 {<2.2}	<15 {<2.5}	<15 {<2.5}	<25 {<4.2}	<10 {<1.7}
Bromochloromethane	ug/kg	--	--	--	<24 {<4.3}	<25 {<4.4}	<24 {<4.2}	<22 {<3.9}	<13 {<2.3}	<15 {<2.6}	<15 {<2.6}	<25 {<4.5}	<10 {<1.8}
Bromodichloromethane	ug/kg	--	--	--	<9.6 {<2.4}	<9.8 {<2.5}	<9.4 {<2.4}	<8.6 {<2.2}	<5.2 {<1.3}	<5.9 {<1.5}	<5.9 {<1.5}	<9.9 {<2.5}	<4 {<1}
Bromoform	ug/kg	--	--	--	<24 {<3.8}	<25 {<3.9}	<24 {<3.8}	<22 {<3.4}	<13 {<2.1}	<15 {<2.4}	<15 {<2.4}	<25 {<4}	<10 {<1.6}
Bromomethane	ug/kg	--	--	--	<24 {<4.4}	<25 {<4.5}	<24 {<4.3}	<22 {<4}	<13 {<2.4}	<15 {<2.7}	<15 {<2.7}	<25 {<4.6}	<10 {<1.9}
Carbon disulfide	ug/kg	--	--	--	<24 {<4.7}	<25 {<4.8}	<24 {<4.6}	<22 {<4.2}	<13 {<2.5}	<15 {<2.9}	<15 {<2.9}	<25 {<4.8}	<10 {<2}
Carbon tetrachloride	ug/kg	--	--	10,000	<24 {<2.4}	<25 {<2.5}	<24 {<2.4}	<22 {<2.2}	<13 {<1.3}	<15 {<1.5}	<15 {<1.5}	<25 {<2.5}	<10 {<1}
Chlorobenzene	ug/kg	--	--	2,000,000	<9.6 {<2.5}	<9.8 {<2.5}	<9.4 {<2.5}	<8.6 {<2.2}	<5.2 {<1.3}	<5.9 {<1.5}	<5.9 {<1.5}	<9.9 {<2.6}	<4 {<1}
Chloroethane	ug/kg	--	--	--	<24 {<7.2}	<25 {<7.4}	<24 {<7.1}	<22 {<6.5}	<13 {<3.9}	<15 {<4.4}	<15 {<4.4}	<25 {<7.4}	<10 {<3}
Chloroform	ug/kg	--	--	120,000	<9.6 {<2.4}	<9.8 {<2.5}	<9.4 {<2.4}	<8.6 {<2.2}	<5.2 {<1.3}	<5.9 {<1.5}	<5.9 {<1.5}	<9.9 {<2.5}	<4 {<1}
Chloromethane	ug/kg	--	--	--	<24 {<4.8}	<25 {<4.9}	<24 {<4.7}	<22 {<4.3}	<13 {<2.6}	<15 {<2.9}	<15 {<2.9}	<25 {<5}	<10 {<2}
cis-1,2-Dichloroethene	ug/kg	--	--	--	<9.6 {<4}	<9.8 {<4.1}	<9.4 {<3.9}	<8.6 {<3.6}	<5.2 {<2.1}	<5.9 {<2.4}	<5.9 {<2.4}	<9.9 {<4.1}	<4 {<1.7}
cis-1,3-Dichloropropene	ug/kg	--	--	--	<9.6 {<2.1}	<9.8 {<2.2}	<9.4 {<2.1}	<8.6 {<1.9}	<5.2 {<1.1}	<5.9 {<1.3}	<5.9 {<1.3}	<9.9 {<2.2}	<4 {<0.89}

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

WASTE CHARACTERIZATION SAMPLE RESULTS – IEL-3
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

Object Name: Sample Name: Collection Date: Sample Depth (feet):					125727 125727_B5S10 10/23/2012 2.5 - 3	125727 125727_B5S8 10/23/2012 2.5 - 3	125727 125727_B7S11 10/23/2012 2.5 - 3	125727 125727_B7S7 10/23/2012 2.5 - 3	125727 125727_T1S3 10/23/2012 2.5 - 3	125727 125727_T2S2 10/23/2012 2.5 - 3	125727 125727_T3S1 10/23/2012 2.5 - 3	125727 125727_T4S4 10/23/2012 2.5 - 3	125727 125727_T5S6 10/23/2012 2.5 - 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	RESULT ^c
METALS													
Antimony	mg/kg	500	150	--	1.5 J	<10	1.9 J	1.3 J	1.8 J	2 J	1.1 J	1.5 J	<10
Arsenic	mg/kg	500	50	100	12	9.5	12	11	8.2	10	11	8.6	4.6
Barium	mg/kg	10,000	1,000	2,000	57	72	42	59	69	68	59	70	56
Beryllium	mg/kg	75	7.5	--	0.53	0.44 J	0.65	0.8	0.5	0.56	0.49 J	0.51	0.34 J
Cadmium	mg/kg	100	10	20	0.29 J	0.48 J	<0.5	0.23 J	<0.5	<0.5	0.2 J	<0.5	<0.5
Chromium	mg/kg	500	50	100	19	16	19	21	16	17	15	15	12
Cobalt	mg/kg	8,000	800	--	4.9	5.6	2.3	3.1	4.5	4.4	4.4	4.6	3.6
Copper	mg/kg	2,500	250	--	7.7	79	7.4	10	7.9	9.1	8.4	10	6.3
Lead	mg/kg	1,000	50	100	4	9	5.4	6.4	3.9 B	4.9 B	4	34 B	2.5 B
Mercury	mg/kg	20	2	4	0.012 J	0.42	0.017 J	0.028	<0.02	0.033	0.042	0.85	0.016 J
Molybdenum	mg/kg	3,500	3,500	--	1.3 J	1.2 J	1.7 J	1.7 J	1.2 J	1.5 J	1.1 J	1.3 J	1 J
Nickel	mg/kg	2,000	200	--	12	14	9.6	12	11	12	11	11	6.8
Selenium	mg/kg	100	10	20	<2	<2	<2	<2	3.3 B	2.6 B	<2	3.5 B	1.6 JB
Silver	mg/kg	500	50	100	<1	<0.98	<1	<0.99	<1	<0.99	<1	<1	<1
Thallium	mg/kg	700	70	--	<9.9	<10	<10	<10	<10	<9.9	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	31	28	38	39	28	28	27	27	27
Zinc	mg/kg	5,000	2,500	--	53	150	35	41	46 B	47 B	54	44 B	26 B
PCBs													
Aroclor 1016	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<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}	<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}	<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}	<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}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}
Aroclor 1254	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}
Aroclor 1260	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}	<50 {<12}
VOCs													
1,1,1,2-Tetrachloroethane	ug/kg	--	--	--	<24 {<2.7}	<24 {<2.7}	<25 {<2.9}	<25 {<2.8}	<22 {<2.5}	<21 {<2.4}	<22 {<2.5}	<23 {<2.6}	<21 {<2.4}
1,1,1-Trichloroethane	ug/kg	--	--	--	<9.6 {<3.4}	<9.6 {<3.4}	<10 {<3.5}	<9.8 {<3.4}	<8.7 {<3}	<8.3 {<2.9}	<8.7 {<3}	<9.1 {<3.2}	<8.5 {<3}
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	<9.6 {<4.1}	<9.6 {<4.1}	<10 {<4.3}	<9.8 {<4.2}	<8.7 {<3.7}	<8.3 {<3.6}	<8.7 {<3.7}	<9.1 {<3.9}	<8.5 {<3.6}
1,1,2-Trichloroethane	ug/kg	--	--	--	<9.6 {<4.2}	<9.6 {<4.2}	<10 {<4.4}	<9.8 {<4.3}	<8.7 {<3.8}	<8.3 {<3.6}	<8.7 {<3.8}	<9.1 {<4}	<8.5 {<3.7}
1,1-Dichloroethane	ug/kg	--	--	--	<9.6 {<2.4}	<9.6 {<2.4}	<10 {<2.5}	<9.8 {<2.5}	<8.7 {<2.2}	<8.3 {<2.1}	<8.7 {<2.2}	<9.1 {<2.3}	<8.5 {<2.1}
1,1-Dichloroethene	ug/kg	--	--	14,000	<24 {<2.9}	<24 {<2.9}	<25 {<3}	<25 {<2.9}	<22 {<2.6}	<21 {<2.5}	<22 {<2.6}	<23 {<2.7}	<21 {<2.5}
1,1-Dichloropropene	ug/kg	--	--	--	<9.6 {<1.9}	<9.6 {<1.9}	<10 {<2}	<9.8 {<2}	<8.7 {<1.7}	<8.3 {<1.7}	<8.7 {<1.7}	<9.1 {<1.8}	<8.5 {<1.7}
1,2,3-Trichlorobenzene	ug/kg	--	--	--	7.1 J	<24 {<4.8}	<25 {<5}	<25 {<4.9}	<22 {<4.3}	<21 {<4.2}	<22 {<4.3}	<23 {<4.5}	<21 {<4.2}

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

WASTE CHARACTERIZATION SAMPLE RESULTS – IEL-3
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

Object Name: Sample Name: Collection Date: Sample Depth (feet):					125727 125727_B5S10 10/23/2012 2.5 - 3	125727 125727_B5S8 10/23/2012 2.5 - 3	125727 125727_B7S11 10/23/2012 2.5 - 3	125727 125727_B7S7 10/23/2012 2.5 - 3	125727 125727_T1S3 10/23/2012 2.5 - 3	125727 125727_T2S2 10/23/2012 2.5 - 3	125727 125727_T3S1 10/23/2012 2.5 - 3	125727 125727_T4S4 10/23/2012 2.5 - 3	125727 125727_T5S6 10/23/2012 2.5 - 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	RESULT ^c
1,2,3-Trichloropropane	ug/kg	--	--	--	<48 {<4.8}	<48 {<4.8}	<50 {<5}	<49 {<4.9}	<43 {<4.3}	<42 {<4.2}	<43 {<4.3}	<45 {<4.5}	<42 {<4.2}
1,2,4-Trichlorobenzene	ug/kg	--	--	--	<24 {<4.8}	<24 {<4.8}	<25 {<5}	<25 {<4.9}	<22 {<4.3}	<21 {<4.2}	<22 {<4.3}	<23 {<4.5}	<21 {<4.2}
1,2,4-Trimethylbenzene	ug/kg	--	--	--	<9.6 {<3.8}	<9.6 {<3.8}	<10 {<3.9}	<9.8 {<3.8}	<8.7 {<3.4}	<8.3 {<3.3}	<8.7 {<3.4}	<9.1 {<3.5}	<8.5 {<3.3}
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	<24 {<7.2}	<24 {<7.2}	<25 {<7.5}	<25 {<7.4}	<22 {<6.5}	<21 {<6.3}	<22 {<6.5}	<23 {<6.8}	<21 {<6.4}
1,2-Dibromoethane	ug/kg	--	--	--	<9.6 {<3.8}	<9.6 {<3.8}	<10 {<4}	<9.8 {<3.9}	<8.7 {<3.5}	<8.3 {<3.3}	<8.7 {<3.5}	<9.1 {<3.6}	<8.5 {<3.4}
1,2-Dichlorobenzene	ug/kg	--	--	--	<9.6 {<4.6}	<9.6 {<4.6}	<10 {<4.8}	<9.8 {<4.7}	<8.7 {<4.1}	<8.3 {<4}	<8.7 {<4.1}	<9.1 {<4.3}	<8.5 {<4}
1,2-Dichloroethane	ug/kg	--	--	10,000	<9.6 {<3.8}	<9.6 {<3.8}	<10 {<4}	<9.8 {<3.9}	<8.7 {<3.5}	<8.3 {<3.3}	<8.7 {<3.5}	<9.1 {<3.6}	<8.5 {<3.4}
1,2-Dichloropropane	ug/kg	--	--	--	<9.6 {<3.8}	<9.6 {<3.8}	<10 {<4}	<9.8 {<3.9}	<8.7 {<3.5}	<8.3 {<3.3}	<8.7 {<3.5}	<9.1 {<3.6}	<8.5 {<3.4}
1,3,5-Trimethylbenzene	ug/kg	--	--	--	<9.6 {<3}	<9.6 {<3}	<10 {<3.2}	<9.8 {<3.1}	<8.7 {<2.7}	<8.3 {<2.6}	<8.7 {<2.7}	<9.1 {<2.9}	<8.5 {<2.7}
1,3-Dichlorobenzene	ug/kg	--	--	--	<9.6 {<4}	<9.6 {<4}	<10 {<4.2}	<9.8 {<4.1}	<8.7 {<3.7}	<8.3 {<3.5}	<8.7 {<3.7}	<9.1 {<3.8}	<8.5 {<3.6}
1,3-Dichloropropane	ug/kg	--	--	--	<9.6 {<3}	<9.6 {<3}	<10 {<3.2}	<9.8 {<3.1}	<8.7 {<2.7}	<8.3 {<2.6}	<8.7 {<2.7}	<9.1 {<2.9}	<8.5 {<2.7}
1,4-Dichlorobenzene	ug/kg	--	--	150,000	<9.6 {<4.5}	<9.6 {<4.5}	<10 {<4.7}	<9.8 {<4.6}	<8.7 {<4.1}	<8.3 {<3.9}	<8.7 {<4.1}	<9.1 {<4.3}	<8.5 {<4}
2,2-Dichloropropane	ug/kg	--	--	--	<9.6 {<2.9}	<9.6 {<2.9}	<10 {<3}	<9.8 {<2.9}	<8.7 {<2.6}	<8.3 {<2.5}	<8.7 {<2.6}	<9.1 {<2.7}	<8.5 {<2.5}
2-Butanone (MEK)	ug/kg	--	--	4,000,000	<48 {<29}	<48 {<29}	<50 {<30}	<49 {<29}	<43 {<26}	<42 {<25}	<43 {<26}	<45 {<27}	<42 {<25}
2-Chlorotoluene	ug/kg	--	--	--	<24 {<4.2}	<24 {<4.2}	<25 {<4.4}	<25 {<4.3}	<22 {<3.8}	<21 {<3.6}	<22 {<3.8}	<23 {<4}	<21 {<3.7}
2-Hexanone	ug/kg	--	--	--	<120 {<44}	<120 {<44}	<130 {<46}	<120 {<45}	<110 {<40}	<100 {<38}	<110 {<40}	<110 {<41}	<110 {<39}
4-Chlorotoluene	ug/kg	--	--	--	<24 {<3.6}	<24 {<3.6}	<25 {<3.7}	<25 {<3.6}	<22 {<3.2}	<21 {<3.1}	<22 {<3.2}	<23 {<3.4}	<21 {<3.1}
4-Methyl-2-pentanone	ug/kg	--	--	--	<24 {<22}	<24 {<22}	<25 {<23}	<25 {<22}	<22 {<20}	<21 {<19}	<22 {<20}	<23 {<20}	<21 {<19}
Acetone	ug/kg	--	--	--	<48 {<38}	<48 {<38}	<50 {<40}	<49 {<39}	<43 {<35}	<42 {<33}	<43 {<35}	<45 {<36}	<42 {<34}
Benzene	ug/kg	--	--	10,000	<9.6 {<2.4}	<9.6 {<2.4}	<10 {<2.5}	<9.8 {<2.5}	<8.7 {<2.2}	<8.3 {<2.1}	<8.7 {<2.2}	<9.1 {<2.3}	<8.5 {<2.1}
Bromobenzene	ug/kg	--	--	--	<24 {<4}	<24 {<4}	<25 {<4.2}	<25 {<4.1}	<22 {<3.7}	<21 {<3.5}	<22 {<3.7}	<23 {<3.8}	<21 {<3.6}
Bromochloromethane	ug/kg	--	--	--	<24 {<4.3}	<24 {<4.3}	<25 {<4.5}	<25 {<4.4}	<22 {<3.9}	<21 {<3.8}	<22 {<3.9}	<23 {<4.1}	<21 {<3.8}
Bromodichloromethane	ug/kg	--	--	--	<9.6 {<2.4}	<9.6 {<2.4}	<10 {<2.5}	<9.8 {<2.5}	<8.7 {<2.2}	<8.3 {<2.1}	<8.7 {<2.2}	<9.1 {<2.3}	<8.5 {<2.1}
Bromoform	ug/kg	--	--	--	<24 {<3.8}	<24 {<3.8}	<25 {<4}	<25 {<3.9}	<22 {<3.5}	<21 {<3.3}	<22 {<3.5}	<23 {<3.6}	<21 {<3.4}
Bromomethane	ug/kg	--	--	--	<24 {<4.4}	<24 {<4.4}	<25 {<4.6}	<25 {<4.5}	<22 {<4}	<21 {<3.8}	<22 {<4}	<23 {<4.2}	<21 {<3.9}
Carbon disulfide	ug/kg	--	--	--	<24 {<4.7}	<24 {<4.7}	<25 {<4.9}	<25 {<4.8}	<22 {<4.2}	<21 {<4}	<22 {<4.2}	<23 {<4.4}	<21 {<4.1}
Carbon tetrachloride	ug/kg	--	--	10,000	<24 {<2.4}	<24 {<2.4}	<25 {<2.5}	<25 {<2.5}	<22 {<2.2}	<21 {<2.1}	<22 {<2.2}	<23 {<2.3}	<21 {<2.1}
Chlorobenzene	ug/kg	--	--	2,000,000	<9.6 {<2.5}	<9.6 {<2.5}	<10 {<2.6}	<9.8 {<2.5}	<8.7 {<2.3}	<8.3 {<2.2}	<8.7 {<2.3}	<9.1 {<2.4}	<8.5 {<2.2}
Chloroethane	ug/kg	--	--	--	<24 {<7.2}	<24 {<7.2}	<25 {<7.5}	<25 {<7.4}	<22 {<6.5}	<21 {<6.3}	<22 {<6.5}	<23 {<6.8}	<21 {<6.4}
Chloroform	ug/kg	--	--	120,000	<9.6 {<2.4}	<9.6 {<2.4}	<10 {<2.5}	<9.8 {<2.5}	<8.7 {<2.2}	<8.3 {<2.1}	<8.7 {<2.2}	<9.1 {<2.3}	<8.5 {<2.1}
Chloromethane	ug/kg	--	--	--	<24 {<4.8}	<24 {<4.8}	<25 {<5}	<25 {<4.9}	<22 {<4.3}	<21 {<4.2}	<22 {<4.3}	<23 {<4.5}	<21 {<4.2}
cis-1,2-Dichloroethene	ug/kg	--	--	--	<9.6 {<4}	<9.6 {<4}	<10 {<4.2}	<9.8 {<4.1}	<8.7 {<3.6}	<8.3 {<3.5}	<8.7 {<3.6}	<9.1 {<3.8}	<8.5 {<3.5}
cis-1,3-Dichloropropene	ug/kg	--	--	--	<9.6 {<2.1}	<9.6 {<2.1}	<10 {<2.2}	<9.8 {<2.2}	<8.7 {<1.9}	<8.3 {<1.8}	<8.7 {<1.9}	<9.1 {<2}	<8.5 {<1.9}

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

**WASTE CHARACTERIZATION SAMPLE RESULTS – IEL-3
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY**

					Object Name:	125727	125727
					Sample Name:	125727_T6S7	125727_T7S5
					Collection Date:	10/23/2012	10/23/2012
					Sample Depth (feet):	2.5 - 3	2.5 - 3
ANALYTE	UNITS	TTLIC	WET Leachate Testing Trigger ^a	TCLP Leachate Testing Trigger ^b	RESULT ^c	RESULT ^c	
METALS							
Antimony	mg/kg	500	150	--	1.9 J	1.5 J	
Arsenic	mg/kg	500	50	100	7.2	5.8	
Barium	mg/kg	10,000	1,000	2,000	66	56	
Beryllium	mg/kg	75	7.5	--	0.61	0.32 J	
Cadmium	mg/kg	100	10	20	<0.5	<0.49	
Chromium	mg/kg	500	50	100	14	12	
Cobalt	mg/kg	8,000	800	--	5.4	3.5	
Copper	mg/kg	2,500	250	--	7.3	8.3	
Lead	mg/kg	1,000	50	100	4.9 B	2.9 B	
Mercury	mg/kg	20	2	4	0.024	0.013 J	
Molybdenum	mg/kg	3,500	3,500	--	1.2 J	0.97 J	
Nickel	mg/kg	2,000	200	--	11	7.8	
Selenium	mg/kg	100	10	20	1.7 JB	1.9 JB	
Silver	mg/kg	500	50	100	<1	<0.98	
Thallium	mg/kg	700	70	--	<10	<9.8	
Vanadium	mg/kg	2,400	240	--	25	28	
Zinc	mg/kg	5,000	2,500	--	85 B	44 B	
PCBs							
Aroclor 1016	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	
Aroclor 1221	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	
Aroclor 1232	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	
Aroclor 1242	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	
Aroclor 1248	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	
Aroclor 1254	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	
Aroclor 1260	ug/kg	50,000	50,000	--	<50 {<12}	<50 {<12}	
VOCs							
1,1,1,2-Tetrachloroethane	ug/kg	--	--	--	<24 {<2.7}	<18 {<2.1}	
1,1,1-Trichloroethane	ug/kg	--	--	--	<9.6 {<3.4}	<7.4 {<2.6}	
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	<9.6 {<4.1}	<7.4 {<3.2}	
1,1,2-Trichloroethane	ug/kg	--	--	--	<9.6 {<4.2}	<7.4 {<3.2}	
1,1-Dichloroethane	ug/kg	--	--	--	<9.6 {<2.4}	<7.4 {<1.8}	
1,1-Dichloroethene	ug/kg	--	--	14,000	<24 {<2.9}	<18 {<2.2}	
1,1-Dichloropropene	ug/kg	--	--	--	<9.6 {<1.9}	<7.4 {<1.5}	
1,2,3-Trichlorobenzene	ug/kg	--	--	--	<24 {<4.8}	<18 {<3.7}	

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

**WASTE CHARACTERIZATION SAMPLE RESULTS – IEL-3
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY**

					Object Name:	125727	125727
					Sample Name:	125727_T6S7	125727_T7S5
					Collection Date:	10/23/2012	10/23/2012
					Sample Depth (feet):	2.5 - 3	2.5 - 3
ANALYTE	UNITS	TTLIC	WET Leachate Testing Trigger ^a	TCLP Leachate Testing Trigger ^b	RESULT ^c	RESULT ^c	
1,2,3-Trichloropropane	ug/kg	--	--	--	<48 {<4.8}	<37 {<3.7}	
1,2,4-Trichlorobenzene	ug/kg	--	--	--	<24 {<4.8}	<18 {<3.7}	
1,2,4-Trimethylbenzene	ug/kg	--	--	--	<9.6 {<3.8}	<7.4 {<2.9}	
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	<24 {<7.2}	<18 {<5.5}	
1,2-Dibromoethane	ug/kg	--	--	--	<9.6 {<3.8}	<7.4 {<2.9}	
1,2-Dichlorobenzene	ug/kg	--	--	--	<9.6 {<4.6}	<7.4 {<3.5}	
1,2-Dichloroethane	ug/kg	--	--	10,000	<9.6 {<3.8}	<7.4 {<2.9}	
1,2-Dichloropropane	ug/kg	--	--	--	<9.6 {<3.8}	<7.4 {<2.9}	
1,3,5-Trimethylbenzene	ug/kg	--	--	--	<9.6 {<3}	<7.4 {<2.3}	
1,3-Dichlorobenzene	ug/kg	--	--	--	<9.6 {<4}	<7.4 {<3.1}	
1,3-Dichloropropane	ug/kg	--	--	--	<9.6 {<3}	<7.4 {<2.3}	
1,4-Dichlorobenzene	ug/kg	--	--	150,000	<9.6 {<4.5}	<7.4 {<3.5}	
2,2-Dichloropropane	ug/kg	--	--	--	<9.6 {<2.9}	<7.4 {<2.2}	
2-Butanone (MEK)	ug/kg	--	--	4,000,000	<48 {<29}	<37 {<22}	
2-Chlorotoluene	ug/kg	--	--	--	<24 {<4.2}	<18 {<3.2}	
2-Hexanone	ug/kg	--	--	--	<120 {<44}	<92 {<33}	
4-Chlorotoluene	ug/kg	--	--	--	<24 {<3.6}	<18 {<2.7}	
4-Methyl-2-pentanone	ug/kg	--	--	--	<24 {<22}	<18 {<17}	
Acetone	ug/kg	--	--	--	<48 {<38}	<37 {<29}	
Benzene	ug/kg	--	--	10,000	<9.6 {<2.4}	<7.4 {<1.8}	
Bromobenzene	ug/kg	--	--	--	<24 {<4}	<18 {<3.1}	
Bromochloromethane	ug/kg	--	--	--	<24 {<4.3}	<18 {<3.3}	
Bromodichloromethane	ug/kg	--	--	--	<9.6 {<2.4}	<7.4 {<1.8}	
Bromoform	ug/kg	--	--	--	<24 {<3.8}	<18 {<2.9}	
Bromomethane	ug/kg	--	--	--	<24 {<4.4}	<18 {<3.4}	
Carbon disulfide	ug/kg	--	--	--	<24 {<4.7}	<18 {<3.6}	
Carbon tetrachloride	ug/kg	--	--	10,000	<24 {<2.4}	<18 {<1.8}	
Chlorobenzene	ug/kg	--	--	2,000,000	<9.6 {<2.5}	<7.4 {<1.9}	
Chloroethane	ug/kg	--	--	--	<24 {<7.2}	<18 {<5.5}	
Chloroform	ug/kg	--	--	120,000	<9.6 {<2.4}	<7.4 {<1.8}	
Chloromethane	ug/kg	--	--	--	<24 {<4.8}	<18 {<3.7}	
cis-1,2-Dichloroethene	ug/kg	--	--	--	<9.6 {<4}	<7.4 {<3.1}	
cis-1,3-Dichloropropene	ug/kg	--	--	--	<9.6 {<2.1}	<7.4 {<1.6}	