WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA OUTFALL 009 PLANNED EXCAVATION CTLI-1A

Introduction

This report presents supporting detailed information for the April 27, 2010 in-situ characterization of prospective soil wastes from planned ISRA excavations in SSFL Area I, near the former CTL-I facility.

Background

In-situ characterization of soil destined to be excavated from designated locations in SSFL Area I in accordance with the ISRA Workplan was performed. 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 the applicable SSFL Area I locations. The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The guidelines presented in U.S. EPA SW-846 are followed in evaluating the adequacy of sampling and the application of analytical results to regulatory thresholds. 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 were collected and subjected to analysis or the soil was 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.

The review of historical information and existing analytical data relevant to planned excavation CTLI-1A was based partly on the Group 1A RFI results. Evaluation of these data and other sources of relevant information, including recent sampling conducted specifically for ISRA, suggested that Regulated Metals, Semi-Volatile Organic Compounds (SVOC), Fluoride, and Corrosivity should be addressed in the CTLI-1A excavation footprint. A random sampling plan was developed for collection of Eight (8) samples from the planned excavation footprint, taking into account the relatively small area to be excavated. The samples were analyzed for CAM 17 metals, SVOCs, Fluoride, and pH. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the CTLI-1A planned excavation area are presented in GEL Laboratories reports 251896 issued on 5/7/10 and 252520 issued on 5/14/10. Regulated Metals were far below 10-Times their respective California Soluble Threshold Limits (STLC) in all cases, with the exception of one sample that exhibited Lead at 62.6 parts per million (ppm). This is slightly above the 50 ppm 10X STLC threshold. The Lead concentrations in the other 7 samples ranged between 8.86 ppm and 18.9 ppm. Subsequent analysis of the elevated sample, as required, by

the California Waste Extraction Test (WET) for leaching properties resulted in a concentration of 0.256 milligrams per liter (mg/L), well below the 5 mg/L STLC hazardous waste limit.

Very low concentrations of some SVOCs were detected in the soil samples from CTLI-1A, none of which were above the parts per billion level. Specific hazardous waste thresholds have been established in the regulations for only a small number of SVOCs. There were no exceedances of established limits. Furthermore, none of the detected SVOCs exceeded U.S. EPA Region IX "Preliminary Remediation Goals" values for residential soils.

Low concentrations of Fluoride were detected in the samples. These ranged between 1.41 ppm and 3.89 ppm. These concentrations are far below the 10X STLC threshold of 1,800 ppm. No specific regulatory Limit has been established for Fluoride under the Resource Conservation and Recovery Act.

The pH of the soil being characterized was in the neutral range, with a maximum of 7.56 and a minimum of 6.24.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of SSFL Area I CTLI-1A:

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 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 CTLI-1A is NON-HAZARDOUS.

Outfall 009
Waste Characterization
Sample Locations for CTLI-1A

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

Base Map Legend

- ISRA Excavation Boundary
- Waste Characterization Sample Location

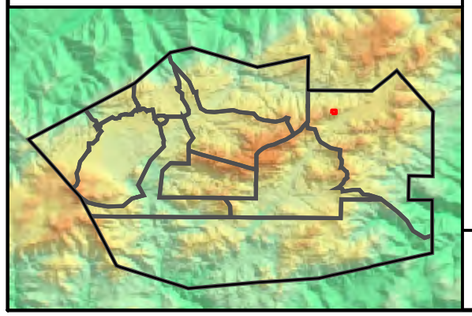
Note:

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_SP_CTL-1A_SampleLocations_062110_WC.mxd Date: Jun 21, 2010

1 inch = 15 feet

0 15 30 Feet



MWH

SANTA SUSANA FIELD LABORATORY

FIGURE 1

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

WASTE CHARACTERIZATION SAMPLE RESULTS – CTLI-1A
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

				Object Name:		**C1WC0001**	**C1WC0002**	**C1WC0003**	**C1WC0004**	**C1WC0005**	**C1WC0006**	**C1WC0007**	**C1WC0008**
				Sample Name:		C1WC0001S001	C1WC0002S001	C1WC0003S001	C1WC0004S001	C1WC0005S001	C1WC0006S001	C1WC0007S001	C1WC0008S001
				Collection Date:		4/27/2010	4/27/2010	4/27/2010	4/27/2010	4/27/2010	4/27/2010	4/27/2010	4/27/2010
				Sample Depth (feet):		0.0 - 0.5	5.0 - 5.5	3.0 - 3.5	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	1.5 - 2.0	0.5 - 1.0
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**
METALS													
Antimony	mg/kg	500	150	--	--	0.26	0.296	0.254	0.225	0.286	0.319	0.263	0.233
Arsenic	mg/kg	500	50	100	--	12.5	10	13.1	5.04	6.59	11.2	10.7	7.99
Barium	mg/kg	10,000	1,000	2,000	--	117	89.5	112	80.2	183	98.9	92.9	105
Beryllium	mg/kg	75	7.5	--	--	1.02	0.654	0.905	0.359	0.544	0.789	0.745	0.582
Cadmium	mg/kg	100	10	20	--	0.274	0.0948 J	0.106	0.137	0.249	0.151	0.0848 J	0.236
Chromium	mg/kg	500	50	100	--	24.3	20.1	24.1	21.6	20.3	22.8	21.6	20.1
Cobalt	mg/kg	8,000	800	--	--	9.24	5.38	8.87	5.41	5.9	6.37	7.46	6.69
Copper	mg/kg	2,500	250	--	--	16.8	10.4	15.1	8.01	11.9	13.4	12.7	12.8
Lead	mg/kg	1,000	50	100	--	13.4	13.8	11.9	14.7	62.6	18.1	8.86	18.9
Lead, WET	mg/L	--	--	--	5	--	--	--	--	0.256	--	--	--
Mercury	mg/kg	20	2	4	--	<0.0112	<0.0113	<0.0111	0.0122 J	<0.0113	<0.0113	<0.0112	<0.0111
Molybdenum	mg/kg	3,500	3,500	--	--	0.761	0.964	0.739	0.645	0.709	0.683	0.612	0.744
Nickel	mg/kg	2,000	200	--	--	16.7	11.9	15.5	13.5	13.6	13.4	14.9	12.6
Selenium	mg/kg	100	10	20	--	0.278 J	0.36 J	0.254 J	0.137 J	0.181 J	0.25 J	0.216 J	0.172 J
Silver	mg/kg	500	50	100	--	0.0843 J	0.0282 J	0.0909 J	0.0462 J	0.0493 J	0.0475 J	0.0567 J	0.0373 J
Thallium	mg/kg	700	70	--	--	0.307	0.285	0.375	0.228	0.232	0.318	0.313	0.266
Vanadium	mg/kg	2,400	240	--	--	40.8	36.8	42.3	36.7	35.1	37.3	38.5	37.8
Zinc	mg/kg	5,000	2,500	--	--	147	80	80.3	58.1	145.0	105	65.1	407
General Chemistry													
Fluoride	mg/kg	18,000	1,800	--	--	3.32	1.53	2.36	3.89	1.61	1.41	1.61	1.75
pH	SU	--	--	--	--	7.56 H	6.8 H	6.24 H	6.36 H	6.78 H	6.45 H	6.77 H	6.87 H
SVOCs													
1,1'-Biphenyl	ug/kg	--	--	--	--	<332 {<99.6}	<332 {<99.6}	<331 {<99.4}	<332 {<99.6}	<332 {<99.6}	<332 {<99.6}	<332 {<99.5}	<332 {<99.7}
1,2,4-Trichlorobenzene	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
1,2-Dichlorobenzene	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
1,3-Dichlorobenzene	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
1,4-Dichlorobenzene	ug/kg	--	--	150,000	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
1-Naphthylamine	ug/kg	--	--	--	--	<332 {<99.6}	<332 {<99.6}	<331 {<99.4}	<332 {<99.6}	<332 {<99.6}	<332 {<99.6}	<332 {<99.5}	<332 {<99.7}
2,4,5-Trichlorophenol	ug/kg	--	--	8,000,000	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
2,4,6-Trichlorophenol	ug/kg	--	--	40,000	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
2,4-Dichlorophenol	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
2,4-Dimethylphenol	ug/kg	--	--	--	--	<332 {<116}	<332 {<116}	<331 {<116}	<332 {<116}	<332 {<116}	<332 {<116}	<332 {<116}	<332 {<116}
2,4-Dinitrophenol	ug/kg	--	--	--	--	<664 {<126}	<664 {<126}	<663 {<126}	<664 {<126}	<664 {<126}	<664 {<126}	<664 {<126}	<664 {<126}
2,4-Dinitrotoluene	ug/kg	--	--	2,600	--	<332 {<33.2}	<332 {<33.2}	<331 {<33.1}	<332 {<33.2}	<332 {<33.2}	<332 {<33.2}	<332 {<33.2}	<332 {<33.2}
2,6-Dinitrotoluene	ug/kg	--	--	--	--	<332 {<33.2}	<332 {<33.2}	<331 {<33.1}	<332 {<33.2}	<332 {<33.2}	<332 {<33.2}	<332 {<33.2}	<332 {<33.2}

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				Sample Depth (feet):		0.0 - 0.5	5.0 - 5.5	3.0 - 3.5	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	1.5 - 2.0	0.5 - 1.0
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**
2-Chloronaphthalene	ug/kg	--	--	--	--	<33.2 {<11}	<33.2 {<11}	<33.1 {<10.9}	<33.2 {<11}	<33.2 {<11}	<33.2 {<11}	<33.2 {<10.9}	<33.2 {<11}
2-Chlorophenol	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
2-Methylnaphthalene	ug/kg	--	--	--	--	<33.2 {<6.64}	<33.2 {<6.64}	<33.1 {<6.63}	<33.2 {<6.64}	<33.2 {<6.64}	<33.2 {<6.64}	<33.2 {<6.64}	<33.2 {<6.64}
2-Methylphenol	ug/kg	--	--	200	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
2-Naphthylamine	ug/kg	--	--	--	--	<332 {<110}	<332 {<110}	<331 {<109}	<332 {<110}	<332 {<110}	<332 {<110}	<332 {<109}	<332 {<110}
2-Nitroaniline	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
2-Nitrophenol	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
3,3-Dichlorobenzidine	ug/kg	--	--	--	--	<332 {<99.6}	<332 {<99.6}	<331 {<99.4}	<332 {<99.6}	<332 {<99.6}	<332 {<99.6}	<332 {<99.5}	<332 {<99.7}
3-Nitroaniline	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
4,6-Dinitro-2-methylphenol	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
4-Aminobiphenyl	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
4-Chloro-3-methylphenol	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
4-Chloroaniline	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
4-Chlorophenyl-phenylether	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
4-Methylphenol	ug/kg	--	--	200	--	<332 {<99.6}	<332 {<99.6}	<331 {<99.4}	<332 {<99.6}	<332 {<99.6}	<332 {<99.6}	<332 {<99.5}	<332 {<99.7}
4-Nitroaniline	ug/kg	--	--	--	--	<332 {<99.6}	<332 {<99.6}	<331 {<99.4}	<332 {<99.6}	<332 {<99.6}	<332 {<99.6}	<332 {<99.5}	<332 {<99.7}
4-Nitrophenol	ug/kg	--	--	--	--	<332 {<110}	<332 {<110}	<331 {<109}	<332 {<110}	<332 {<110}	<332 {<110}	<332 {<109}	<332 {<110}
Acenaphthene	ug/kg	--	--	--	--	<33.2 {<11}	<33.2 {<11}	<33.1 {<10.9}	<33.2 {<11}	<33.2 {<11}	<33.2 {<11}	<33.2 {<10.9}	<33.2 {<11}
Acenaphthylene	ug/kg	--	--	--	--	<33.2 {<9.96}	<33.2 {<9.96}	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Acetophenone	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Anthracene	ug/kg	--	--	--	--	<33.2 {<6.64}	<33.2 {<6.64}	<33.1 {<6.63}	<33.2 {<6.64}	<33.2 {<6.64}	<33.2 {<6.64}	7.14 J	<33.2 {<6.64}
Atrazine	ug/kg	--	--	--	--	<332 {<99.6}	<332 {<99.6}	<331 {<99.4}	<332 {<99.6}	<332 {<99.6}	<332 {<99.6}	<332 {<99.5}	<332 {<99.7}
Benzaldehyde	ug/kg	--	--	--	--	<332 {<99.6}	<332 {<99.6}	<331 {<99.4}	<332 {<99.6}	<332 {<99.6}	<332 {<99.6}	<332 {<99.5}	<332 {<99.7}
Benzidine	ug/kg	--	--	--	--	<332 {<99.6}	<332 {<99.6}	<331 {<99.4}	<332 {<99.6}	<332 {<99.6}	<332 {<99.6}	<332 {<99.5}	<332 {<99.7}
Benzo(a)anthracene	ug/kg	--	--	--	--	<33.2 {<9.96}	<33.2 {<9.96}	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Benzo(a)pyrene	ug/kg	--	--	--	--	<33.2 {<9.96}	24.3 J	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Benzo(b)fluoranthene	ug/kg	--	--	--	--	10.2 J	39	<33.1 {<9.94}	<33.2 {<9.96}	15.7 J	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Benzo(ghi)perylene	ug/kg	--	--	--	--	<33.2 {<9.96}	21.2 J	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Benzo(k)fluoranthene	ug/kg	--	--	--	--	<33.2 {<9.96}	15.9 J	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Bis(2-chloroethoxy)methane	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Bis(2-chloroethyl)ether	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Bis(2-chloroisopropyl)ether	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
bis(2-Ethylhexyl) phthalate	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Butyl benzyl phthalate	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Caprolactam	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}

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SANTA SUSANA FIELD LABORATORY

				Object Name:		**C1WC0001**	**C1WC0002**	**C1WC0003**	**C1WC0004**	**C1WC0005**	**C1WC0006**	**C1WC0007**	**C1WC0008**
				Sample Name:		C1WC0001S001	C1WC0002S001	C1WC0003S001	C1WC0004S001	C1WC0005S001	C1WC0006S001	C1WC0007S001	C1WC0008S001
				Collection Date:		4/27/2010	4/27/2010	4/27/2010	4/27/2010	4/27/2010	4/27/2010	4/27/2010	4/27/2010
				Sample Depth (feet):		0.0 - 0.5	5.0 - 5.5	3.0 - 3.5	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	1.5 - 2.0	0.5 - 1.0
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**	**RESULT[c]**
Carbazole	ug/kg	--	--	--	--	<33.2 {<9.96}	<33.2 {<9.96}	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Chrysene	ug/kg	--	--	--	--	<33.2 {<9.96}	19.8 J	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Dibenzo(a,h)anthracene	ug/kg	--	--	--	--	<33.2 {<9.96}	<33.2 {<9.96}	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Dibenzofuran	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Diethyl phthalate	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Dimethyl phthalate	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Di-n-butyl phthalate	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Di-n-octyl phthalate	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Diphenylamine	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Fluoranthene	ug/kg	--	--	--	--	<33.2 {<9.96}	19.5 J	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Fluorene	ug/kg	--	--	--	--	<33.2 {<9.96}	<33.2 {<9.96}	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Hexachlorobenzene	ug/kg	--	--	2,600	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Hexachlorobutadiene	ug/kg	--	--	10,000	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Hexachlorocyclopentadiene	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Hexachloroethane	ug/kg	--	--	60,000	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	56	68	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Isophorone	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Naphthalene	ug/kg	--	--	--	--	<33.2 {<9.96}	<33.2 {<9.96}	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Nitrobenzene	ug/kg	--	--	40,000	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
n-Nitrosodimethylamine	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
n-Nitroso-di-n-propylamine	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
p-(Dimethylamino)azobenzene	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Pentachlorophenol	ug/kg	17,000	17,000	2,000,000	--	<332 {<83}	<332 {<83}	<331 {<82.8}	<332 {<83}	<332 {<83}	<332 {<83}	<332 {<82.9}	<332 {<83.1}
Phenanthrene	ug/kg	--	--	--	--	<33.2 {<9.96}	<33.2 {<9.96}	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Phenol	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
Pyrene	ug/kg	--	--	--	--	<33.2 {<9.96}	19.5 J	<33.1 {<9.94}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.96}	<33.2 {<9.95}	<33.2 {<9.97}
Pyridine	ug/kg	--	--	--	--	<332 {<66.4}	<332 {<66.4}	<331 {<66.3}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}	<332 {<66.4}
RADIONUCLIDES	--	--	--	--	--	R	R	R	R	R	R	R	R

FOOTNOTES, WASTE CHARACTERIZATION SAMPLE RESULTS - CTLI-1
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

H - Analytical holding time was exceeded.

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

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