

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT
ISRA HAPPY VALLEY PLANNED EXCAVATION HVS-2B-2

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This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

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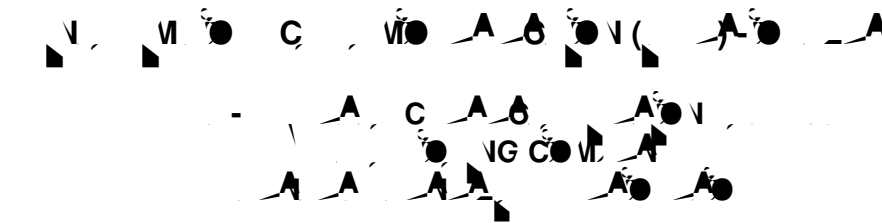
In-situ characteriza28(a)-9.21631(r)6.91208(u)2.30421631(h)-was4(b)(1)7.181(6)4.00(1)7.1317.1303(p)P43 208(characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). 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 thresholo HVS-2B, which as identified based HVS-2B1 and HVS-2B2, was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. However, changes were made in the excavation plans after sampling was already completed. The original area was divided into two separate areas and an additional four (4) samples were collected to account for the new excavation footprint of HVS-2B-2. The samples were all analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

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Analytical results for the HVS-2B-2 planned excavation area are presented in TestAmerin threshold of 100 ppm 50 ppm. An STLC WET test was performed on the sam result was 0.095 mg/L compared to the STLC hazardou

a dramatic reduction from the total Chromium concentrat



			C		C		C		C	
Sample Name:			ISWC0086S001		ISWC0087S001		ISWC0088S001		ISWC0089S001	
Collection Date:			7/29/2009		7/29/2009		7/29/2009		7/29/2009	
Sample Depth (feet):			1.0 - 1.5		0.5 - 1.0		0.5 - 1.0		1.0 - 1.5	
		C	C	C	C					
Antimony	mg/kg	500	150	--	--	<10	<10	<10	<10	<10
Arsenic	mg/kg	500	50	100	--	5.1	4.5	4.6	4.5	4.5
Barium	mg/kg	10,000	1,000	2,000	--	81	83	82	81	81
Beryllium	mg/kg	75	7.5	--	--	0.66	0.63	0.58	0.63	0.63
Cadmium	mg/kg	100	10	20	--	<0.5	<0.5	0.89	<0.5	<0.5
Chromium	mg/kg	500	50	100	--	29	27	57	28	28
Chromium, WET	mg/L	--	--	--	5	--	--	0.095	--	--
Cobalt	mg/kg	8,000	800	--	--	7.8	8	8.1	7.8	7.8
Copper	mg/kg	2,500	250	--	--	15	15	110	15	15
Lead	mg/kg	1,000	50	100	--	6.7	7.2	20	7.3	7.3
Mercury	mg/kg	20	2	4	--	0.0059 J	<0.033	0.37	<0.033	<0.033
Molybdenum	mg/kg	3,500	3,500	--	--	<2	<2	1.1 J	<2	<2
Nickel	mg/kg	2,000	200	--	--	14	14	40	15	15
Selenium	mg/kg	100	10	20	--	<2	<2	<2	<2	<2
Silver	mg/kg	500	50	100	--	<1	<1	4.7	<1	<1
Thallium	mg/kg	700	70	--	--	<10	<10	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	--	50	49	34	47	47
Zinc	mg/kg	5,000	2,500	--	--	61	61	100	60	60
		--	--	--	R	R	R	R	R	R

"--" - not applicable
^a - WET Leachate Testing Trigger = STLC limit * 10
^b - TCLP Leachate Testing Trigger = TCLP limit * 20
 B - analyte was detected in the associated method blank
 J - Result is estimated
 M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference
 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 has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

This table presents only those waste characterization sample results that actually fall within the boundaries of the final, revised excavation footprints. Other results may have been used in the initial soil characterization, but no longer fall within the final excavation footprints. These results are not included in this table, but have been reassigned as data gap information and are reported elsewhere.