Weiss Associates
Environmental Science, Engineering, and Management
5801 Christie Avenue, Suite 600, Emeryville, CA 94608-1827 Fax: 510-547-5043 Phone: 510-450-6000

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PROJECT: 17823
CAT. 1.5.4

Mr. Jay Tomlin
Department of Energy
Oakland Operations Office
1301 Clay Street
Oakland, CA 94612-5208

RE: Domestic Septic Systems 3 and 6 Removal Action Import Fill Analytical Results

Dear Mr. Tomlin:

This letter describes analytical results for potential import fill material and assesses the suitability of this material for use as excavation backfill for Domestic Septic Systems (DSS) 3 and 6 Removal Actions. To determine its suitability for use as backfill, a representative sample of the material was collected and analyzed for specific chemical and radionuclide constituents, as discussed below.

Approximately 300 cubic yards (cu yd) of soil will be required for backfilling the DSS 3 and 6 Areas. The identified off-site source of clean fill is located at the Teichert Aggregates site in Esparto, California which is approximately 25 miles northwest of the Laboratory for Energy-Related Health Research (LEHR) site. The fill material is overburden soil taken from ground surface to four feet below ground surface during gravel quarrying activities. The overburden soil was stockpiled between 1991 and 1994 at a separate location from the gravel quarrying operations. Prior to the gravel quarrying operations, the site was used for agricultural purposes. One representative 4-point composite sample (SSIBF155) and one field duplicate (SSIBF156) were collected from the soil source. Composite points were selected based on a grid pattern that was laid out across the soil pile. Each composite point was collected within a grid square that was selected using a random number generator. These samples were analyzed for radionuclides using U.S. Environmental Protection Agency (EPA) methods and laboratory standard operating procedures; volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), pesticides/polychlorinated biphenyls (PCBs) metals, hexavalent chromium and nitrate using EPA methods.

All analytical results are discussed below. A copy of the sample results is provided as Attachment 1 to this letter. Table 1 presents a summary of the analytes detected in the samples. The results of the sample and field duplicate analysis were compared and the higher concentration of the two samples is presented in Table 1. If the results were non-detect in both samples, the result that was judged to have better data quality based on data validation was selected for use in Table 1.

Discussion of Results

Each subsection below presents the results.

Volatile Organic Compounds

1,3-Dichlorobenzene (0.286 micrograms per kilogram [µg/kg]), 1,4-dichlorobenzene (0.579 µg/kg), acetone (6.46 µg/kg), isopropylbenzene (1.47 µg/kg), methylene chloride (4.25 µg/kg), styrene (0.326 µg/kg), toluene (0.867 µg/kg), and trichlorofluoromethane (1.18 µg/kg) were reported from analysis of the sample. The concentrations of the detected analytes were below their respective reporting limits. The acetone, methylene chloride, styrene, and toluene sample results were significantly below the risk-based action standard (RBAS) values of 1,700 µg/kg, 132 µg/kg, 76,000 µg/kg, and 19,000 µg/kg, respectively. RBAS values have not been developed for 1,3-dichlorobenzene, 1,4-dichlorobenzene, and trichlorofluoromethane; however, the results were below the Residential PRGs of 13,000 µg/kg, 3,400 µg/kg and 390,000 µg/kg, respectively. No RBAS or PRG values have been developed for isopropylbenzene. Toluene is not a designated level (DL) constituent of concern (COC) because it is readily biodegradable in soil and its concentration was low.

1,4-Dichlorobenzene, and methylene chloride were detected in the laboratory method blank, which indicates these results are false positives due to laboratory contamination. Acetone, styrene, and toluene are common laboratory contaminants. The low levels of volatile organic compounds detected in the method blank indicate that the low level sample results may be due to contamination in the laboratory.

No other VOCs were detected in the samples. Reporting limits ranged from 11 µg/kg to 34.4 µg/kg.

Semi-Volatile Organic Compounds

2-Methylnaphthalene (0.57 µg/kg), acetophenone (2.1 µg/kg), benzaldehyde (15.6 µg/kg) bis(2-ethylhexyl)phthalate (20.9 µg/kg), butylbenzylphthalate (0.59 µg/kg), di-n-butylphthalate (2.9 µg/kg), di-n-octylphthalate (0.49 µg/kg), diethylphthalate (0.6 µg/kg), and pyrene (0.81 µg/kg) were detected. The bis(2-ethylhexyl)phthalate, di-n-butylphthalate, di-n-octylphthalate, diethylphthalate, and pyrene results were significantly below the RBAS values of 7,700 µg/kg, 890,000 µg/kg, 4,900,000 µg/kg, 220,000 µg/kg, and 490,000 µg/kg, respectively. RBAS values have not been developed for acetophenone, benzaldehyde, and butylbenzylphthalate; however, the results were below the Residential PRGs of 490 µg/kg, 6,100,000 µg/kg and 12,000,000 µg/kg, respectively. No RBAS or PRG values have been developed for 2-methylnaphthalene. These constituents are not DL COCs because they are organic compounds with K_d greater than 10 ml/g.

2-Methylnaphthalene, acetophenone, benzaldehyde, bis(2-ethylhexyl)phthalate and di-n-butylphthalate were detected in the samples and laboratory method blank, which indicates these results are false positives due to laboratory contamination. Butylbenzylphthalate, di-n-octylphthalate, and diethylphthalate are also a common laboratory contaminants

No other SVOCs were detected in the samples. Reporting limits ranged from 374 µg/kg to 939 µg/kg.

Pesticides/PCBs

4,4'-DDE (0.53 µg/kg), 4,4'-DDT (0.53 µg/kg), dieldrin (2.4 µg/kg), endrin aldehyde (0.35 µg/kg) and methoxychlor (0.38 µg/kg) were detected in the sample. The concentrations of the detected analytes were below their respective reporting limits. 4,4'-DDE, 4,4'-DDT, dieldrin, and methoxychlor were below their RBAS values of 5,611 µg/kg, 5,611 µg/kg, 15.3 µg/kg, and 100,000 µg/kg, respectively. No RBAS or PRG values have been developed for endrin aldehyde; however, the endrin aldehyde result was below the endrin Residential PRG of 18 ug/kg. These constituents are not DL COCs because they are organic compounds with K_d greater than 10 ml/g.

4,4'-DDE, 4,4'-DDT, and methoxychlor were detected in the samples and laboratory method blank, which indicates these results are false positives due to laboratory contamination.

No other pesticides/PCBs were detected in the samples. Reporting limits ranged from 1.9 µg/kg to 187 µg/kg.

Metals

All metal results were below the site background values except for arsenic (8.6 milligrams per kilogram (mg/kg); background = 8.14 mg/kg), thallium (2.1 mg/kg; background = 1.6 mg/kg), and zinc (80.3 mg/kg; background = 72.4 mg/kg). The zinc concentration did not exceed the RBAS value (3,400 mg/kg). RBAS values have not been developed for arsenic and thallium; however, the thallium result was below the Residential PRGs of 5.2 mg/kg, and arsenic was only slightly above background. Designated level modeling is expected to show that the arsenic, thallium and zinc concentrations will not threaten ground water quality.

Antimony was not detected in the sample and the result was qualified as rejected due to low matrix spike (MS) recovery (12 %). The laboratory re-analyzed the sample and found similar MS recovery (17%). Because the antimony recovery was acceptable in the laboratory control sample during the original analysis and re-analysis, the antimony MS recovery failures are attributable to sample matrix effects. Antimony appears to be unavailable in the sample matrix and should not pose a threat to human health or ground water quality.

Hexavalent Chromium and Nitrate

Hexavalent chromium was not detected in the sample. The reporting limit for hexavalent chromium analysis was 0.0393 mg/kg. The nitrate (as N) concentration (2.5 mg/kg) was below the background value of 36 mg/kg.

Radiochemistry

The only radionuclide detected above site background was cesium-137 (0.0282 pCi/g; background = 0.00695 pCi/g). The cesium-137 result did not exceed the RBAS value of 0.1 pCi/g. Cesium-137 is not a DL COC because it has a Kd of 1,000 ml/g.

Recommendations for Imported Fill Material Use as Backfill

Based on a review of the analytical results, the imported fill material does not contain chemicals and radionuclides at concentrations that will adversely impact ground water quality or exceed RBAS/Residential PRG levels. Therefore we conclude that the material is suitable for use as backfill at the DSS 3 and 6 Areas.

If you have any questions regarding this memorandum, please contact me at (510) 450-6144.

Sincerely,

Robert O. Devany
Project Manager

Enclosures: Table 1. Summary of DSS 3 and 6 Import Fill Data
Attachment 1. Import Fill Soil Analytical Results

cc: Catherine Luu, DOE/OAK (w/o attachments)
LEHR Library, WA

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TABLE 1

SUMMARY OF DSS 3 AND 6 IMPORT FILL DATA

Table 1. Comparison of Import Fill Data to Background and RBAS, LEHR Site, University of California, Davis

Sample ID	Class	COPC	Units	DL_FLAG	Concentration	Error	Detection Limit	RBAS	Background	Risk/DL Comparison	ER_Q
SSIBF155	GEN	Hexavalent Chromium	MG/KG	<			0.0393	3.80	0.054	Pass[b]	UJ
SSIBF156	GEN	Nitrate	MG/KG		2.5		0.104		36	Pass[b]	J
SSIBF155	METAL	Antimony	MG/KG	<			1.1	0.30	1.4	n	R
SSIBF155RE	METAL	Antimony	MG/KG	<			0.54	0.30	1.4	n	R
SSIBF155	METAL	Arsenic	MG/KG		8.6		0.57		8.14	Pass[k]	J
SSIBF155	METAL	Barium	MG/KG		197		0.054	53	211	Pass[b]	
SSIBF155	METAL	Beryllium	MG/KG		0.44		0.046		0.564	Pass[b]	
SSIBF155	METAL	Cadmium	MG/KG	<			0.091	0.38	0.51	Pass[b]	
SSIBF155	METAL	Chromium	MG/KG		97		0.12	722	125	Pass[b]	
SSIBF155	METAL	Cobalt	MG/KG		20		0.16		31	Pass[b]	
SSIBF155	METAL	Copper	MG/KG		44.7		0.22	28	48.8	Pass[b]	
SSIBF155	METAL	Iron	MG/KG		38200		0.49		44,000	Pass[b]	
SSIBF155	METAL	Lead	MG/KG		7.5		0.53	0.044	9.5	Pass[b]	
SSIBF155	METAL	Manganese	MG/KG		683		0.081	36	750	Pass[b]	
SSIBF155	METAL	Mercury	MG/KG		0.1		0.0032	0.22	0.248	Pass[b]	J
SSIBF155	METAL	Molybdenum	MG/KG	<			0.25		0.26	Pass[b]	
SSIBF155	METAL	Nickel	MG/KG		162		0.28		246	Pass[b]	
SSIBF155	METAL	Selenium	MG/KG	<			0.76	58	1.2	Pass[b]	
SSIBF155	METAL	Silver	MG/KG	<			0.15	3.8	0.55	Pass[b]	
SSIBF156	METAL	Thallium	MG/KG		2.1		1.1		1.6	Pass[c]	
SSIBF155	METAL	Vanadium	MG/KG		66		0.11		66.8	Pass[b]	
SSIBF155	METAL	Zinc	MG/KG		80.3		0.11	3,400	72.4	Pass[a]	
SSIBF156	PES	4,4'-DDD	UG/KG	<			3.7	7,948		Pass[f]	
SSIBF156	PES	4,4'-DDE	UG/KG		0.53		3.7	5,611		Pass[L]	UJ
SSIBF156	PES	4,4'-DDT	UG/KG		0.53		3.7	5,611		Pass[L]	UJ
SSIBF156	PES	Aldrin	UG/KG	<			1.9			Pass[e]	UJ
SSIBF156	PES	alpha-BHC	UG/KG	<			1.9	7.5		Pass[f]	
SSIBF156	PES	alpha-Chlordane	UG/KG	<			1.9	800		Pass[f]	
SSIBF156	PES	Aroclor-1016	UG/KG	<			37.4			Pass[e]	
SSIBF156	PES	Aroclor-1221	UG/KG	<			74.8			Pass[e]	
SSIBF156	PES	Aroclor-1232	UG/KG	<			37.4			Pass[e]	
SSIBF156	PES	Aroclor-1242	UG/KG	<			37.4			Pass[e]	

Table 1. Comparison of Import Fill Data to Background and RBAS, LEHR Site, University of California, Davis (continued)

Sample ID	Class	COPC	Units	DL_FLAG	Concentration	Error	Detection Limit	RBAS	Background	Risk/DL Comparison	ER_Q
SSIBF156	PES	Aroclor-1248	UG/KG	<			37.4			Pass[e]	
SSIBF156	PES	Aroclor-1254	UG/KG	<			37.4			Pass[e]	
SSIBF156	PES	Aroclor-1260	UG/KG	<			37.4	248		Pass[f]	
SSIBF156	PES	beta-BHC	UG/KG	<			1.9			Pass[e]	
SSIBF156	PES	delta-BHC	UG/KG	<			1.9	13.0		Pass[f]	
SSIBF156	PES	Dieldrin	UG/KG		2.4		3.7	15.3		Pass[d]	J
SSIBF156	PES	Endosulfan I	UG/KG	<			1.9	29,000		Pass[f]	
SSIBF156	PES	Endosulfan II	UG/KG	<			3.7			Pass[e]	
SSIBF156	PES	Endosulfan sulfate	UG/KG	<			3.7	26,000		Pass[f]	
SSIBF156	PES	Endrin	UG/KG	<			3.7			Pass[e]	
SSIBF156	PES	Endrin aldehyde	UG/KG		0.35		3.7			Pass[e]	J
SSIBF156	PES	Endrin ketone	UG/KG	<			3.7			Pass[e]	
SSIBF156	PES	gamma-BHC (Lindane)	UG/KG	<			1.9	30.4		Pass[f]	UJ
SSIBF156	PES	gamma-Chlordane	UG/KG	<			1.9	810		Pass[f]	
SSIBF156	PES	Heptachlor	UG/KG	<			1.9	170		Pass[f]	UJ
SSIBF156	PES	Heptachlor epoxide	UG/KG	<			1.9	0.567		Pass[f]	
SSIBF156	PES	Methoxychlor	UG/KG		0.38		18.7	100,000		Pass[L]	UJ
SSIBF156	PES	Toxaphene	UG/KG	<			187			Pass[e]	
SSIBF156	RAD	Actinium-228	PCI/G		0.503	0.0708	0.0153		0.633	Pass[b]	
SSIBF156	RAD	Americium-241	PCI/G		0.0101	0.0101	0.00755	0.0920	0.014	Pass[b]	
SSIBF156	RAD	Bismuth-212	PCI/G		0.304	0.0581	0.0327		0.388	Pass[b]	
SSIBF156	RAD	Bismuth-214	PCI/G		0.375	0.0485	0.00752		0.54	Pass[b]	
SSIBF155	RAD	Carbon-14	PCI/G	<	0.0595	0.0482	0.0805	4,200	0.13	Pass[b]	
SSIBF156	RAD	Cesium-137	PCI/G		0.0282	0.0059	0.00457	0.100	0.00695	Pass[a]	
SSIBF156	RAD	Cobalt-60	PCI/G	<	0.0011	0.00278	0.00482	0.022	0.006	Pass[b]	
SSIBF155	RAD	Gross Alpha	PCI/G		8.19	1.68	1.63		7.42	N/A	
SSIBF155	RAD	Gross Beta	PCI/G		16.6	1.34	1.23		15	N/A	
SSIBF156	RAD	Lead-210	PCI/G		0.48	0.103	0.0691	9.6	1.6	Pass[b]	
SSIBF155	RAD	Lead-212	PCI/G		0.507	0.0599	0.00738		0.684	Pass[b]	
SSIBF155	RAD	Lead-214	PCI/G		0.419	0.0509	0.00865		0.55	Pass[b]	
SSIBF155	RAD	Plutonium-241	PCI/G	<	0.342	0.219	0.364	3.2	0.5	Pass[b]	
SSIBF155	RAD	Potassium-40	PCI/G		11.3	1.4	0.0372		14	Pass[b]	

Table 1. Comparison of Import Fill Data to Background and RBAS, LEHR Site, University of California, Davis (continued)

Sample ID	Class	COPC	Units	DL_FLAG	Concentration	Error	Detection Limit	RBAS	Background	Risk/DL Comparison	ER_Q
SSIBF155	RAD	Radium-223	PCI/G	<	0.0068	0.0537	0.0844			Pass[g]	
SSIBF155	RAD	Radium-226	PCI/G		0.527	0.0723	0.0248	0.00420	0.752	Pass[b]	
SSIBF156	RAD	Radium-228	PCI/G		0.503	0.0708	0.0153		0.63	Pass[b]	
SSIBF155	RAD	Strontium-90	PCI/G		0.0428	0.011	0.0154	10	0.056	Pass[b]	
SSIBF155	RAD	Thallium-208	PCI/G		0.158	0.0186	0.00423		0.204	Pass[b]	
SSIBF155	RAD	Thorium-228	PCI/G		0.529	0.162	0.158	0.0320	0.627	Pass[b]	
SSIBF155	RAD	Thorium-230	PCI/G		0.574	0.181	0.201		1.04	Pass[b]	
SSIBF155	RAD	Thorium-232	PCI/G		0.48	0.134	0.0821	0.0220	0.63	Pass[b]	
SSIBF155	RAD	Thorium-234	PCI/G		0.689	0.31	0.212	3.20	0.78	Pass[b]	
SSIBF156	RAD	Tritium	PCI/G	<	0.0575	0.525	0.899	5.40	1.2	Pass[b]	J
SSIBF155	RAD	Uranium-233/234	PCI/G		0.411	0.0604	0.0104		0.559	Pass[b]	
SSIBF155	RAD	Uranium-235/236	PCI/G		0.0205	0.0108	0.00411	0.150	0.038	Pass[b]	
SSIBF156	RAD	Uranium-238	PCI/G		0.463	0.0679	0.00454		0.565	Pass[b]	
SSIBF155	SVOC	1,1'-Biphenyl	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	2,2'-oxybis(1-Chloropropane)	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	2,4,5-Trichlorphenol	UG/KG	<			939			Pass[c]	
SSIBF155	SVOC	2,4,6-Trichlorophenol	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	2,4-Dichlorophenol	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	2,4-Dimethyphenol	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	2,4-Dinitrophenol	UG/KG	<			939			Pass[c]	
SSIBF155	SVOC	2,4-Dinitrotoluene	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	2,6-Dinitrotoluene	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	2-Chloronaphthalene	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	2-Chlorophenol	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	2-Methyl-4,6-dinitrophenol	UG/KG	<			939			Pass[c]	
SSIBF155	SVOC	2-Methylnaphthalene	UG/KG		0.57		376			Pass[L]	UJ
SSIBF155	SVOC	2-Nitrophenol	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	3,3'-Dichlorobenzidine	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	4-Bromophenylphenylether	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	4-Chloro-3-Methylphenol	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	4-Chloroaniline	UG/KG	<			376			Pass[c]	
SSIBF155	SVOC	4-Chlorophenylphenylether	UG/KG	<			376			Pass[c]	

Table 1. Comparison of Import Fill Data to Background and RBAS, LEHR Site, University of California, Davis (continued)

Sample ID	Class	COPC	Units	DL_FLAG	Concentration	Error	Detection Limit	RBAS	Background	Risk/DL Comparison	ER_Q
SSIBF155	SVOC	4-Nitrophenol	UG/KG	<			939			Pass[e]	UJ
SSIBF155	SVOC	Acenaphthene	UG/KG	<			376	250,000		Pass[f]	
SSIBF155	SVOC	Acenaphthylene	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	Acetophenone	UG/KG		2.1		376			Pass[L]	UJ
SSIBF155	SVOC	Anthracene	UG/KG	<			376	1,400,000		Pass[f]	
SSIBF155	SVOC	Atrazine	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	Benzaldehyde	UG/KG		15.6		376			Pass[L]	UJ
SSIBF155	SVOC	Benzo(a)anthracene	UG/KG	<			376	1,199		Pass[f]	
SSIBF155	SVOC	Benzo(a)pyrene	UG/KG	<			376	237		Pass[f]	
SSIBF155	SVOC	Benzo(b)fluoranthene	UG/KG	<			376	2,613		Pass[f]	
SSIBF155	SVOC	Benzo(ghi)perylene	UG/KG	<			376	9,100,000		Pass[f]	
SSIBF155	SVOC	Benzo(k)fluoranthene	UG/KG	<			376	26,132		Pass[f]	
SSIBF155	SVOC	bis(-2-Chloroethoxy)methane	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	bis(-2-Chloroethyl)Ether	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	bis(2-Ethylhexyl)phthalate	UG/KG		20.9		376	7,700		Pass[L]	UJ
SSIBF155	SVOC	Butylbenzylphthalate	UG/KG		0.59		376			Pass[m]	
SSIBF155	SVOC	Caprolactam	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	Carbazole	UG/KG	<			376	2,226		Pass[f]	
SSIBF155	SVOC	Chrysene	UG/KG	<			376	20,269		Pass[f]	
SSIBF155	SVOC	Di-n-butylphthalate	UG/KG		2.9		376	890,000		Pass[d]	UJ
SSIBF155	SVOC	Di-n-octylphthalate	UG/KG		0.49		376	4,900,000		Pass[d]	
SSIBF155	SVOC	Dibenzo(a,h)anthracene	UG/KG	<			376	261		Pass[f]	
SSIBF155	SVOC	Dibenzofuran	UG/KG	<			376	14,000		Pass[f]	
SSIBF156	SVOC	Diethylphthalate	UG/KG		0.6		374	220,000		Pass[d]	
SSIBF155	SVOC	Dimethylphthalate	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	Diphenylamine	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	Fluoranthene	UG/KG	<			376	1,800,000		Pass[f]	
SSIBF155	SVOC	Fluorene	UG/KG	<			376	170,000		Pass[f]	
SSIBF155	SVOC	Hexachlorobenzene	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	Hexachlorobutadiene	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	Hexachlorocyclopentadiene	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	Hexachloroethane	UG/KG	<			376			Pass[e]	

Table 1. Comparison of Import Fill Data to Background and RBAS, LEHR Site, University of California, Davis (continued)

Sample ID	Class	COPC	Units	DL_FLAG	Concentration	Error	Detection Limit	RBAS	Background	Risk/DL Comparison	ER_Q
SSIBF155	SVOC	Indeno(1,2,3-cd)pyrene	UG/KG	<			376	2,613		Pass[f]	
SSIBF155	SVOC	Isophorone	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	m,p-Cresols	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	m-Nitroaniline	UG/KG	<			939			n	R
SSIBF155	SVOC	N-Nitrosodipropylamine	UG/KG	<			376			Pass[e]	UJ
SSIBF155	SVOC	Naphthalene	UG/KG	<			376	39,000		Pass[f]	
SSIBF155	SVOC	Nitrobenzene	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	o-Cresol	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	o-Nitroaniline	UG/KG	<			939			Pass[e]	UJ
SSIBF155	SVOC	p-Nitroaniline	UG/KG	<			939			n	R
SSIBF155	SVOC	Pentachlorophenol	UG/KG	<			939	13,351		Pass[f]	
SSIBF155	SVOC	Phenanthrene	UG/KG	<			376	1,200,000		Pass[f]	
SSIBF155	SVOC	Phenol	UG/KG	<			376			Pass[e]	
SSIBF155	SVOC	Pyrene	UG/KG		0.81		376	490,000		Pass[d]	
SSIBF155	VOC	1,1,1-Trichloroethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	1,1,2,2-Tetrachloroethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	1,1,2-Trichloroethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	1,1-Dichloroethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	1,1-Dichloroethylene	UG/KG	<			11			Pass[e]	
SSIBF156	VOC	1,2,4-Trichlorobenzene	UG/KG	<			11.4			Pass[e]	
SSIBF155	VOC	1,2-Dibromo-3-chloropropane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	1,2-Dibromoethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	1,2-Dichlorobenzene	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	1,2-Dichloroethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	1,2-Dichloropropane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	1,3-Dichlorobenzene	UG/KG		0.286		11			Pass[m]	J
SSIBF156	VOC	1,4-Dichlorobenzene	UG/KG		0.579		11.4			Pass[L]	UJ
SIBF155	VOC	2-Butanone	UG/KG	<			11	12,000		Pass[f]	
SSIBF155	VOC	2-Hexanone	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	4-Methyl-2-pentanone	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Acetone	UG/KG		6.46		11	1,700		Pass[m]	J
SSIBF155	VOC	Benzene	UG/KG	<			11	14.7		Pass[f]	

Table 1. Comparison of Import Fill Data to Background and RBAS, LEHR Site, University of California, Davis (continued)

Sample ID	Class	COPC	Units	DL_FLAG	Concentration	Error	Detection Limit	RBAS	Background	Risk/DL Comparison	ER_Q
SSIBF155	VOC	Bromodichloromethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Bromoform	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Bromomethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Carbon disulfide	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Carbon tetrachloride	UG/KG	<			11	55.3		Pass[f]	
SSIBF155	VOC	Chlorobenzene	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Chloroethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Chloroform	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Chloromethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	cis-1,2-Dichloroethylene	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	cis-1,3-Dichloropropylene	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Cyclohexane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Dibromochloromethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Dichlorodifluoromethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Ethylbenzene	UG/KG	<			11	10,000		Pass[f]	
SSIBF155	VOC	Isopropylbenzene	UG/KG		1.47		11			Pass[m]	J
SSIBF155	VOC	Methyl acetate	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Methylcyclohexane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Methylene chloride	UG/KG		4.25		11	132		Pass[L]	UJ
SSIBF155	VOC	Styrene	UG/KG		0.326		11	76,000		Pass[m]	J
SSIBF155	VOC	tert-Butyl methyl ether	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Tetrachloroethylene	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Toluene	UG/KG		0.867		11	19,000		Pass[m]	J
SSIBF155	VOC	trans-1,2-Dichloroethylene	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	trans-1,3-Dichloropropylene	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Trichloroethylene	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Trichlorofluoromethane	UG/KG		1.18		11			Pass[m]	J
SSIBF155	VOC	Trichlorotrifluoroethane	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Vinyl chloride	UG/KG	<			11			Pass[e]	
SSIBF155	VOC	Xylenes (total)	UG/KG	<			33.2	700,000		Pass[f]	

Table 1. Comparison of Import Fill Data to Background and RBAS, LEHR Site, University of California, Davis (continued)

Notes

a Concentration is below RBAS but above background, DL modeling expected to show constituent is not a threat to ground water.
b Concentration/activity is below background, constituent passes risk and DL screening.
c Not a risk COPC, concentration/activity above background, Kd > 1000 ml/g (inorganics) - not a DL COPC.
d Concentration is below RBAS. Background is unavailable because COPC is not naturally occurring, Kd > 10 ml/g (organics) - not a DL COPC.
e Not a risk COPC. Background is unavailable because COPC is not naturally occurring. COPC is ND - not a DL COPC.
f Concentration is below RBAS. Background is unavailable because COPC is not naturally occurring. Constituent not detected - not a DL COPC.
g Not a risk COPC. Background is not available. Activity is below MDA - not a DL COPC.
h Activity is below RBAS but above background. Half life is < 1 year - not a DL COPC
j Concentration is below RBAS. Background is unavailable because COPC is not naturally occurring. Concentration is low and constituent is readily biodegradable - not a DL COPC.
k Not a risk COPC. Concentration is above background, DL modeling expected to show constituent is not a threat to ground water.
l Concentration is a false positive result due to laboratory contamination. Similar concentration of constituent was detected in the laboratory method blank.
m Concentration is believed to be a false positive result due to evidence of laboratory contamination in the method blank.
n Original analysis and re-analysis results indicated matrix spike recovery failure. Laboratory control sample recovery was acceptable in both analyses, indicating sample matrix is causing the recovery failure.
o Not a risk COPC. Background is unavailable because COPC is not naturally occurring, Kd > 10 ml/g (organics) - not a DL COPC.
J Constituent is present in sample but reported concentration may lack accuracy.
UJ Constituent was not detected in sample but reported detection limit may lack accuracy.
R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.

Abbreviations

Background	80 % lower confidence limit on the 95th quantile of background sample data
COPC	constituent of potential concern
DL Flag	< flag applied if constituent was not detected or below the MDA
DL	designated level
ER_Q	expert review qualifier of laboratory data
GEN	general chemistry analysis
MDA	minimum detectable activity
N/A	not applicable
ND	not detected
PES	pesticide analysis
RAD	radiochemistry analysis
RBAS	risk-based action standard
Risk/DL Comparison	Screening evaluation to determine whether data indicate unacceptable risk or potential ground water impact from import fill.
SVOC	semi-volatile organic compound analysis
VOC	volatile organic compound analysis

ATTACHMENT 1

IMPORT FILL SOIL ANALYTICAL RESULTS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF155

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915001

Sample wt/vol: 5.1 (g/mL) G Lab File ID: 8D109

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: not dec. 11 Date Analyzed: 04/01/02

GC Column: DB624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ul) Soil Aliquot Volume: _____(ul

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11.0	U
74-83-9	Bromomethane	11.0	U
75-01-4	Vinyl chloride	11.0	U
75-00-3	Chloroethane	11.0	U
75-09-2	Methylene chloride	4.25	BJ
67-64-1	Acetone	6.46	J
75-15-0	Carbon disulfide	11.0	U
75-35-4	1,1-Dichloroethylene	11.0	U
75-34-3	1,1-Dichloroethane	11.0	U
67-66-3	Chloroform	11.0	U
107-06-2	1,2-Dichloroethane	11.0	U
78-93-3	2-Butanone	11.0	U
156-60-5	trans-1,2-Dichloroethylene	11.0	U
71-55-6	1,1,1-Trichloroethane	11.0	U
56-23-5	Carbon tetrachloride	11.0	U
75-27-4	Bromodichloromethane	11.0	U
78-87-5	1,2-Dichloropropane	11.0	U
156-59-2	cis-1,2-Dichloroethylene	11.0	U
79-01-6	Trichloroethylene	11.0	U
124-48-1	Dibromochloromethane	11.0	U
79-00-5	1,1,2-Trichloroethane	11.0	U
71-43-2	Benzene	11.0	U
75-25-2	Bromoform	11.0	U
108-10-1	4-Methyl-2-pentanone	11.0	U
591-78-6	2-Hexanone	11.0	U
127-18-4	Tetrachloroethylene	11.0	U
79-34-5	1,1,2,2-Tetrachloroethane	11.0	U
108-88-3	Toluene	0.867	J
108-90-7	Chlorobenzene	11.0	U
100-41-4	Ethylbenzene	11.0	U
100-42-5	Styrene	0.326	J
10061-01-5	cis-1,3-Dichloropropylene	11.0	U
10061-02-6	trans-1,3-Dichloropropylene	11.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF155

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915001

Sample wt/vol: 5.1 (g/mL) G Lab File ID: 8D109

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: not dec. 11 Date Analyzed: 04/01/02

GC Column: DB624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ul) Soil Aliquot Volume: _____(ul

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
120-82-1	1,2,4-Trichlorobenzene	0.539	BJ
96-12-8	1,2-Dibromo-3-chloropropane	11.0	U
110-82-7	Cyclohexane	11.0	U
98-82-8	Isopropylbenzene	1.47	J
79-28-9	Methyl acetate	11.0	U
108-87-2	Methylcyclohexane	11.0	U
76-13-1	Trichlorotrifluoroethane	11.0	U
1634-04-4	tert-Butyl methyl ether	11.0	U
75-71-8	Dichlorodifluoromethane	11.0	U
75-69-4	Trichlorofluoromethane	1.18	J
106-93-4	1,2-Dibromoethane	11.0	U
1330-20-7	Xylenes (total)	33.2	U
541-73-1	1,3-Dichlorobenzene	0.286	J
106-46-7	1,4-Dichlorobenzene	0.673	BJ
95-50-1	1,2-Dichlorobenzene	11.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSIBF155

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915001

Sample wt/vol: 5.1 (g/mL) G Lab File ID: 8D109

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: not dec. 11 Date Analyzed: 04/01/02

GC Column: DB624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ul) Soil Aliquot Volume: _____(ul

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	1.92	474	JB
2. 98-83-9	.ALPHA.-METHYLSTYRENE	10.62	12.4	NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF156

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915002

Sample wt/vol: 4.9 (g/mL) G Lab File ID: 8D110

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: not dec. 11 Date Analyzed: 04/01/02

GC Column: DB624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ul) Soil Aliquot Volume: _____(ul

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11.4	U
74-83-9	Bromomethane	11.4	U
75-01-4	Vinyl chloride	11.4	U
75-00-3	Chloroethane	11.4	U
75-09-2	Methylene chloride	4.54	BJ
67-64-1	Acetone	6.45	J
75-15-0	Carbon disulfide	11.4	U
75-35-4	1,1-Dichloroethylene	11.4	U
75-34-3	1,1-Dichloroethane	11.4	U
67-66-3	Chloroform	11.4	U
107-06-2	1,2-Dichloroethane	11.4	U
78-93-3	2-Butanone	11.4	U
156-60-5	trans-1,2-Dichloroethylene	11.4	U
71-55-6	1,1,1-Trichloroethane	11.4	U
56-23-5	Carbon tetrachloride	11.4	U
75-27-4	Bromodichloromethane	11.4	U
78-87-5	1,2-Dichloropropane	11.4	U
156-59-2	cis-1,2-Dichloroethylene	11.4	U
79-01-6	Trichloroethylene	11.4	U
124-48-1	Dibromochloromethane	11.4	U
79-00-5	1,1,2-Trichloroethane	11.4	U
71-43-2	Benzene	11.4	U
75-25-2	Bromoform	11.4	U
108-10-1	4-Methyl-2-pentanone	11.4	U
591-78-6	2-Hexanone	11.4	U
127-18-4	Tetrachloroethylene	11.4	U
79-34-5	1,1,2,2-Tetrachloroethane	11.4	U
108-88-3	Toluene	0.651	J
108-90-7	Chlorobenzene	11.4	U
100-41-4	Ethylbenzene	11.4	U
100-42-5	Styrene	11.4	U
10061-01-5	cis-1,3-Dichloropropylene	11.4	U
10061-02-6	trans-1,3-Dichloropropylene	11.4	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF156

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915002

Sample wt/vol: 4.9 (g/mL) G Lab File ID: 8D110

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: not dec. 11 Date Analyzed: 04/01/02

GC Column: DB624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ul) Soil Aliquot Volume: _____(ul

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
120-82-1	1,2,4-Trichlorobenzene	11.4	U
96-12-8	1,2-Dibromo-3-chloropropane	11.4	U
110-82-7	Cyclohexane	11.4	U
98-82-8	Isopropylbenzene	1.36	J
79-28-9	Methyl acetate	11.4	U
108-87-2	Methylcyclohexane	11.4	U
76-13-1	Trichlorotrifluoroethane	11.4	U
1634-04-4	tert-Butyl methyl ether	11.4	U
75-71-8	Dichlorodifluoromethane	11.4	U
75-69-4	Trichlorofluoromethane	0.830	J
106-93-4	1,2-Dibromoethane	11.4	U
1330-20-7	Xylenes (total)	34.4	U
541-73-1	1,3-Dichlorobenzene	11.4	U
106-46-7	1,4-Dichlorobenzene	0.579	BJ
95-50-1	1,2-Dichlorobenzene	11.4	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSIBF156

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915002

Sample wt/vol: 4.9 (g/mL) G Lab File ID: 8D110

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: not dec. 11 Date Analyzed: 04/01/02

GC Column: DB624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ul) Soil Aliquot Volume: _____(ul

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	1.92	233	JB
2. 124-18-5	DECANE	10.15	5.99	NJ
3. 98-83-9	.ALPHA.-METHYLSTYRENE	10.62	12.1	NJ
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF155

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S7D0205

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: 11 decanted: (Y/N) N Date Extracted: 03/27/02

Concentrated Extract Volume: 0.50(mL) Date Analyzed: 04/02/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	15.6	J
108-95-2	Phenol	376	U
111-44-4	bis(-2-Chloroethyl)Ether	376	U
95-57-8	2-Chlorophenol	376	U
95-48-7	o-Cresol	376	U
108-60-1	2,2'-oxybis(1-Chloropropane)	376	U
98-86-2	Acetophenone	2.1	J
106-44-5	m,p-Cresols	376	U
621-64-7	N-Nitroso-di-n-propylamine	376	U
67-72-1	Hexachloroethane	376	U
98-95-3	Nitrobenzene	376	U
78-59-1	Isophorone	376	U
88-75-5	2-Nitrophenol	376	U
105-67-9	2,4-Dimethyphenol	376	U
111-91-1	bis(-2-Chloroethoxy)methane	376	U
120-83-2	2,4-Dichlorophenol	376	U
91-20-3	Naphthalene	376	U
106-47-8	4-Chloroaniline	376	U
87-68-3	Hexachlorobutadiene	376	U
105-60-2	Caprolactam	376	U
59-50-7	4-Chloro-3-Methylphenol	376	U
91-57-6	2-Methylnaphthalene	0.57	J
77-47-4	Hexachlorocyclopentadiene	376	U
88-06-2	2,4,6-Trichlorophenol	376	U
95-95-4	2,4,5-Trichlorphenol	939	U
92-52-4	1,1'-Biphenyl	376	U
91-58-7	2-Chloronaphthalene	376	U
88-74-4	2-Nitroaniline	939	U
131-11-3	Dimethylphthalate	376	U
606-20-2	2,6-Dinitrotoluene	376	U
208-96-8	Acenaphthylene	376	U
99-09-2	3-Nitroaniline	939	U
83-32-9	Acenaphthene	376	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF155

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S7D0205

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: 11 decanted: (Y/N) N Date Extracted: 03/27/02

Concentrated Extract Volume: 0.50 (mL) Date Analyzed: 04/02/02

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	939	U
100-02-7	4-Nitrophenol	939	U
132-64-9	Dibenzofuran	376	U
121-14-2	2,4-Dinitrotoluene	376	U
84-66-2	Diethylphthalate	376	U
7005-72-3	4-Chlorophenyl-phenylether	376	U
86-73-7	Fluorene	376	U
100-01-6	4-Nitroaniline	939	U
534-52-1	4,6-Dinitro-2-methylphenol	939	U
101-55-3	4-Bromophenyl-phenylether	376	U
122-39-4	Diphenylamine	376	U
118-74-1	Hexachlorobenzene	376	U
1912-24-9	Atrazine	376	U
87-86-5	Pentachlorophenol	939	U
85-01-8	Phenanthrene	376	U
120-12-7	Anthracene	376	U
86-74-8	Carbazole	376	U
84-74-2	Di-n-butylphthalate	2.9	J
206-44-0	Fluoranthene	376	U
129-00-0	Pyrene	0.81	J
85-68-7	Butylbenzylphthalate	0.59	J
91-94-1	3,3'-Dichlorobenzidine	376	U
56-55-3	Benzo(a)anthracene	376	U
218-01-9	Chrysene	376	U
117-81-7	bis(2-Ethylhexyl)phthalate	20.9	J
117-84-0	Di-n-octylphthalate	0.49	J
205-99-2	Benzo(b)fluoranthene	376	U
207-08-9	Benzo(k)fluoranthene	376	U
50-32-8	Benzo(a)pyrene	376	U
193-39-5	Indeno(1,2,3-cd)pyrene	376	U
53-70-3	Dibenzo(a,h)anthracene	376	U
191-24-2	Benzo(g,h,i)perylene	376	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSIBF155

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S7D0205

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: 11 decanted: (Y/N) N Date Extracted: 03/27/02

Concentrated Extract Volume: 0.50(mL) Date Analyzed: 04/02/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALDOL CONDENSATE	5.23	1060	JA
2. 7683-64-9	SQUALENE	17.98	52.5	NJ
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF156

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S7D0208

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: 11 decanted: (Y/N) N Date Extracted: 03/27/02

Concentrated Extract Volume: 0.50(mL) Date Analyzed: 04/02/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	24.0	J
108-95-2	Phenol	374	U
111-44-4	bis(-2-Chloroethyl)Ether	374	U
95-57-8	2-Chlorophenol	374	U
95-48-7	o-Cresol	374	U
108-60-1	2,2'-oxybis(1-Chloropropane)	374	U
98-86-2	Acetophenone	3.1	J
106-44-5	m,p-Cresols	374	U
621-64-7	N-Nitroso-di-n-propylamine	374	U
67-72-1	Hexachloroethane	374	U
98-95-3	Nitrobenzene	374	U
78-59-1	Isophorone	374	U
88-75-5	2-Nitrophenol	374	U
105-67-9	2,4-Dimethyphenol	374	U
111-91-1	bis(-2-Chloroethoxy)methane	374	U
120-83-2	2,4-Dichlorophenol	374	U
91-20-3	Naphthalene	374	U
106-47-8	4-Chloroaniline	374	U
87-68-3	Hexachlorobutadiene	374	U
105-60-2	Caprolactam	374	U
59-50-7	4-Chloro-3-Methylphenol	374	U
91-57-6	2-Methylnaphthalene	0.38	J
77-47-4	Hexachlorocyclopentadiene	374	U
88-06-2	2,4,6-Trichlorophenol	374	U
95-95-4	2,4,5-Trichlorphenol	935	U
92-52-4	1,1'-Biphenyl	374	U
91-58-7	2-Chloronaphthalene	374	U
88-74-4	2-Nitroaniline	935	U
131-11-3	Dimethylphthalate	374	U
606-20-2	2,6-Dinitrotoluene	374	U
208-96-8	Acenaphthylene	374	U
99-09-2	3-Nitroaniline	935	U
83-32-9	Acenaphthene	374	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF156

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S7D0208

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: 11 decanted: (Y/N) N Date Extracted: 03/27/02

Concentrated Extract Volume: 0.50 (mL) Date Analyzed: 04/02/02

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	935	U
100-02-7	4-Nitrophenol	935	U
132-64-9	Dibenzofuran	374	U
121-14-2	2,4-Dinitrotoluene	374	U
84-66-2	Diethylphthalate	0.60	J
7005-72-3	4-Chlorophenyl-phenylether	374	U
86-73-7	Fluorene	374	U
100-01-6	4-Nitroaniline	935	U
534-52-1	4,6-Dinitro-2-methylphenol	935	U
101-55-3	4-Bromophenyl-phenylether	374	U
122-39-4	Diphenylamine	374	U
118-74-1	Hexachlorobenzene	374	U
1912-24-9	Atrazine	374	U
87-86-5	Pentachlorophenol	935	U
85-01-8	Phenanthrene	374	U
120-12-7	Anthracene	374	U
86-74-8	Carbazole	374	U
84-74-2	Di-n-butylphthalate	3.8	J
206-44-0	Fluoranthene	374	U
129-00-0	Pyrene	0.51	J
85-68-7	Butylbenzylphthalate	374	U
91-94-1	3,3'-Dichlorobenzidine	374	U
56-55-3	Benzo(a)anthracene	374	U
218-01-9	Chrysene	374	U
117-81-7	bis(2-Ethylhexyl)phthalate	374	U
117-84-0	Di-n-octylphthalate	374	U
205-99-2	Benzo(b)fluoranthene	374	U
207-08-9	Benzo(k)fluoranthene	374	U
50-32-8	Benzo(a)pyrene	374	U
193-39-5	Indeno(1,2,3-cd)pyrene	374	U
53-70-3	Dibenzo(a,h)anthracene	374	U
191-24-2	Benzo(g,h,i)perylene	374	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSIBF156

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S7D0208

Level: (low/med) LOW Date Received: 03/22/02

% Moisture: 11 decanted: (Y/N) N Date Extracted: 03/27/02

Concentrated Extract Volume: 0.50(mL) Date Analyzed: 04/02/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALDOL CONDENSATE	5.14	137	JA
2.				
3.				
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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF155

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 006F0601

% Moisture: 11 decanted: (Y/N) N Date Received: 03/22/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/29/02

Concentrated Extract Volume: 5.00(mL) Date Analyzed: 05/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.21	JP
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	0.24	J
76-44-8	Heptachlor	0.23	J
309-00-2	Aldrin	0.19	J
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	2.2	J
72-55-9	4,4'-DDE	0.52	J
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	0.54	J
72-43-5	Methoxychlor	0.74	J
53494-70-5	Endrin ketone	3.8	U
7421-93-4	Endrin aldehyde	3.8	U
8001-35-2	Toxaphene	188	U
12674-11-2	Aroclor-1016	37.6	U
11104-28-2	Aroclor-1221	75.1	U
1114-16-5	Aroclor-1232	37.6	U
53469-21-9	Aroclor-1242	37.6	U
12672-29-6	Aroclor-1248	37.6	U
11097-69-1	Aroclor-1254	37.6	U
11096-82-5	Aroclor-1260	37.6	U
5103-74-2	gamma-Chlordane	1.9	U
5103-71-9	alpha-Chlordane	1.9	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSIBF156

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 57915

Matrix: (soil/water) SOIL Lab Sample ID: 57915002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 007F0701

% Moisture: 11 decanted: (Y/N) N Date Received: 03/22/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/29/02

Concentrated Extract Volume: 5.00(mL) Date Analyzed: 05/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	2.4	J
72-55-9	4,4'-DDE	0.53	J
72-20-8	Endrin	3.7	U
33213-65-9	Endosulfan II	3.7	U
72-54-8	4,4'-DDD	3.7	U
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	0.53	J
72-43-5	Methoxychlor	0.38	JP
53494-70-5	Endrin ketone	3.7	U
7421-93-4	Endrin aldehyde	0.35	J
8001-35-2	Toxaphene	187	U
12674-11-2	Aroclor-1016	37.4	U
11104-28-2	Aroclor-1221	74.8	U
1114-16-5	Aroclor-1232	37.4	U
53469-21-9	Aroclor-1242	37.4	U
12672-29-6	Aroclor-1248	37.4	U
11097-69-1	Aroclor-1254	37.4	U
11096-82-5	Aroclor-1260	37.4	U
5103-74-2	gamma-Chlordane	1.9	U
5103-71-9	alpha-Chlordane	1.9	U

General Engineering Laboratories

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SSIBF155

Contract: WEIS00199

Lab Code: GEL Case No.: GEL SAS No.: SDG NO.: 57915

Matrix (soil/water): SOIL Lab Sample ID: 57915001

Level (low/med): LOW Date Received: 3/22/2002

% Solids: 88.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.1	U	N	P
7440-38-2	Arsenic	8.6			P
7440-39-3	Barium	197			P
7440-41-7	Beryllium	0.44	B		P
7440-43-9	Cadmium	0.09	U		P
7440-47-3	Chromium	97.0			P
7440-48-4	Cobalt	20.0			P
7440-50-8	Copper	44.7			P
7439-89-6	Iron	38200			P
7439-92-1	Lead	7.5			P
7439-96-5	Manganese	683			P
7439-97-6	Mercury	0.10		*N	AV
7439-98-7	Molybdenum	0.25	U		P
7440-02-0	Nickel	162			P
7782-49-2	Selenium	0.76	U		P
7440-22-4	Silver	0.15	U		P
7440-28-0	Thallium	1.1	U		P
7440-62-2	Vanadium	66.0			P
7440-66-6	Zinc	80.3			P

Color Before: Dark Brown Clarity Before: Texture: Coarse

Color After: Yellow Clarity After: Artifacts: Y

Comments:

General Engineering Laboratories

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SSIBF156

Contract: WEIS00199

Lab Code: GEL Case No.: GEL SAS No.: SDG NO.: 57915

Matrix (soil/water): SOIL Lab Sample ID: 57915002

Level (low/med): LOW Date Received: 3/22/2002

% Solids: 89.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.1	U	N	P
7440-38-2	Arsenic	8.4			P
7440-39-3	Barium	193			P
7440-41-7	Beryllium	0.42	B		P
7440-43-9	Cadmium	0.09	U		P
7440-47-3	Chromium	90.3			P
7440-48-4	Cobalt	19.8			P
7440-50-8	Copper	44.5			P
7439-89-6	Iron	38100			P
7439-92-1	Lead	7.2			P
7439-96-5	Manganese	678			P
7439-97-6	Mercury	0.04		*N	AV
7439-98-7	Molybdenum	0.25	U		P
7440-02-0	Nickel	160			P
7782-49-2	Selenium	0.75	U		P
7440-22-4	Silver	0.14	U		P
7440-28-0	Thallium	2.1	B		P
7440-62-2	Vanadium	64.7			P
7440-66-6	Zinc	79.4			P

Color Before: Dark Brown Clarity Before: Texture: Coarse

Color After: Yellow Clarity After: Artifacts: Y

Comments:

Certificate of Analysis

Company : Weiss Associates
Address : 5801 Christie Ave
Suite 600
Emeryville, California 94608
Contact: Tim Utterback
Project: Routine Analytical (Non-radiochem)

Report Date: April 29, 2002

Client Sample ID:	SSIBF155	Project:	WEIS00199
Sample ID:	57915001	Client ID:	WEIS001
Matrix:	Soil		
Collect Date:	21-MAR-02		
Receive Date:	22-MAR-02		
Collector:	Client		
Moisture:	11.3%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography Federal											
EPA 300.0 Nitrate in Soil											
Nitrate-N	H	1.13	0.112	1.12	mg/kg	1	BJB	03/25/02	2042	153769	2
Spectrometric Analysis Federal											
SW846_7196A Hexavalent Chromium											
Hexavalent Chromium	U	-0.359	0.0393	0.224	mg/kg	1	BEP1	03/29/02	1645	154960	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 300.0 PREP	EPA 300.0 Total Anions in Soil	BJB	03/22/02	1800	153768
ILM 4.0 CLP	ILM 4.0 CLP Mercury in Soil Prep	ARD	03/27/02	1800	155180
ILM 4.0 CLP	ILMO 4.0 CLP Metals Prep	FGA	04/04/02	1150	155069
OLM 4.2 CLP Prep	OLM 4.2 Pesticide/PCB CLP Prep	RDH	03/29/02	1357	155370
OLM 4.2 CLP Prep	OML 4.2 Volatile CLP Prep in solid Federal	RMB	04/01/02	0924	155243
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	BEP1	03/29/02	1400	154959

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	SW846 7196A	

Notes:
The Qualifiers in this report are defined as follows :

** Indicates the analyte is a surrogate compound.
< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.

Certificate of Analysis

Company : Weiss Associates
Address : 5801 Christie Ave
Suite 600
Emeryville, California 94608
Contact: Tim Utterback
Project: Routine Analytical (Non-radiochem)

Report Date: April 29, 2002

Client Sample ID: SSIBF155
Sample ID: 57915001

Project: WEIS00199
Client ID: WEIS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

X Lab-specific qualifier - must be fully described in case narrative and data summary package

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure. Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Cheryl Jones.

Reviewed by

Certificate of Analysis

Company : Weiss Associates
Address : 5801 Christie Ave
Suite 600
Emeryville, California 94608
Contact: Tim Utterback
Project: Routine Analytical (Non-radiochem)

Report Date: April 29, 2002

Client Sample ID:	SSIBF156	Project:	WEIS00199
Sample ID:	57915002	Client ID:	WEIS001
Matrix:	Soil		
Collect Date:	21-MAR-02		
Receive Date:	22-MAR-02		
Collector:	Client		
Moisture:	10.9%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography Federal											
EPA 300.0 Nitrate in Soil											
Nitrate-N	H	2.50	0.104	1.04	mg/kg	1	BJB	03/29/02	0502	153769	2
Spectrometric Analysis Federal											
SW846_7196A Hexavalent Chromium											
Hexavalent Chromium	U	-0.302	0.0392	0.224	mg/kg	1	BEP1	03/29/02	1645	154960	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 300.0 PREP	EPA 300.0 Total Anions in Soil	BJB	03/22/02	1800	153768
ILM 4.0 CLP	ILM 4.0 CLP Mercury in Soil Prep	ARD	03/27/02	1800	155180
ILM 4.0 CLP	ILMO 4.0 CLP Metals Prep	FGA	04/04/02	1150	155069
OLM 4.2 CLP Prep	OLM 4.2 Pesticide/PCB CLP Prep	RDH	03/29/02	1357	155370
OLM 4.2 CLP Prep	OML 4.2 Volatile CLP Prep in solid Federal	RMB	04/01/02	0924	155243
SW846 3060A	SW846_7196A Hexavalent Chromium in Soil	BEP1	03/29/02	1400	154959

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	SW846 7196A	

Notes:
The Qualifiers in this report are defined as follows :

** Indicates the analyte is a surrogate compound.
< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package

Certificate of Analysis

Company : Weiss Associates
Address : 5801 Christie Ave
Suite 600
Emeryville, California 94608
Contact: Tim Utterback
Project: Routine Analytical (Non-radiochem)

Report Date: April 29, 2002

Client Sample ID: SSIBF156
Sample ID: 57915002

Project: WEIS00199
Client ID: WEIS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure. Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Cheryl Jones.

Reviewed by

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Certificate of Analysis

Company : Weiss Associates
Address : 5801 Christie Ave
Suite 600
Emeryville, California 94608
Contact: Tim Utterback
Project: Routine Analytical (Radiochemistry)

Report Date: May 3, 2002

Client Sample ID:	SSIBF155	Project:	WEIS00299
Sample ID:	57917001	Client ID:	WEIS001
Matrix:	Soil		
Collect Date:	21-MAR-02		
Receive Date:	22-MAR-02		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec												
Alphaspec Am241, Cm, Solid												
Americium-241	U	0.00472	+/-0.0067	0.00709	0.010	pCi/g		JLE	04/23/02	1349	154791	1
Alphaspec Th, Solid												
Thorium-228		0.529	+/-0.162	0.158	0.100	pCi/g		JLE	05/01/02	2104	154792	2
Thorium-230		0.574	+/-0.181	0.201	0.050	pCi/g						
Thorium-232		0.480	+/-0.134	0.0821	0.050	pCi/g						
Alphaspec U, Solid												
Uranium-233/234		0.411	+/-0.0604	0.0104	0.025	pCi/g		JLE	04/20/02	1912	154793	3
Uranium-235/236		0.0205	+/-0.0108	0.00411	0.010	pCi/g						
Uranium-238		0.396	+/-0.0589	0.0104	0.025	pCi/g						
Liquid Scint Pu241, Solid												
Plutonium-241	U	0.342	+/-0.219	0.364	0.500	pCi/g		LDM	04/11/02	2136	154794	4
Rad Gamma Spec												
Gamma, Ra226, Solid												
Radium-226		0.527	+/-0.0723	0.0248	0.100	pCi/g		CRB	04/25/02	1730	155719	5
Gammaspec, Gamma, Solid												
Actinium-228		0.483	+/-0.0763	0.0163	0.100	pCi/g		CRB	04/01/02	2108	155720	6
Bismuth-212		0.286	+/-0.061	0.0348	0.100	pCi/g						
Bismuth-214		0.351	+/-0.042	0.00851	0.100	pCi/g						
Cesium-137		0.0261	+/-0.00496	0.00479	0.010	pCi/g						
Cobalt-60	U	-0.00177	+/-0.00298	0.00491	0.005	pCi/g						
Lead-210	U	0.170	+/-0.597	0.684	0.500	pCi/g						
Lead-212		0.507	+/-0.0599	0.00738	0.100	pCi/g						
Lead-214		0.419	+/-0.0509	0.00865	0.100	pCi/g						
Potassium-40		11.3	+/-1.40	0.0372	1.00	pCi/g						
Radium-223	U	0.0068	+/-0.0537	0.0844	2.00	pCi/g						
Radium-228		0.483	+/-0.0763	0.0163	0.100	pCi/g						
Thallium-208		0.158	+/-0.0186	0.00423	0.050	pCi/g						
Thorium-234		0.689	+/-0.310	0.212	0.500	pCi/g						
Rad Gas Flow												
GFPC, Gross A/B, solid												
Alpha		8.19	+/-1.68	1.63	1.00	pCi/g		LJG1	04/23/02	0118	158266	7
Beta		16.6	+/-1.34	1.23	1.00	pCi/g						
GFPC, Sr90, solid												
Strontium-90		0.0428	+/-0.011	0.0154	0.050	pCi/g		AB2	05/02/02	1947	159147	8
Rad Liquid Scint												

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GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Certificate of Analysis

Company : Weiss Associates
Address : 5801 Christie Ave
Suite 600
Emeryville, California 94608
Contact: Tim Utterback
Project: Routine Analytical (Radiochemistry)

Report Date: May 3, 2002

Client Sample ID: SSIBF155
Sample ID: 57917001

Project: WEIS00299
Client ID: WEIS001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Liquid Scint												
LSC, Tritium Dist, Solid												
Tritium	U	-0.225	+/-0.489	0.849	1.00	pCi/g		LAG1	04/24/02	2001	159467	9
Liquid Scint C14, Solid												
Carbon-14	U	0.0595	+/-0.0482	0.0805	0.100	pCi/g		PD	04/26/02	1831	159143	10

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep RAD A-021,A-021B,A-026	WEO	03/25/02	1518	154557
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	WEO	03/22/02	1645	153686

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	
2	DOE EML HASL 300	
3	DOE EML HASL 300	
4	DOE EML HASL 300	
5	DOE EML HASL 300	
6	DOE EML HASL 300	
7	EPA 900.0	
8	EPA 905.0 Modified	
9	EPA 906.0	
10	EPA EERF C-01	

Notes:
The Qualifiers in this report are defined as follows :

** Indicates the analyte is a surrogate compound.
< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

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Client Sample ID: SSIBF155
Sample ID: 57917001

Project: WEIS00299
Client ID: WEIS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Cheryl Jones.

M. Morse

Reviewed by

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Project: Routine Analytical (Radiochemistry)

Report Date: May 3, 2002

Client Sample ID: SSIBF156
Sample ID: 57917002
Matrix: Soil
Collect Date: 21-MAR-02
Receive Date: 22-MAR-02
Collector: Client

Project: WEIS00299
Client ID: WEIS001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec												
Alphaspec Am241, Cm, Solid												
Americium-241		0.0101	+/-0.0101	0.00755	0.010	pCi/g		JLE	04/24/02	1941	154791	1
Alphaspec Th, Solid												
Thorium-228		0.462	+/-0.164	0.193	0.100	pCi/g		JLE	05/01/02	2104	154792	2
Thorium-230		0.449	+/-0.131	0.0996	0.050	pCi/g						
Thorium-232		0.358	+/-0.115	0.0937	0.050	pCi/g						
Alphaspec U, Solid												
Uranium-233/234		0.404	+/-0.0622	0.0145	0.025	pCi/g		JLE	04/20/02	1913	154793	3
Uranium-235/236		0.0197	+/-0.0111	0.00456	0.010	pCi/g						
Uranium-238		0.463	+/-0.0679	0.00454	0.025	pCi/g						
Liquid Scint Pu241, Solid												
Plutonium-241	U	0.305	+/-0.194	0.323	0.500	pCi/g		LDM	04/12/02	0040	154794	4
Rad Gamma Spec												
Gamma, Ra226, Solid												
Radium-226		0.474	+/-0.069	0.0233	0.100	pCi/g		CRB	04/25/02	1730	155719	5
Gammaspec, Gamma, Solid												
Actinium-228		0.503	+/-0.0708	0.0153	0.100	pCi/g		CRB	04/01/02	2109	155720	6
Bismuth-212		0.304	+/-0.0581	0.0327	0.100	pCi/g						
Bismuth-214		0.375	+/-0.0485	0.00752	0.100	pCi/g						
Cesium-137		0.0282	+/-0.0059	0.00457	0.010	pCi/g						
Cobalt-60	U	0.0011	+/-0.00278	0.00482	0.005	pCi/g						
Lead-210		0.480	+/-0.103	0.0691	0.500	pCi/g						
Lead-212		0.482	+/-0.0552	0.00602	0.100	pCi/g						
Lead-214		0.407	+/-0.0495	0.00717	0.100	pCi/g						
Potassium-40		11.3	+/-1.16	0.0339	1.00	pCi/g						
Radium-223	U	-0.0291	+/-0.045	0.0674	2.00	pCi/g						
Radium-228		0.503	+/-0.0708	0.0153	0.100	pCi/g						
Thallium-208		0.153	+/-0.0193	0.00399	0.050	pCi/g						
Thorium-234		0.604	+/-0.151	0.0773	0.500	pCi/g						
Rad Gas Flow												
GFPC, Gross A/B, solid												
Alpha		4.93	+/-1.55	1.96	1.00	pCi/g		LJG1	04/23/02	0118	158266	7
Beta		12.7	+/-1.36	1.60	1.00	pCi/g						
GFPC, Sr90, solid												
Strontium-90		0.0389	+/-0.014	0.0247	0.050	pCi/g		AB2	05/02/02	1947	159147	8
Rad Liquid Scint												
LSC, Tritium Dist, Solid												

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Report Date: May 3, 2002

Client Sample ID: SSIBF156
Sample ID: 57917002

Project: WEIS00299
Client ID: WEIS001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Liquid Scint												
LSC, Tritium Dist, Solid												
Tritium	U	0.0575	+/-0.525	0.899	1.00	pCi/g		LAG1	04/24/02	2205	159467	9
Liquid Scint C14, Solid												
Carbon-14	U	-0.0229	+/-0.0462	0.0795	0.100	pCi/g		PD	04/26/02	2004	159143	10

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep RAD A-021,A-021B,A-026	WEO	03/25/02	1518	154557
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Method	Description	Analyst Comments
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3	DOE EML HASL 300	
4	DOE EML HASL 300	
5	DOE EML HASL 300	
6	DOE EML HASL 300	
7	EPA 900.0	
8	EPA 905.0 Modified	
9	EPA 906.0	
10	EPA EERF C-01	

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Report Date: May 3, 2002

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Sample ID: 57917002

Project: WEIS00299
Client ID: WEIS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

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Reviewed by

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TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 60897 **Method Type:** SW846

Sample ID: 60897001 **Client ID:** SSIBF155

Contract: WEIS00199 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: SOIL **Date Received:** 5/22/2002 **Level:** LOW **% Solids:** 88.70

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-36-0	Antimony	540	µg/kg	U	N	P	540	TJA61 Trace ICP2	60402

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 60897 **Method Type:** SW846

Sample ID: 60897002 **Client ID:** SSIBF156 NE

Contract: WEIS00199 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: SOIL **Date Received:** 5/22/2002 **Level:** LOW **% Solids:** 89.10

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-36-0	Antimony	527	µg/kg	U	N	P	527	TJA61 Trace ICP2	60402

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments: