

REUSABLE TUNNEL MATERIAL TESTING REPORT

Delta Habitat Conservation and Conveyance Program
Standard Agreement 4600008104, Task Order WGI 14

March 2014

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Acronyms and Abbreviations

Term	Description
ASTM	ASTM International
C _F	conditioner concentration
CVRWQCB	Central Valley Regional Water Quality Control Board
DHCCP	Delta Habitat Conservation and Conveyance Program
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EPA	United States Environmental Protection Agency
FER	foam expansion ratio
FIR	foam injection ratio
RTM	Reusable Tunnel Material
RWQCB	Regional Water Quality Control Board
STLC	soluble threshold limit concentration
SWRCB	California State Water Resources Control Board
TBM	tunnel boring machine
TTLC	total threshold limit concentration
URS	URS Corporation
USACE	United States Army Corps of Engineers

EXECUTIVE SUMMARY

The California Department of Water Resources' (DWR's) Delta Habitat Conservation and Conveyance Program (DHCCP) is considering water conveyance through the Delta in a series of pipelines/tunnels. The pipelines/tunnels would transmit water from multiple on-bank intakes located between the towns of Freeport and Courtland to an intermediate forebay. Water collected in the intermediate forebay would flow by gravity or pumping through a two-bore tunnel system to the Clifton Court Forebay. Water would then be conveyed to the existing pumping plants serving the State Water Project and Central Valley Project. Figure 1-1 shows the pipeline/tunnel alignment proposed at commencement of this testing program.

Subsurface material removed during tunnel excavation is commonly referred to as tunnel muck, and consists of a mixture of soil, water, air, and conditioners. Conditioners are typically added to native soils to facilitate advancement of a tunnel boring machine (TBM). Tunnel muck generated by an earth pressure balance TBM in soft ground conditions (which are anticipated in the DHCCP tunnels) typically has a consistency similar to toothpaste. Tunnel muck generated in DHCCP tunnels is referred to as reusable tunnel material (RTM). Following storage and drying, and if acceptable based on chemical and physical testing as illustrated on Figure 1-2, potential beneficial uses of RTM include:

- Strengthening Delta levees identified for maintenance and repair
- Using RTM for habitat restoration and as fill on subsiding Delta islands
- Using RTM as structural fill for construction of conveyance facilities.

A significant quantity (approximately 27 million cubic yards) of saturated RTM will result from tunnel boring activities. This study consisted of mixing native soil samples collected from the potential tunnel zone with representative soil conditioner products and conducting laboratory tests to measure RTMs:

- Geotechnical properties to evaluate constructability if used as structural fill
- Environmental properties to characterize potential toxicity if placed in the environment
- Planting suitability to assess sustainability for habitat growth and agricultural use

Based on the results of the geotechnical, environmental, and planting suitability tests, RTM appears to be suitable for the above proposed beneficial uses following storage and drying. Consultation with the governing regulatory agency would be required to obtain the necessary approvals and permits. This study consisted of a limited number of samples and tests, and does not constitute a complete evaluation of RTM. RTM and associated decant liquid will undergo chemical characterization by the contractor(s) prior to reuse or discharge, respectively.

1.0 INTRODUCTION

1.1 Project Background

The California Department of Water Resources' (DWR's) Delta Habitat Conservation and Conveyance Program (DHCCP) is considering water conveyance through the Delta in a series of pipelines/tunnels. The pipelines/tunnels would transmit water from multiple on-bank intakes located between the towns of Freeport and Courtland to an intermediate forebay. Water collected in the intermediate forebay would flow by gravity or pumping through a two-bore tunnel system to the Clifton Court Forebay. Water would then be conveyed to the existing pumping plants serving the State Water Project and Central Valley Project. Figure 1-1 shows the pipeline/tunnel alignment proposed at commencement of this testing program.

Subsurface material removed during tunnel excavation is commonly referred to as tunnel muck, and consists of a mixture of soil, water, air, and conditioners. Conditioners are typically added to native soils to facilitate advancement of a tunnel boring machine (TBM). Tunnel muck generated by an earth pressure balance TBM in soft ground conditions (which are anticipated in the DHCCP tunnels) typically has a consistency similar to toothpaste. Tunnel muck generated in DHCCP tunnels is referred to as reusable tunnel material (RTM).

1.2 Purpose and Scope

DHCCP tunnel construction will generate approximately 27 million cubic yards of saturated RTM (CH2MHILL, 2012). Following storage and drying, and if acceptable based on chemical and physical testing as illustrated on Figure 1-2, potential beneficial uses of RTM include:

- Strengthening Delta levees identified for maintenance and repair
- Using RTM for habitat restoration and as fill on subsiding Delta islands
- Using RTM as structural fill for construction of conveyance facilities

The RTM testing program's scope of work is defined in the *Excavated Tunnel Material Testing Plan* (URS Corporation [URS], 2013a). The study consisted of mixing native soil samples collected from the potential tunnel zone with representative soil conditioner products and conducting laboratory tests to measure RTMs:

- Geotechnical properties to evaluate constructability if used as structural fill
- Environmental properties to characterize potential toxicity if placed in the environment
- Planting suitability to assess sustainability for habitat growth and agricultural use

This report describes the test methods that were developed and the test procedures that were used. Conclusions presented in this report are based on the results of the tests conducted. This study consisted of a limited number of samples and tests, and does not constitute a complete evaluation of RTM. RTM and associated decant liquid will undergo chemical characterization by the contractor(s) prior to reuse or discharge, respectively.

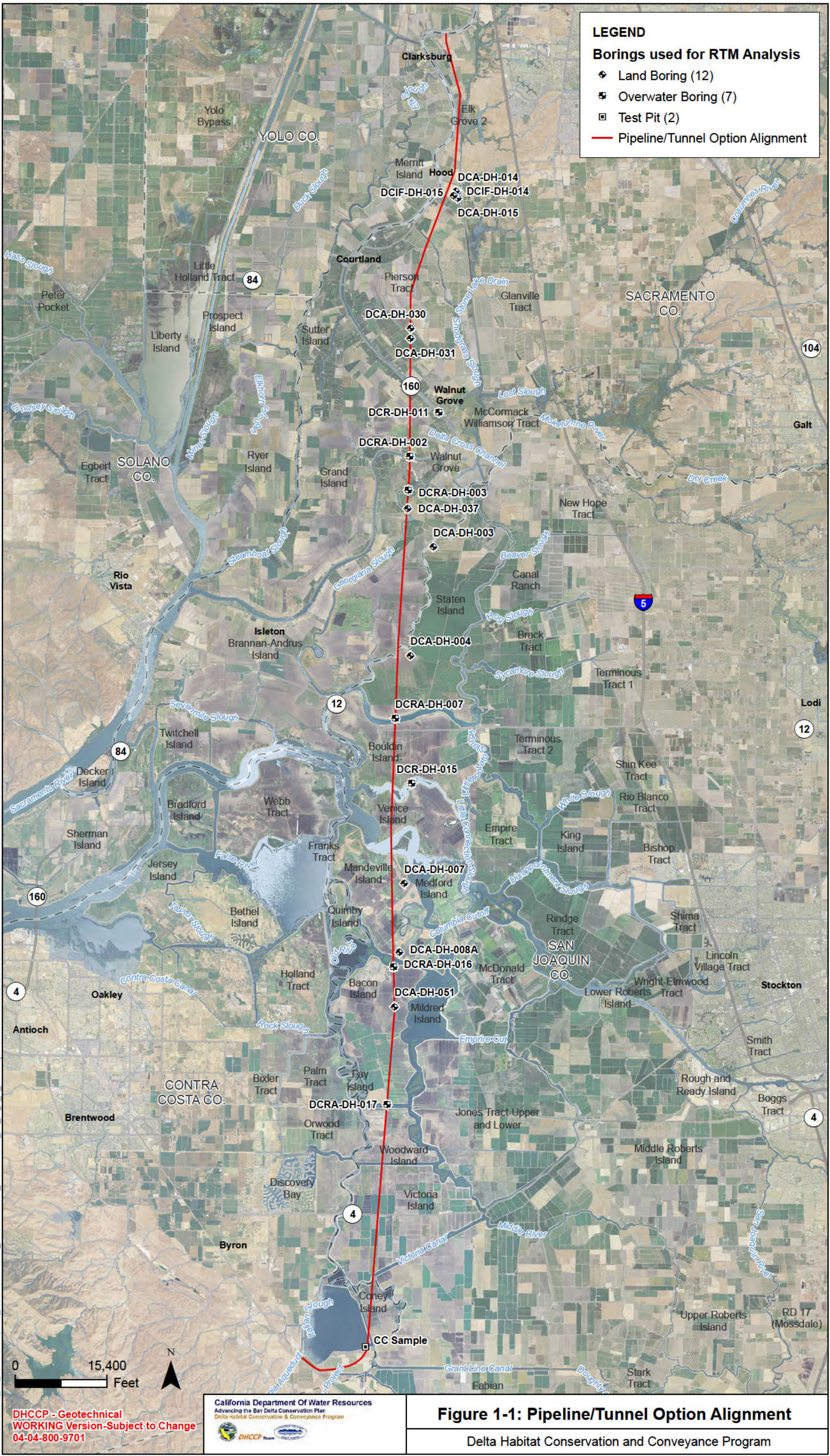


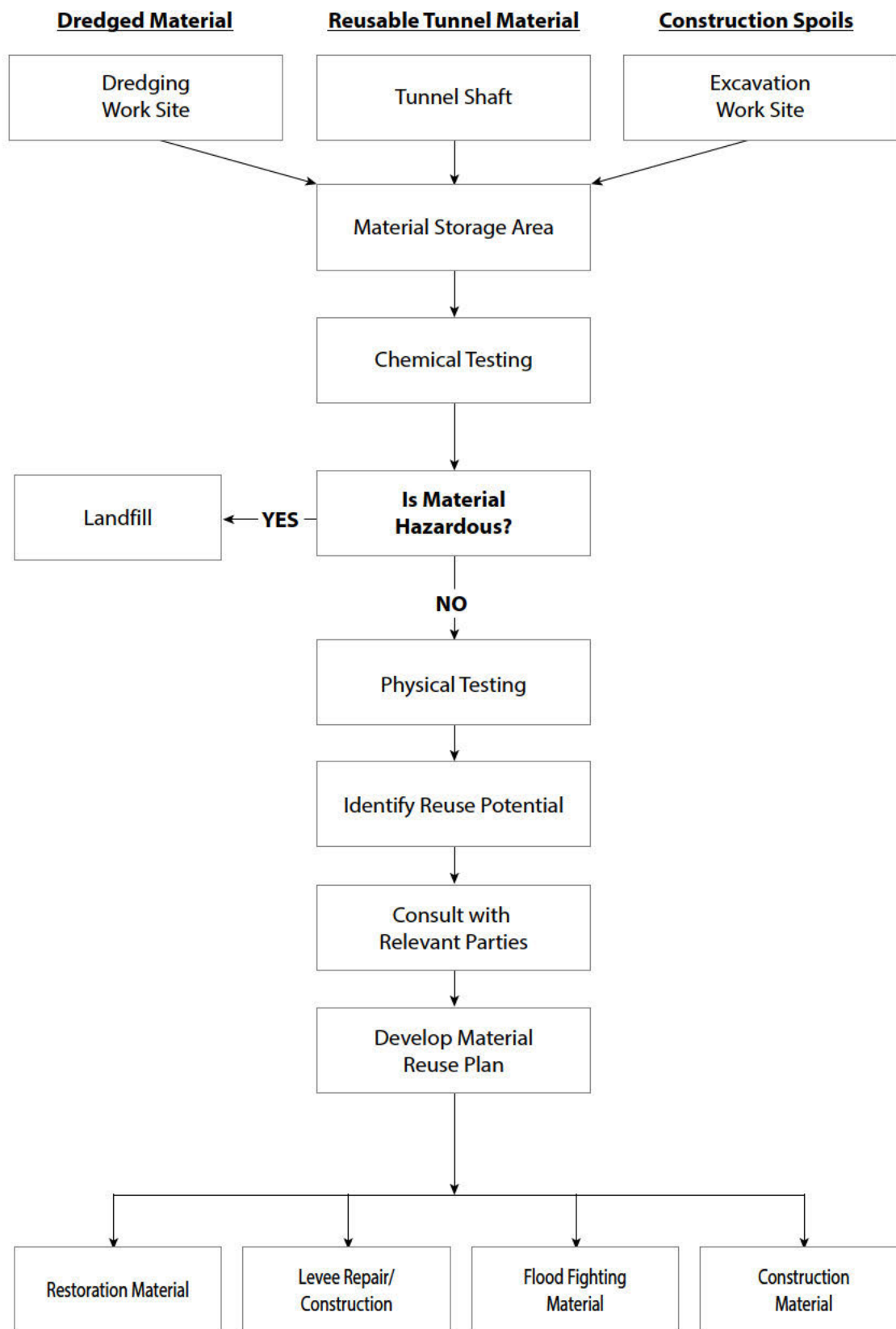
Figure 1-1: Pipeline/Tunnel Option Alignment

Delta Habitat Conservation and Conveyance Program

DHCCP - Geotechnical
WORKING Version-Subject to Change
04-04-800-9701

California Department Of Water Resources
Advancing the Bay Delta Conservation Plan
Delta Habitat Conservation & Conveyance Program





Source: ICF. 2013. Bay Delta Conservation Plan Draft Environmental Impact Report/Environmental Impact Statement. December.

FIGURE 1-2
Process for Disposal and Reuse
of Material from Construction

1.3 Subsurface Conditions

Geologic units mapped in the area of the tunnel alignment are dominated by marsh and tidal estuary deposits associated with the Delta and by alluvium deposited by the Sacramento and San Joaquin rivers and their tributaries (Gorman and Wells, 2000). These units are lithologically diverse and exhibit complex interfingering of sand, silt, and clay typical of a deltaic depositional environment.

Groundwater over much of the area of the tunnel alignment is controlled by farming activities, including irrigation and pumping, to maintain groundwater levels below the root zones of cultivated crops. In general, groundwater is approximately 5 feet below the ground surface throughout the Delta, except in areas immediately adjacent to a riverbank, where groundwater elevations typically rise to within 1 or 2 feet of the surface (DWR, 2009).

TBM excavation is expected to encounter saturated, variable soft ground conditions. Within the proposed tunnel zone (ranging in elevation from -100 to -170 feet), soil types consist of interlayered alluvial deposits of lean to fat clays, silts, silty and clayey sands, and poorly-graded sands.

Figure 1-3 shows the distribution of soil types encountered within the proposed tunnel zone based on compilation of geotechnical investigation data collected from 2009 through 2012 (URS, 2013b). Soil types were classified according to ASTM International (ASTM) specifications D2488 and ASTM D2487. Identification of and criteria for the soil group symbols shown below are presented in these ASTM specifications.

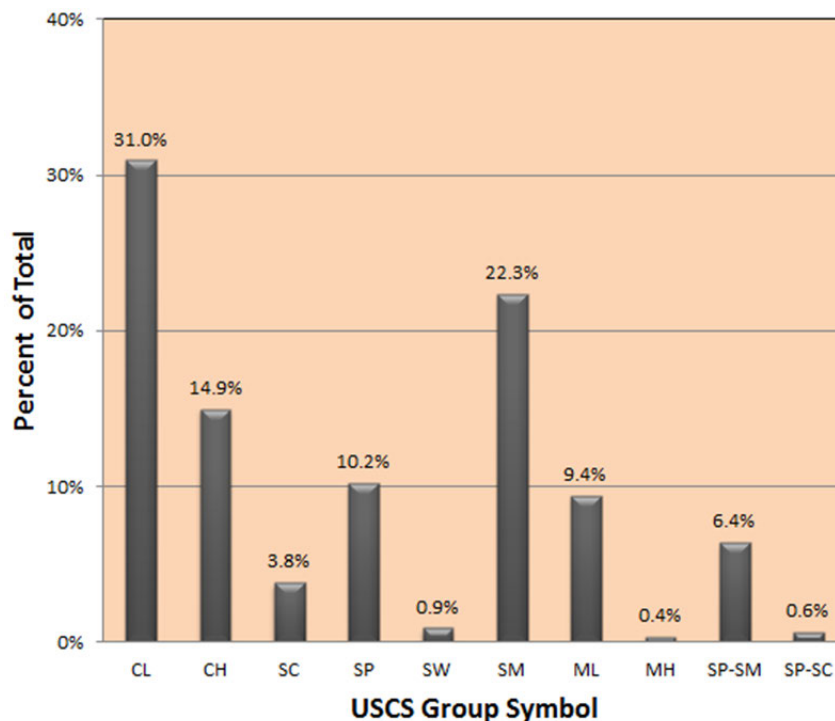


Figure 1-3. Soil Types Encountered Within Tunnel Zone

2.0 TESTING PROGRAM

2.1 Soil Sample Selection

Table 2-1 lists a combination of the soil type data shown on Figure 1-3 and laboratory test results on proposed tunnel zone soil samples collected during geotechnical investigations from 2009 through 2012 (URS, 2013b). Statistical evaluation of subsurface data collected to date indicates that an average mixture of tunnel zone soils would classify as sandy lean clay according to the Unified Soil Classification System.

Table 2-1. Summary of 2009 through 2012 Investigation Results

Soil Index Properties	Test Method	Average Values in Tunnel Zone
Moisture Content (%)	ASTM D2216	33
Liquid Limit (%)	ASTM D4318	44
Plasticity Index (%)	ASTM D4318	23
Fines Content (%)*	ASTM D422	56
Sand Content (%)	ASTM D422	44
Gravel Content (%)	ASTM D422	0
Soil Classification	ASTM D2487	Sandy Lean Clay (sCL)

*Fines = percent passing a #200 sieve (silt and clay)

DHCCP soil core sample boxes are currently stored at the DWR warehouse in West Sacramento. DWR and URS representatives reviewed soil core samples, and specific samples within the proposed tunnel zone (ranging in elevation from -100 to -170 feet) were chosen for this RTM testing program. Figure 1-1 shows 19 boring locations along the proposed tunnel alignment where samples were obtained. Soil core samples were mixed together with the intention of generating uniform baseline soil samples representative of average tunnel zone material. Subsequent testing demonstrated that the baseline soil samples were uniform and classified as sandy lean clay. Appendix A contains a description of the baseline soil sample generation process.

2.2 Soil Conditioning

2.2.1 Typical Construction Procedures

Soil conditioners such as foams and polymers are typically added in front of the TBM cutterhead, in the working chamber, and sometimes along the screw conveyor (see Figure 2-1) to increase soil workability and facilitate transportation of soil cuttings outside of the tunnel excavation. Soil conditioner products vary and are typically selected by the tunneling contractor.

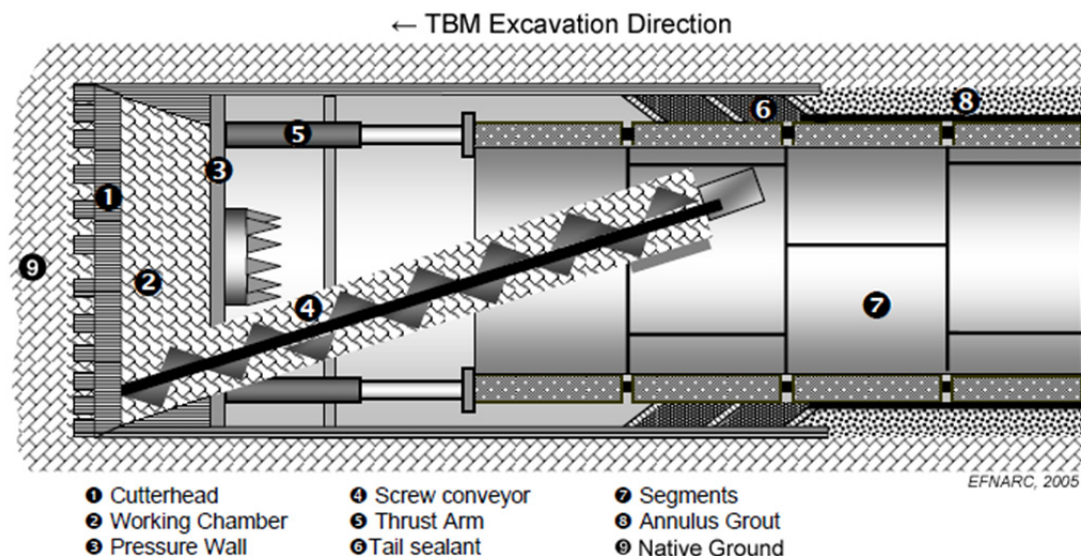


Figure 2-1. Schematic Representation of Earth Pressure Balance TBM

Boring logs and laboratory test data pertaining to anticipated soil conditions in the tunnel zone were provided to three soil conditioner manufacturers: Condat, BASF, and Normet. These manufacturers provided soil conditioner product samples and recommendations for conditioner concentration (C_F), foam expansion ratio (FER), and foam injection ratio (FIR). Table 2-2 lists soil conditioner parameters and their definitions.

Table 2-2. Soil Conditioner Parameters

Term	Definition
C_F	concentration of surfactant agent in water (foaming solution)
C_F	$100 \times m_{\text{surfactant}} / m_{\text{foam solution}}$
$m_{\text{surfactant}}$	mass of surfactant in foaming solution
$m_{\text{foam solution}}$	mass of foaming solution
FER	foam expansion ratio (higher values indicate drier foam)
FER	$V_{\text{foam}} / V_{\text{foam solution}}$
V_{foam}	volume of foam at working pressure
$V_{\text{foam solution}}$	volume of foaming solution
FIR	$100 \times V_{\text{foam}} / V_{\text{soil}}$
V_{foam}	volume of foam at working pressure
V_{soil}	volume of in situ soil to be excavated

2.2.2 Conditioner Products and Sample Preparation

Three baseline soil samples were prepared for geotechnical, environmental, and planting suitability testing before and after the addition of soil conditioner products for a total of six suites of testing. One additional suite of testing was performed on a conditioned soil sample treated with 3 percent high-calcium quicklime. A separate suite of testing was performed on a near-surface soil sample collected by DWR from the Clifton Court Forebay. The location of this sample (designated CC) is shown on Figure 1-1. The soil conditioner products used and sample identification for each suite of tests is summarized in Table 2-3 and illustrated on Figure 2-2.

Table 2-3. Summary of Conditioner Products and Testing Program

Item	Lab	Sample ID without Conditioner Added				Conditioner Added and Sample ID			
Conditioner Manufacturer	—	—	—	—	—	Condat	BASF	Normet	Normet
Conditioner Product	—	—	—	—	—	CLB F5/M™	Rheosoil 127	TamSoil 200CF	TamSoil 200CF with 3% lime
Geotechnical Properties	URS	1A	2A	3A	CC*	1C	2B	3D	3B
Planting Suitability Properties	Wallace	1A-1	2A-1	3A-1	CC-1	1C-1	2B-1	3D-1	3B-1
Environmental Properties	EMAX	1A-2	2A-2	3A-2	CC-2	1C-2	2B-2	3D-2	3B-2

*CC = Clifton Court (composite sample from two test pits excavated between 1 and 4 feet deep)

Test samples were prepared at URS's Santa Ana laboratory to create conditioner foams with different C_F and FER from the three conditioner product samples. To simulate the foam that would be created by a TBM, a high-speed propeller-type stirrer was used in accordance with laboratory foam generation guidelines (EFNARC, 2005).

Baseline soils were placed in a Hobart paddle-type mixer, moisture conditioned to simulate field conditions, and then mixed in two batches (initial and final), with different conditioner foams at different FIRs. Photographs of the foam generated and soil sample mixing are in Appendix B.

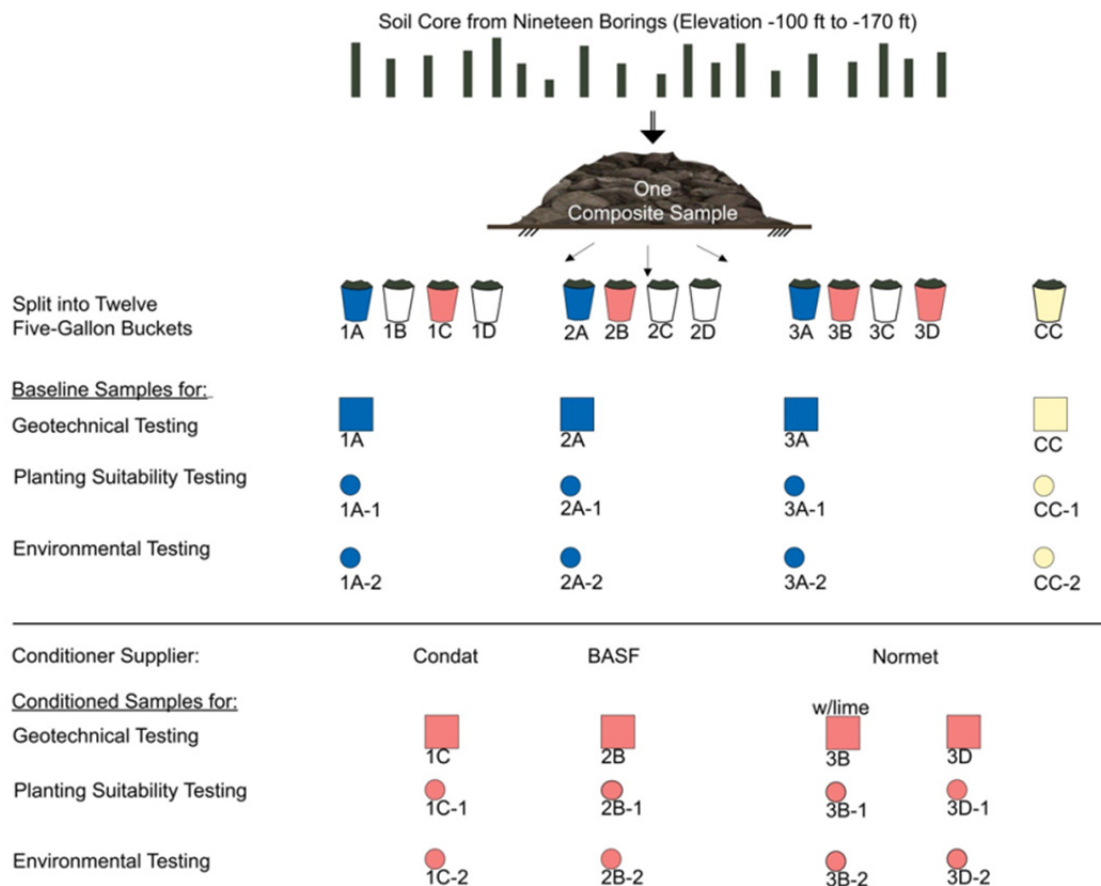


Figure 2-2. Sample Identification for Suites of Tests Performed

Slump testing was performed on moisture-conditioned baseline soils (without conditioner added), and initial and final conditioned soil samples in accordance with ASTM C143. Slump tests are used to measure the consistency of conditioned soil and help guide conditioner type selection and application rates. Photographs of the slump tests are in Appendix B.

Table 2-4 summarizes soil conditioning test parameters. The resulting conditioned soil samples were saturated; therefore, they were allowed to air dry at room temperature in the laboratory for approximately one week before additional testing was performed. The original testing plan (URS, 2013a) had intended for conditioned soil samples to be air dried for one month to simulate anticipated field construction procedures and allow for biodegradation of the conditioner products. However, after one week the conditioned soil samples were dry enough for testing to begin, which helped expedite the schedule for this testing program.

Table 2-4. Summary of Soil Conditioning Test Parameters

Item	Manufacturer Recommendations for Additive			Conditioner Added in Testing Program			
Sample ID	—	—	—	1C	2B	3D	3B
Conditioner Product	Condat CLB F5/M™	BASF Rheosoil 127	Normet TamSoil 200CF	Condat CLB F5/M™	BASF Rheosoil 127	Normet TamSoil 200CF	Normet TamSoil 200CF with 3% lime
C _F (%)	2 to 2.2	3	2.5 to 3	3	5	4	4
FER	12 to 15	15 to 18	10	14	11	10	10
FIR (%)	50	80	25 to 35	180	140	70	100
Slump (inches)*	—	—	—	6	9.5	7	—
Conditioner Application Rate (%)	0.04	0.08	0.04	0.21	0.32	0.15	0.23
Moisture Content of Conditioned Soil (%)	—	—	—	42	45	38	41

*Typical recommended values range from 4 to 8 inches (Thewes, 2010)

2.3 Sample Testing

2.3.1 Geotechnical Properties

Geotechnical tests were conducted on the baseline and conditioned soil samples identified in Table 2-3 and Table 2-4 (as illustrated on Figure 2-2) at URS's Santa Ana laboratory. The purpose of these tests was to evaluate the strength, compressibility, and constructability of conditioned soils for use as structural fill. The following tests were performed in accordance with ASTM standards:

- Moisture content (ASTM D2216), Atterberg limits (ASTM D4318), gradation and hydrometer (ASTM D422)
- Optimum moisture content and maximum dry density (ASTM D698)
- Remolded unconsolidated undrained triaxial shear strength (ASTM D2850)
- Remolded consolidated undrained triaxial shear strength with pore pressure measurements (ASTM D4767)
- Remolded consolidation (ASTM D2435) and permeability (ASTM D5084)

Remolded specimens were compacted to 95 percent of maximum dry density at optimum moisture content determined in accordance with ASTM D698.

Laboratory test reports are in Appendix C. A discussion of results is in Section 3.1.

2.3.2 Environmental Properties

Environmental tests were conducted on the baseline and conditioned soil samples identified in Table 2-3 and Table 2-4 (as illustrated on Figure 2-2) at EMAX Laboratories, Inc., located in Torrance, California. The purpose of these tests was to characterize the conditioned soil's potential toxicity if placed in the environment. The following tests were performed in accordance with industry standards:

- Total solids (E160.3)
- Polyaromatic hydrocarbons (SW8270SIM)
- Methyl mercury (laboratory standard operating procedure)
- Butyltins (Krone Method)
- Ammonia (SM4500NH3)
- Nitrate/nitrite (SM4500NO3)
- Metals (SW6020)
- Soluble metals (soluble threshold limit concentration [STLC] using deionized water [DI-WET] SW6020)
- Mercury (SW7471)
- Soluble mercury (STLC SW7470)
- Hexavalent chromium (SW7196)
- Total petroleum hydrocarbons (modified SW8015)
- Chlorinated pesticides (SW8081)
- Polychlorinated biphenyls (SW8082)
- Herbicides (SW8151)
- Semi-volatile organics (SW8270/SW8270 SIM)
- Total organic carbon (Walkley-Black)

As discussed in the testing plan (URS, 2013a), these tests were selected based on several guidance documents, including:

- *Inner Bair Island Restoration Project - Quality Assurance Project Plan* (United States Fish and Wildlife Service, 2008).
- *Draft Staff Report, Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines* (San Francisco Bay Regional Water Quality Control Board [RWQCB], 2000).
- Order No. R5-2009-0085, *General Waste Discharge Requirements for Maintenance Dredging Operations, Sacramento-San Joaquin Delta (General Order)*. (California RWQCB, 2008)

Test data were reviewed following applicable United States Environmental Protection Agency (EPA) guidance, including:

- *EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, EPA-540-R-08-0, June 2008

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- EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, Office of Solid Waste and Emergency Response 9240.1-5, EPA 540-R-10-01, January 2010.

Test data were evaluated using laboratory quality control samples (blanks, laboratory control samples, duplicates, and surrogate spikes for organic analyses). The samples were prepared and handled in a manner anticipated to simulate field construction conditions.

There were no systematic problems noted with the analyses. However, there were several analytes that were reported between the detection limit and reporting limit, where variability is inherent, and several other analytes that are determined to be estimated concentrations based on quality control samples that did not meet method or laboratory requirements. Table 2-5 summarizes quality assessment of environmental test data. Table 2-6 lists those analytes not qualified by the laboratory (i.e., detections reported between the detection limit and reporting limit).

Table 2-5. Quality Assessment Summary of Environmental Test Data

Method	Parameter Name	Units	Result	Lab Flag	EPA Flag	Result	Lab Flag	EPA Flag
TTLIC (Total)								
	Sample ID		1A-2 (Baseline)			1C-2 (Conditioned)		
160.3M	Total Solids	percent	84.3	=		91.8		
SM4500NH3	Ammonia (NH3-N)	mg/kg	2.57			0.738	J	
SM4500NO3	Nitrate/Nitrite	mg/kg	12.6			0.45	J	
SW6020A	Arsenic	mg/kg	3.47			4.03		
SW6020A	Barium	mg/kg	190			200		
SW6020A	Beryllium	mg/kg	0.591			0.607		
SW6020A	Cadmium	mg/kg	0.305	J		0.348	J	
SW6020A	Chromium	mg/kg	59		J-	56.1		J-
SW6020A	Cobalt	mg/kg	16.7			15.9		J
SW6020A	Copper	mg/kg	35		J	33.7		J
SW6020A	Lead	mg/kg	7.28			7.75		
SW6020A	Molybdenum	mg/kg	0.255	J		0.282	J	
SW6020A	Nickel	mg/kg	72.5			75.7		
SW6020A	Selenium	mg/kg	0.177	J		0.153	J	
SW6020A	Thallium	mg/kg	0.147	J		0.165	J	
SW6020A	Vanadium	mg/kg	61.9			59.9		
SW6020A	Zinc	mg/kg	62.4			154		
SW7471A	Mercury	mg/kg	0.0398	J		ND		
WLKYBLK	TOC	mg/kg	981			1670		
	Sample ID		2A-2 (Baseline)			2B-2 (Conditioned)		
160.3M	Total Solids	percent	73.5	=		90.1		
CAS SOP	Methyl Mercury	ng/g	0.05	=, J		ND		
SM4500NH3	Ammonia (NH3-N)	mg/kg	3.29			0.797	J	

Table 2-5. Quality Assessment Summary of Environmental Test Data

Method	Parameter Name	Units	Result	Lab Flag	EPA Flag	Result	Lab Flag	EPA Flag
SM4500NO3	Nitrate/Nitrite	mg/kg	12.7			0.315	J	
SW6020A	Antimony	mg/kg	ND			0.229	J	J-
SW6020A	Arsenic	mg/kg	3.52			4.51		
SW6020A	Barium	mg/kg	207			172		J+
SW6020A	Beryllium	mg/kg	0.518	J		ND		
SW6020A	Cadmium	mg/kg	0.415	J		0.342	J	
SW6020A	Chromium	mg/kg	57.7			50.1		J
SW6020A	Cobalt	mg/kg	15.4			14.3		J
SW6020A	Copper	mg/kg	31.9			34.7		J-
SW6020A	Lead	mg/kg	7.11			6.9		
SW6020A	Molybdenum	mg/kg	0.325	J		0.315	J	
SW6020A	Nickel	mg/kg	68.6			68		J-
SW6020A	Selenium	mg/kg	0.156	J		0.183	J	
SW6020A	Thallium	mg/kg	0.14	J		0.159	J	
SW6020A	Vanadium	mg/kg	63.7			53.5		
SW6020A	Zinc	mg/kg	61.4		J+	64		
SW7471A	Mercury	mg/kg	0.0291	J		ND		
WLKYBLK	TOC	mg/kg	1090			2090		
SW7471A	Mercury	mg/kg	0.0291	J		0.0368	J	
BNASIM	Naphthalene	µg/kg	ND			4	J	
BNASIM	Phenanthrene	µg/kg	ND			3.9	J	
SW8015B	Diesel	mg/kg	ND			56		
Krone	n-Butyltin Cation	µg/kg	ND			0.33	J	
Sample ID			3A-2 (Baseline)			3D-2 (Conditioned)		
160.3M	Total Solids	percent	84.7	=		87.9		
SW8081A	4,4-DDE	µg/kg	—			ND		
BNASIM	Naphthalene	µg/kg	3.2	J		—		
SM4500NH3	Ammonia (NH3-N)	mg/kg	2.96			ND		
SM4500NO3	Nitrate/Nitrite	mg/kg	12.5			0.315	J	
SW6020A	Antimony	mg/kg	—			0.270	J	
SW6020A	Arsenic	mg/kg	3.77			4.23		
SW6020A	Barium	mg/kg	188			197		
SW6020A	Beryllium	mg/kg	0.54	J		0.538	J	
SW6020A	Cadmium	mg/kg	0.325	J		0.439	J	
SW6020A	Chromium	mg/kg	58.3			56.6		
SW6020A	Cobalt	mg/kg	15.7			15		
SW6020A	Copper	mg/kg	32.6			31.5		
SW6020A	Lead	mg/kg	7.19			8.03		
SW6020A	Molybdenum	mg/kg	0.296	J		0.384	J	

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Table 2-5. Quality Assessment Summary of Environmental Test Data

Method	Parameter Name	Units	Result	Lab Flag	EPA Flag	Result	Lab Flag	EPA Flag
SW6020A	Nickel	mg/kg	70.1			66		
SW6020A	Selenium	mg/kg	0.166	J		0.175	J	
SW6020A	Silver	mg/kg				0.139	J	
SW6020A	Thallium	mg/kg	0.15	J		0.169	J	
SW6020A	Vanadium	mg/kg	61.4			60.8		
SW6020A	Zinc	mg/kg	67.6		J+	66.9		
SW7471A	Mercury	mg/kg	0.0242	J		0.0246	J	
WLKYBLK	TOC	mg/kg	1220			1150		
Krone	Di-n-Butyltin cation	µg/kg	—			0.28	J	
Krone	n-Butyltin cation	µg/kg	—			0.32	J	
SW8015D	Diesel	mg/kg	—			27		
*SW8270 SIM	1,4-Dioxane	µg/kg	—	—	—	ND	—	—
Sample ID			CC-2 (Baseline)			3B-2 (Conditioned Plus Lime)		
160.3M	Total Solids	percent	80.5			77.4		
SW8081A	4,4-DDE	µg/kg	0.75	J		ND		
SM4500NH3	Ammonia (NH3-N)	mg/kg	16			2.31		
SM4500NO3	Nitrate/Nitrite	mg/kg	12.3			ND		
SW6020A	Antimony	mg/kg	ND			0.262	J	
SW6020A	Arsenic	mg/kg	4.37			4.03		
SW6020A	Barium	mg/kg	133			188		
SW6020A	Beryllium	mg/kg	0.360	J		0.519	J	
SW6020A	Cadmium	mg/kg	0.313	J		0.466	J	
SW6020A	Chromium	mg/kg	32.9			54.3		
SW6020A	Cobalt	mg/kg	10.7			14.3		
SW6020A	Copper	mg/kg	18.4			29.1		
SW6020A	Lead	mg/kg	6.31			7.11		
SW6020A	Molybdenum	mg/kg	0.427	J		0.439	J	
SW6020A	Nickel	mg/kg	36.4			60.8		
SW6020A	Selenium	mg/kg	0.182	J		0.19	J	
SW6020A	Silver	mg/kg	ND			ND		
SW6020A	Thallium	mg/kg	0.170	J		0.161	J	
SW6020A	Vanadium	mg/kg	44.0			63.2		
SW6020A	Zinc	mg/kg	62.8			62.6		
SW7471A	Mercury	mg/kg	ND			ND		
WLKYBLK	TOC	mg/kg	2620			1270		
Krone	Di-n-Butyltin cation	µg/kg	0.31	J		ND	U	
Krone	n-Butyltin cation	µg/kg	0.57	J		ND	U	
SW8015D	Diesel	mg/kg	ND			24		

Table 2-5. Quality Assessment Summary of Environmental Test Data

Method	Parameter Name	Units	Result	Lab Flag	EPA Flag	Result	Lab Flag	EPA Flag
STLC RESULTS (soluble)								
		Sample ID	1A-2 (Baseline)			1C-2 (Conditioned)		
SW6020A	Antimony	µg/L	1.36		J-	1.8		
SW6020A	Arsenic	µg/L	17.2			10.9		
SW6020A	Barium	µg/L	320		J+	85.3		J+
SW6020A	Beryllium	µg/L	0.662	J		ND		
SW6020A	Cadmium	µg/L	0.28	J		ND		
SW6020A	Chromium	µg/L	39.3		J-	0.971	J	
SW6020A	Cobalt	µg/L	9.07		J	0.428	J	
SW6020A	Copper	µg/L	38.3		J	15.2		J+
SW6020A	Lead	µg/L	8.17			1.6		
SW6020A	Molybdenum	µg/L	4.82		J-	7.59		
SW6020A	Nickel	µg/L	39.8			2.33		
SW6020A	Selenium	µg/L	9.67			8.77		
SW6020A	Vanadium	µg/L	72.1		J-	19.9		
SW6020A	Zinc	µg/L	87.3			43.9		J+
		Sample ID	2A-2 (Baseline)			2B-2 (Conditioned)		
SW6020A	Antimony	µg/L	1.54			1.75		J-
SW6020A	Arsenic	µg/L	13.1			14.7		
SW6020A	Barium	µg/L	103			62.3		
SW6020A	Beryllium	µg/L	0.186	J		0.228	J	
SW6020A	Chromium	µg/L	11.9			16.9		
SW6020A	Cobalt	µg/L	2.39			3.19		
SW6020A	Copper	µg/L	11.2			15.7		J
SW6020A	Lead	µg/L	2.93			4.05		
SW6020A	Molybdenum	µg/L	6.97			7.08		J-
SW6020A	Nickel	µg/L	11.5			14.7		J
SW6020A	Selenium	µg/L	8.77			9.1		
SW6020A	Vanadium	µg/L	38.3			46.7		
SW6020A	Zinc	µg/L	92.6			41.2		
		Sample ID	3A-2 (Baseline)			3D-2 (Conditioned)		
SW6020A	Antimony	µg/L	1.44			1.59		
SW6020A	Arsenic	µg/L	17.4			11.3		
SW6020A	Barium	µg/L	134			78.7		
SW6020A	Beryllium	µg/L	0.296	J		0.109	J	
SW6020A	Cadmium	µg/L	—			ND		
SW6020A	Chromium	µg/L	17.4			7.98		
SW6020A	Cobalt	µg/L	3.38			1.14		
SW6020A	Copper	µg/L	15.6			7.92		

SECTION 2.0

TESTING PROGRAM

Table 2-5. Quality Assessment Summary of Environmental Test Data

Method	Parameter Name	Units	Result	Lab Flag	EPA Flag	Result	Lab Flag	EPA Flag
SW6020A	Lead	µg/L	4.58			2.65		
SW6020A	Molybdenum	µg/L	5.68			5.93		
SW6020A	Nickel	µg/L	14.7			6.35		
SW6020A	Selenium	µg/L	8.83			8.38		
SW6020A	Silver	µg/L	—			ND		
SW6020A	Thallium	µg/L	—			ND		
SW6020A	Vanadium	µg/L	50.6			26.4		
SW6020A	Zinc	µg/L	22.4			16.7	J	
Sample ID		CC-2 (Baseline)			3B-2 (Conditioned)			
SW6020A	Antimony	µg/L	1.05			ND		
SW6020A	Arsenic	µg/L	2.27			0.435	J	
SW6020A	Barium	µg/L	96.1			295		
SW6020A	Beryllium	µg/L	ND			ND		
SW6020A	Cadmium	µg/L	ND			ND		
SW6020A	Chromium	µg/L	7.42			12.5		
SW6020A	Cobalt	µg/L	0.939	J		0.610	J	
SW6020A	Copper	µg/L	5.09			11.8		
SW6020A	Lead	µg/L	1.46			0.199	J	U
SW6020A	Molybdenum	µg/L	3.98			8.33		
SW6020A	Nickel	µg/L	5.60			0.568	J	U
SW6020A	Selenium	µg/L	3.56			3.34		
SW6020A	Silver	µg/L	ND			ND		
SW6020A	Thallium	µg/L	ND			ND		
SW6020A	Vanadium	µg/L	13.2			4.29		
SW6020A	Zinc	µg/L	12.9	J		14.1	J	

Notes:

J = estimated concentration

J+ = estimated concentration; potential high bias

J- = estimated concentration; potential low bias

U = result is considered not detected and attributed to external contamination

ND = not detected

mg/kg = milligrams per kilogram

µg/L = micrograms per liter

* Lab ID for supplemental sample testing is 3B-3

Table 2-6. Summary of Analytes not Qualified by Laboratory

Method	Sample ID	Analyte	Result	Flag	Reason
SW6020A	1A-2	Chromium	59 mg/kg	J-	Low analytical spike recovery
		Copper	35 mg/kg	J	Serial dilution recovery not met
STLC/ SW6020A	1A-2	Antimony	1.36 µg/L	J-	Low matrix spike recovery
		Barium	320 µg/L	J+	High analytical spike recovery
		Chromium	39.3 µg/L	J-	Low matrix spike recovery
		Cobalt	9.07 µg/L	J	Serial dilution recovery not met
		Copper	38.3 µg/L	J	Serial dilution recovery not met
		Molybdenum	4.82 µg/L	J-	Low matrix spike recovery
		Vanadium	72.1 µg/L	J-	Low matrix spike recovery
		Zinc	87.3 µg/L	J+	Associated with blank contamination
	2A-2	Zinc	92.6 µg/L	J+	Associated with blank contamination
	3A-2	Zinc	22.4 µg/L	J+	Associated with blank contamination
SW6020A	1C-2	Chromium	56.1 mg/kg	J-	Low analytical spike recovery
		Cobalt	15.9 mg/kg	J	Serial dilution recovery not met
		Copper	33.7 mg/kg	J	Serial dilution recovery not met
STLC/ SW6020A	1C-2	Barium	85.3 µg/L	J+	High matrix and analytical spike
		Copper	15.2 µg/L	J	Serial dilution recovery not met
		Zinc	43.9 µg/L	J+	High matrix spike recovery
SW8270C	3B-2	2,4,5-Trichlorophenol	ND	R	Low surrogate spike recoveries
		2,4,6-Trichlorophenol	ND	R	Low surrogate spike recoveries
		2,4-Dichlorophenol	ND	R	Low surrogate spike recoveries
		2,4-Dimethylphenol	ND	R	Low surrogate spike recoveries
		2,4-Dinitrophenol	ND	R	Low surrogate spike recoveries
		2-Chlorophenol	ND	R	Low surrogate spike recoveries
		2-Methylphenol	ND	R	Low surrogate spike recoveries
		2-Nitrophenol	ND	R	Low surrogate spike recoveries
		4,6-Dinitro-2-methylphenol	ND	R	Low surrogate spike recoveries
		4-Chloro-3-methylphenol	ND	R	Low surrogate spike recoveries
		4-Methylphenol	ND	R	Low surrogate spike recoveries
		4-Nitrophenol	ND	R	Low surrogate spike recoveries
		Pentachlorophenol	ND	R	Low surrogate spike recoveries
		Phenol	ND	R	Low surrogate spike recoveries
SW6020	3B-2	Lead	0.199J	U	Method blank contamination; below RL
		Nickel	0.568J	U	Method blank contamination; below RL
		Copper	11.8	J-	Low matrix spike recovery; serial dilution out
		Zinc	14.1J	J-	Low matrix spike recovery

Notes:

ND = not detected

J = estimated result

J- = estimated result; potential low bias

J+ = estimated result; potential high bias

R = rejected; data should not be used

RL = reporting limit

U = result is considered not detected and attributed to external contamination

Laboratory test reports are in Appendix D. A discussion of results is in Section 3.2.

2.3.3 Planting Suitability Properties

Planting suitability tests were conducted on the baseline and conditioned soil samples identified in Table 2-3 and Table 2-4 (as illustrated on Figure 2-2) at Wallace Laboratories located in El Segundo, California. The purpose of these tests was to assess conditioned soil's sustainability for habitat growth and agricultural use.

Plant suitability testing consisted of agricultural soil suitability analysis (Wallace, 2013) that identified the amounts of plant extractable by the Ammonium Bicarbonate/DTPA Extraction Method (Lindsay, Norvell, 1978), elemental and saturation extract of macronutrients, micronutrients, trace and toxic elements, and:

- ph
- Electroconductivity (soil salinity)
- Cation exchange capacity
- Sodium adsorption ratio
- Infiltration rate
- Soil texture
- Organic matter content
- Natural moisture content
- Half saturation percentage
- Lime content

Laboratory test reports are in Appendix E. A discussion of results is in Section 3.3.

3.0 RESULTS AND CONCLUSIONS

3.1 Geotechnical Properties

Table 3-1 summarizes geotechnical property test results on baseline and conditioned soil samples. The soil conditioner products provided by the manufacturers are foam surfactants that help separate soil particles. The effects of the soil conditioners on the test samples are identified below. Where applicable, requirements of Title 23 of the California Code of Regulations (Title 23) for levee fill material are shown on some figures for comparison purposes.

3.1.1 Physical and Index Properties

While the total percent fines (silt and clay) remained relatively constant between the baseline and conditioned soil samples, the percent of silt size particles decreased and the percent of clay size particles increased in the conditioned soil samples (see Figure 3-1). This can be attributed to the soil conditioners' dispersive effects.

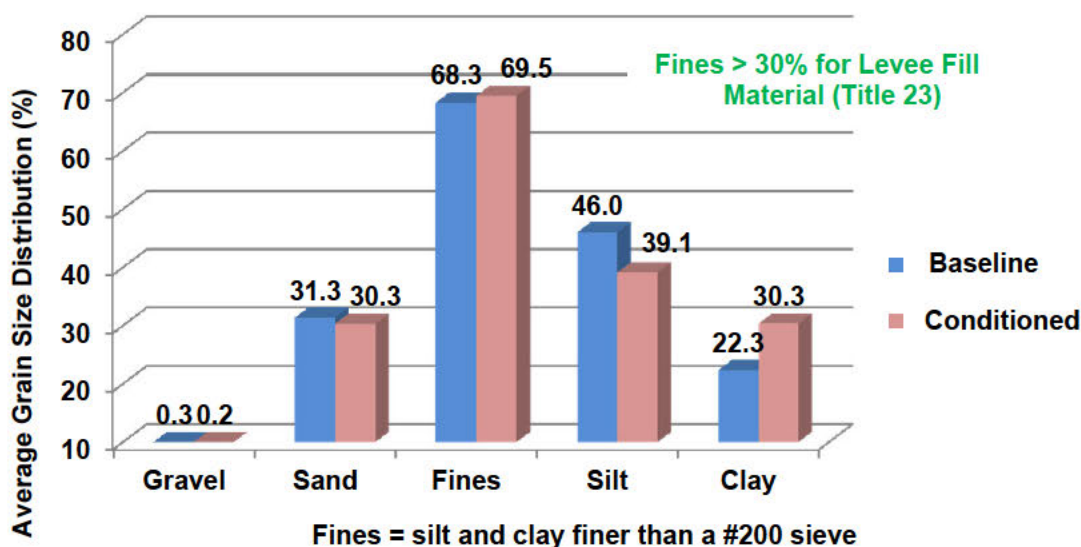


Figure 3-1. Comparison of Baseline versus Conditioned Soil Particle Size

The liquid limit and plasticity index increased for the conditioned soil samples (see Figure 3-2 and Figure 3-3). This can be attributed to the decrease in percent silt size particles and increase in percent clay size particles in the conditioned soil samples.

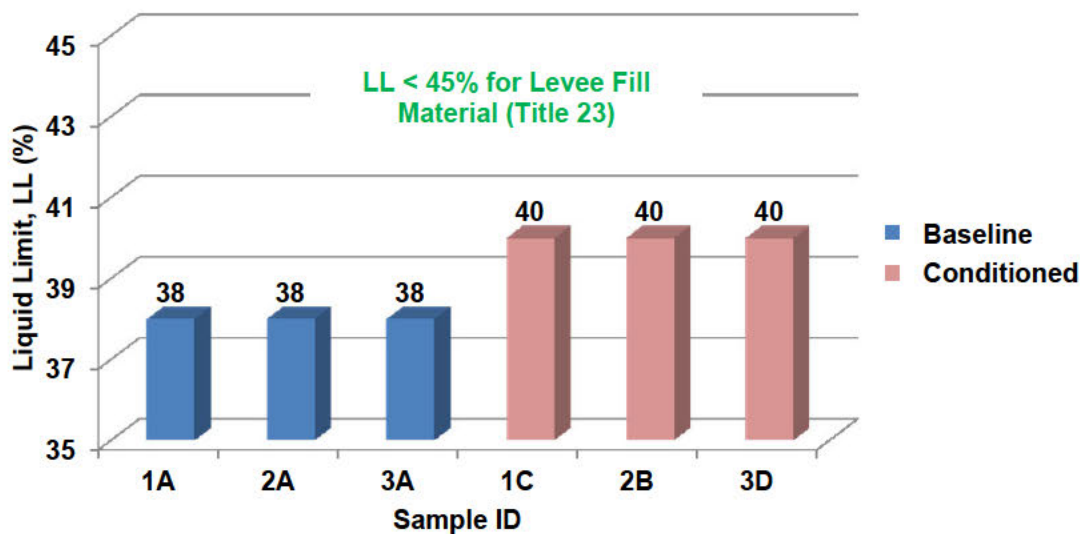


Figure 3-2. Comparison of Baseline versus Conditioned Soil Liquid Limit

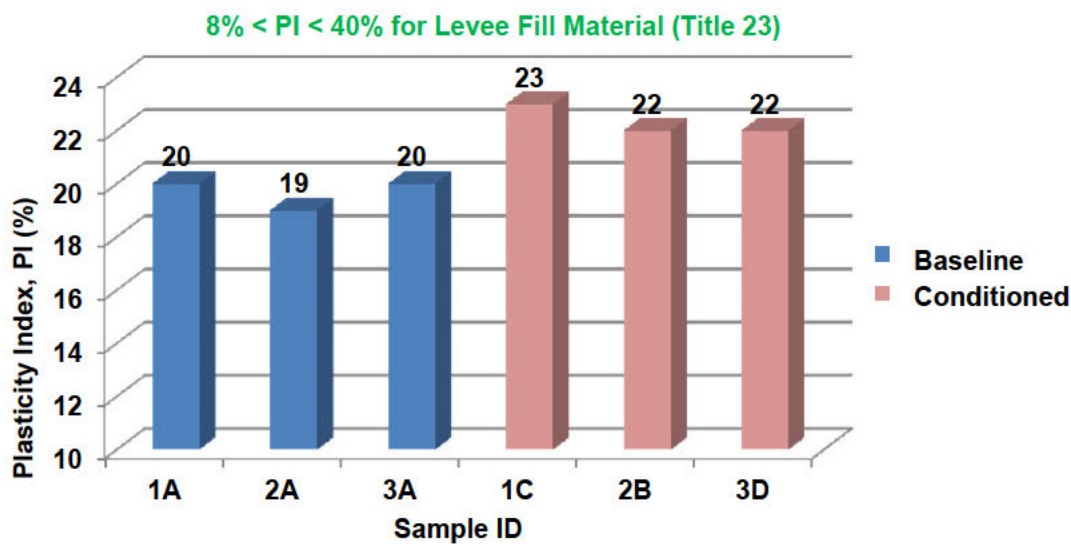


Figure 3-3. Comparison of Baseline versus Conditioned Soil Plasticity Index

SECTION 3.0

RESULTS AND CONCLUSIONS

Table 3-1. Summary of Geotechnical Test Results

Soil Sample		Baseline Without Conditioner			With Conditioner Added				
Sample Information									
Sample ID		1A	2A	3A	CC*	1C	2B	3D	3B*
USCS		sCL	sCL	sCL	SC	sCL	CLs	sCL	sML
Soil Sample Description		Sandy Lean Clay	Sandy Lean Clay	Sandy Lean Clay	Clayey Sand	Sandy Lean Clay	Lean Clay with Sand	Sandy Lean Clay	Sandy Silt
Conditioner Manufacturer		NA	NA	NA	NA	Condat	BASF	Normet	Normet
Conditioner Product		NA	NA	NA	NA	CLB F5/M™	Rheosoil 127	TamSoil 200CF	TamSoil 200CF with 3% lime
Physical and Index Property Tests									
Particle Size Analysis	% Gravel	0	0	1	1	0	0	0	0
	% Sand	31	31	32	54	30	29	32	35
	% Fines	69	69	67	45	70	71	68	65
Hydrometer	% Silt	46	47	45	29	39	43	36	55
	% Clay	23	22	22	16	31	28	32	10
Atterberg Limits	Liquid Limit, LL (%)	38	38	38	32	40	40	40	46
	Plastic Limit, PL (%)	18	19	18	18	17	18	18	37
	Plasticity Index, PI (%)	20	19	20	14	23	22	22	9
Compaction Tests									
	Maximum Dry Unit Weight (pcf)	103.0			101.5	105.0	104.5	104.5	89.5
	Optimum Moisture Content (%)	19.5			20.5	17.5	18.0	19.0	25.0

SECTION 3.0

RESULTS AND CONCLUSIONS

Table 3-1. Summary of Geotechnical Test Results

Soil Sample		Baseline Without Conditioner			With Conditioner Added				
Sample Information									
Sample ID		1A	2A	3A	CC*	1C	2B	3D	3B*
Compressibility and Strength Tests									
Consolidation	Compression Ratio, $C_{cc}=C_o/(1+e_0)$	0.13	0.15	0.13	0.13	0.13	0.13	0.13	0.25
	Recompression Ratio, $C_{re}=C_r/(1+e_0)$	0.025	0.033	0.033	0.013	0.031	0.030	0.020	0.013
Triaxial ICU	Effective Stress Cohesion, c' (psf)	70	135	54	35	90	30	60	—
	Effective Stress Friction Angle, ϕ' (degrees)	32	32	34	32	29	32	31	—
	Total Stress Cohesion, c (psf)	400	420	20	170	130	200	90	—
	Total Stress Friction Angle, ϕ (degrees)	11	11	19	10	12	12	15	—
Triaxial UU	Undrained Shear Strength, S_u (psf)	2,527	2,299	2,134	909	1,933	1,989	1,740	7,840
Permeability Tests									
	Vertical Hydraulic Conductivity (cm/s)	1.6E-05	7.7E-06	1.0E-05	1.9E-05	4.2E-07	9.6E-08	3.8E-08	8.8E-05

Notes:

Clay size smaller than 0.005 mm

pcf = pounds per cubic foot

psf = pounds per square foot

USCS = Unified Soil Classification System

UU = unconsolidated undrained

ICU = isotropically consolidated undrained

*Additional suites of testing performed for information only, not to compare the before and after effects of adding soil conditioner. Sample CC is from Clifton Court. Sample 3B is lime treated.

3.1.2 Compressibility and Strength Properties

While the compression ratios and recompression ratios of the baseline and conditioned soil samples were similar, incremental loads greater than 5,000 pounds per square foot resulted in slightly more vertical strain/compression for the conditioned soil samples (see Figure 3-4).

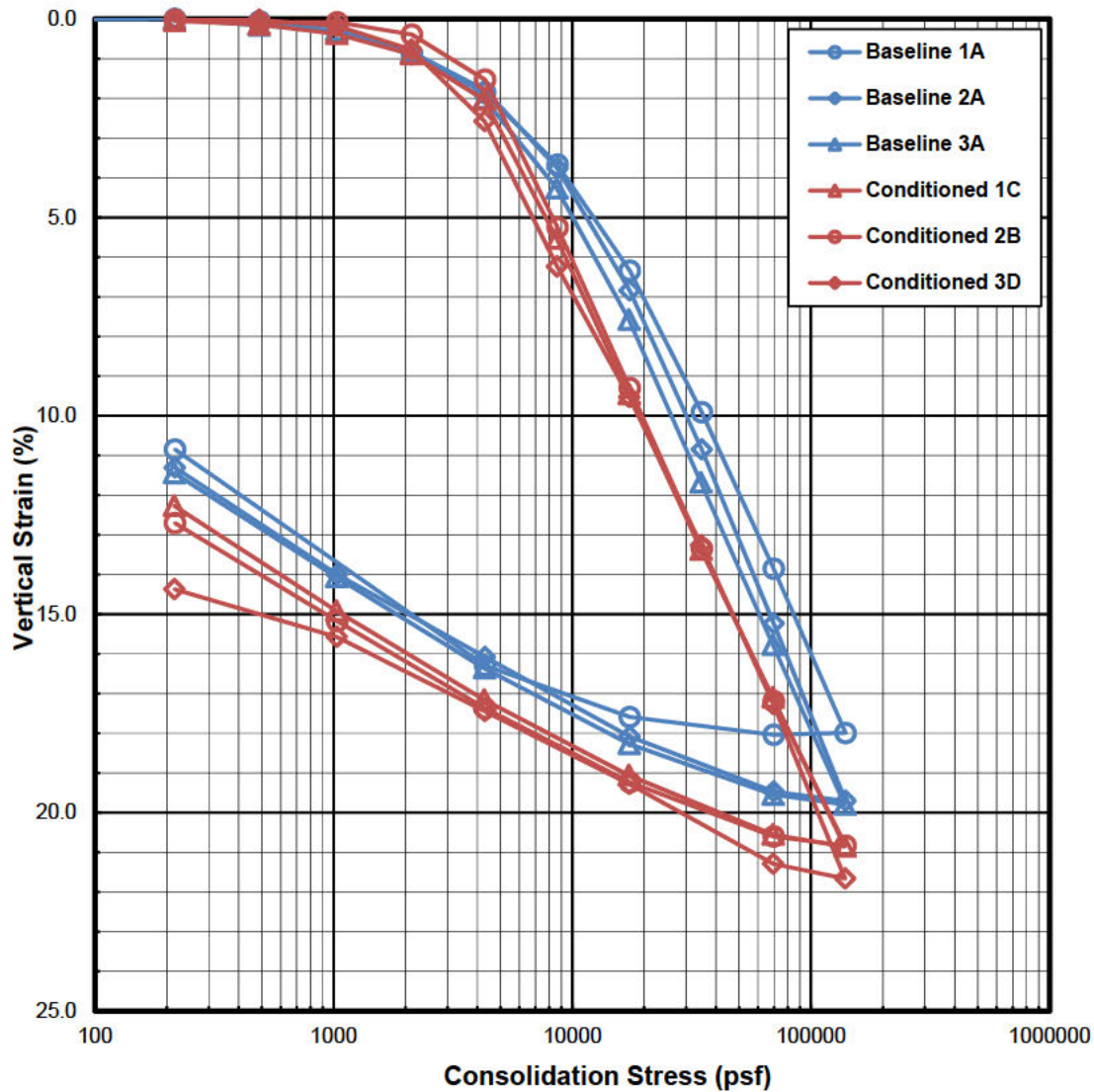


Figure 3-4. Comparison of Baseline versus Conditioned Soil Compressibility

The undrained shear strength of the conditioned soil samples was slightly lower than the baseline samples, and exhibited more strain to generate peak stress (see Figure 3-5). The drained shear strength of the samples did not appear to be significantly affected by the soil conditioners.

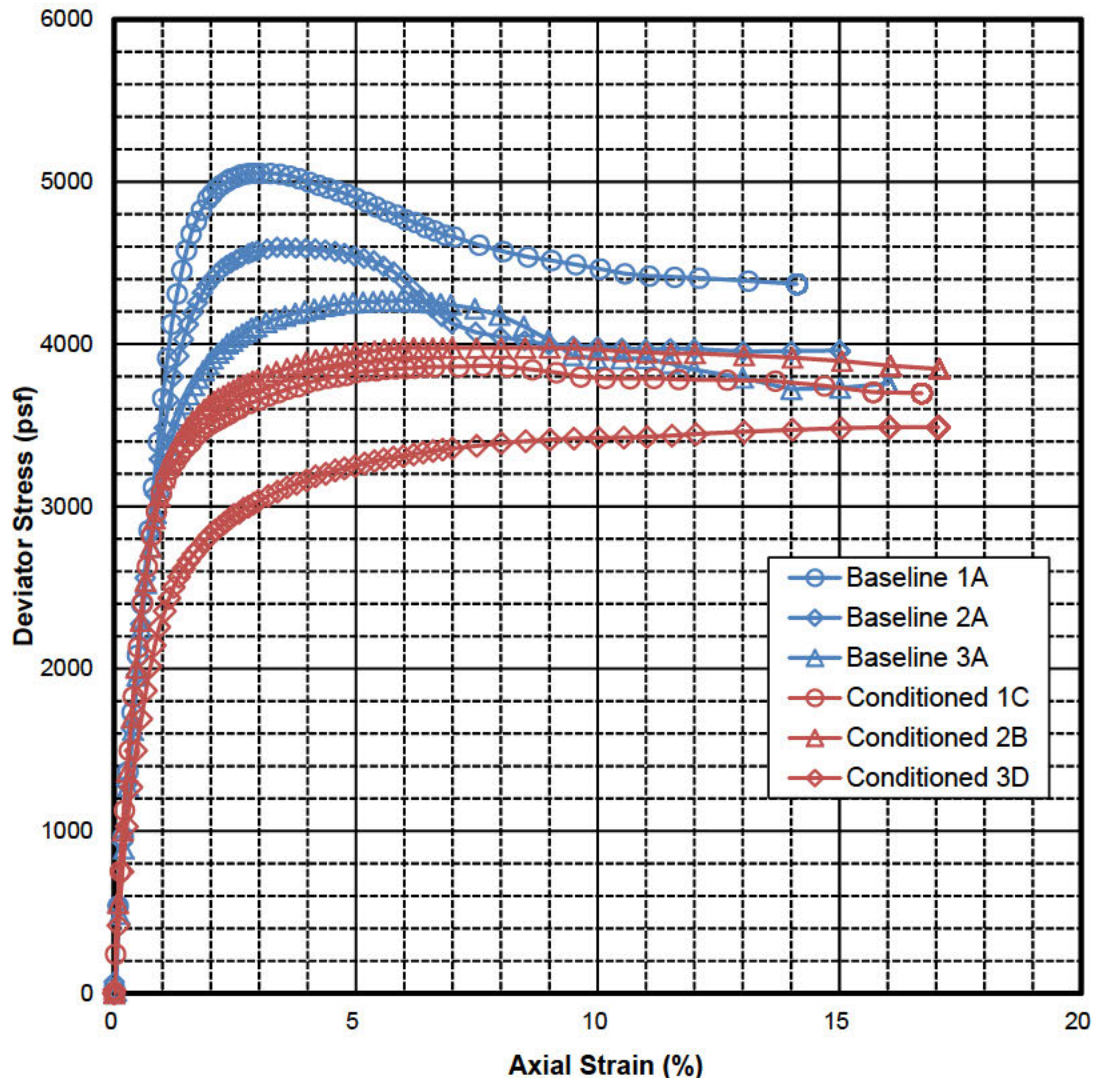


Figure 3-5. Comparison of Baseline versus Conditioned Soil Shear Strength

The slight increase in compressibility and slight decrease in undrained shear strength for the conditioned soil samples can be attributed to the soil conditioners' dispersive effects that reduce inter-particle bonds.

3.1.3 Permeability Properties

The hydraulic conductivity (vertical permeability) of the conditioned soil samples was substantially lower than the baseline samples (see Figure 3-6). This can be attributed to the soil conditioners' dispersive effects that increased the percent of clay size particles and reduced the effective pore diameter.

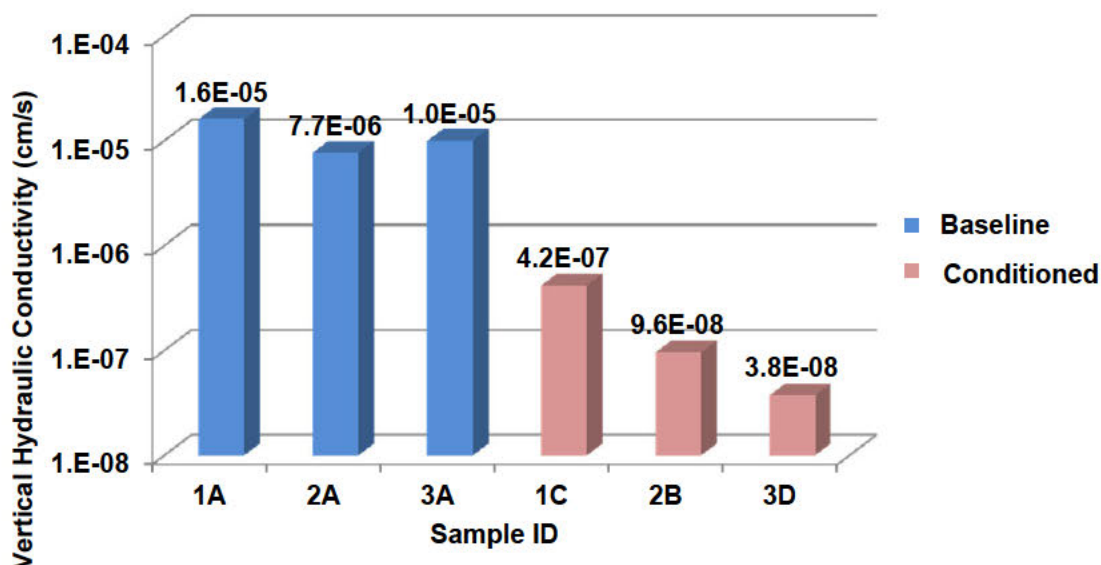


Figure 3-6. Comparison of Baseline versus Conditioned Soil Permeability

3.1.4 Geotechnical Property Conclusions

The soil conditioner application rates used for this RTM testing program were purposefully higher than industry typical values that were recommended by the conditioner manufacturers. As a result, the observed effects of adding conditioners to the soil's geotechnical properties are likely magnified over what might be expected for RTM. Even with increased rates of conditioner application, the testing performed indicates that the baseline and conditioned soil samples meet current Title 23 requirements for use as levee fill. Based on the variable nature of the subsurface soils, not all RTM is expected to meet current Title 23 requirements for use as levee fill upon direct removal from the tunnel excavations. Processing and mixing should be anticipated as discussed below and processing and mixing may be required for fill not intended to meet Title 23 requirements. Due to the dispersive effects of the soil conditioners, pinhole dispersion tests are recommended on additional conditioned soil samples to confirm they are not erodible.

RTM will be saturated and significantly above the moisture content range necessary to meet compaction requirements. The conditioned soil samples from this testing program were approximately 20 to 25 percent above optimum moisture content, and required

approximately one week of air drying at room temperature in the laboratory before additional testing could be performed.

Under favorable weather conditions during construction it is expected that RTM could be dried at a rate of approximately 2 percent per day given a maximum lift thickness of 12 to 18 inches and several passes per day with a disc to turn the material over. Without continued processing, drying RTM would develop a crust and remain saturated below the surface. The size of the storage area and rate at which RTM is generated will determine how much handling will be required to maintain the maximum lift thickness.

To expedite drying and reduce soil plasticity, high-calcium quicklime could be added, as demonstrated by the laboratory test results in Table 3-2. However, because the addition of quicklime elevates pH values, lime-treated soil should be kept away from areas where plant growth is desirable. Furthermore, the test results on Sample 3B indicate the Liquid Limit exceeds Title 23 requirements for levee fill material when 1 to 3 percent quicklime is added. Accordingly, additional testing of RTM is expected due to the variable nature of the subsurface soils and anticipated processing and mixing of material.

Table 3-2. Summary of Lime-Treatment Testing on Conditioned Soil Sample 3B

Initial Moisture Content*	Quicklime Added	Moisture Content After 2 Days	Moisture Reduction	Liquid Limit	Plasticity Index	USCS
41.2%	1%	29.3%	28.9%	49	19	sML
41.2%	2%	28.7%	30.3%	47	15	sML
41.2%	3%	24.5%	40.5%	46	9	sML
41.2%	4%	23.9%	42.0%	--	--	--

*Optimum moisture content for non-lime-treated soil is approximately 20%

3.2 Environmental Properties

3.2.1 Analytical Results

Environmental constituents detected in the baseline and conditioned soil samples include metals, ammonia, and nitrate/nitrite, which are natural soil components. Several chemical compounds were detected sporadically. Methyl mercury in baseline sample 2A-2 and naphthalene in baseline sample 3A-2 were detected at concentrations below the reporting limit. Naphthalene, phenanthrene and total petroleum hydrocarbons in the diesel range were detected in conditioned soil sample 2B-2 and may be a constituent of the conditioning process because these analytes were not detected in the corresponding baseline sample. Table 3-3 compares baseline and conditioned soil sample results. The variation of test results between baseline and conditioned soil samples can, in part, be attributed to natural variation of compounds present in different soil samples.

Table 3-3. Analytical Results Summary for Baseline and Conditioned Soil Samples

Group Analyte	Screening-Level Surrogate	Human Health, Unrestricted-Use Soil (mg/kg)				Sample Results (mg/kg)									
		USEPA RSL ^a		CA-modified Screening Level ^b		Baseline		Condat-Conditioned		BASF-Conditioned		Normet-Conditioned		Nomet-Conditioned (with 3% Lime)	
		Carcinogenic	Non-carcinogenic	Carcinogenic	Non-carcinogenic	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL
Inorganic Constituents															
Ammonia	Nitrite	**	7,800	**	**	16	—	0.738	—	0.831	—	—	0.689	2.31	—
Antimony		**	31	**	**	—	1.16	—	1.1	0.229	—	0.27	—	0.262	—
Arsenic		0.61	34	0.062	**	4.37°	—	4.03°	—	4.51°	—	4.23°	—	4.03°	—
Barium		**	15,000	**	**	207	—	200	—	172	—	197	—	188	—
Beryllium		1400	160	1400	16	0.591	—	0.642	—	—	0.541	0.538	—	0.519	—
Cadmium		1800	70	788	4	0.579	—	0.548	—	0.342	—	0.439	—	0.466	—
Chromium	Chromium(III)	**	120,000	**	**	62.3	—	60.3	—	50.1	—	56.6	—	54.3	—
Chromium (VI)		0.29	230	**	**	—	0.594	—	0.547	—	0.552	—	0.568	—	0.645
Cobalt		370	23	**	**	18.3	—	19.1	—	14.3	—	15	—	14.3	—
Copper		**	3,100	**	**	38.4	—	37.5	—	34.7	—	31.5	—	29.1	—
Lead		**	400	**	**	7.28	—	7.75	—	6.9	—	8.03	—	7.11	—
Mercury		**	10	**	**	0.0398	—	—	0.0219	0.0368	—	0.0246	—	—	0.0258
Molybdenum		**	390	**	**	1.16	—	1.1	—	0.315	—	0.384	—	0.439	—
Nickel		13,000	1,500	**	**	72.5	—	75.7	—	68	—	66	—	60.8	—
Nitrate/Nitrite	Nitrite	**	7,800	**	**	12.7	—	0.45	—	0.315	—	0.315	—	—	0.258
Selenium		**	390	**	**	0.579	—	0.548	—	0.183	—	0.175	—	0.19	—
Silver		**	390	**	**	—	0.579	—	0.548	—	0.108	0.139	—	—	0.129
Thallium		**	1	**	**	0.579	—	0.548	—	0.159	—	0.169	—	0.161	—
Vanadium		**	390	**	**	65.6	—	63.8	—	53.5	—	60.8	—	63.2	—
Zinc		**	23,000	**	**	67.6	—	NA	—	64	—	66.9	—	62.6	—
Organically Complexed Metals															
n-Butyltin Cation	Di- and tri-butyltin compounds	**	18	**	**	0.00057	—	—	0.00028	—	0.00029	0.00032	—	—	0.00026
Di-n-butyltin Cation	Di- and tri-butyltin compounds	**	18	**	**	0.00031	—	—	0.00021	—	0.00021	0.00028	—	—	0.00019
Tri-n-butyltin Cation	Di- and tri-butyltin compounds	**	18	**	**	—	0.00059	—	0.00046	—	0.00048	—	0.00043	—	0.00043
Tetra-n-butyltin	Di- and tri-butyltin compounds	**	18	**	**	—	0.0006	—	0.00047	—	0.00049	—	0.00044	—	0.00044
Methylmercury		**	7.8	**	**	0.00005	—	—	0.00004	—	0.00004	—	0.00004	—	0.00005
Volatile Organic Compounds (VOCs)															
2-Chloronaphthalene		**	6,300	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2-Chlorophenol		**	390	**	63	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Dibenzofuran		**	78	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
1,2-Dichlorobenzene		**	1,900	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
1,3-Dichlorobenzene		**	**	**	530	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
1,4-Dichlorobenzene		2.4	3,500	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
bis(2-Chloroethyl) ether		0.21	**	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
bis-Chloroisopropyl ether		4.6	3,100	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22

Table 3-3. Analytical Results Summary for Baseline and Conditioned Soil Samples

Group Analyte	Screening-Level Surrogate	Human Health, Unrestricted-Use Soil (mg/kg)				Sample Results (mg/kg)									
		USEPA RSL ^a		CA-modified Screening Level ^b		Baseline		Condat-Conditioned		BASF-Conditioned		Normet-Conditioned		Nomet-Conditioned (with 3% Lime)	
		Carcinogenic	Non-carcinogenic	Carcinogenic	Non-carcinogenic	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL
4-chlorophenyl phenyl Ether	2,2',4,4'-Tetrabromodiphenyl ether	**	6.1	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2-Methylnaphthalene		**	230	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Naphthalene		3.6	140	**	**	0.4	—	—	0.18	0.18	—	—	0.19	—	0.22
2-Nitrophenol	2,4-Dinitrophenol	**	120	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Nitrobenzene		4.8	130	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
1,2,4-Trichlorobenzene		22	62	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Semivolatile Organic Compounds (SVOCs)															
4-Chloroaniline		2.4	240	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
3,3'-Dichlorobenzidine		1.1	**	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2,4-Dichlorophenol		**	180	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2,4-Dimethylphenol		**	1,200	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2,4-Dinitrophenol		**	120	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2,4-Dinitrotoluene		1.6	120	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2,6-Dinitrotoluene		0.33	18	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
4-Bromophenyl phenyl ether	2,2',4,4'-Tetrabromodiphenyl ether	**	6.1	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Hexachlorobenzene		0.3	49	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Hexachlorobutadiene		6.2	61	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Hexachlorocyclopentadiene		**	370	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Hexachloroethane		12	43	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Isophorone		510	12,000	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
bis(2-Chloroethoxy) methane		**	180	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2-Methylphenol		**	3,100	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
4-Methylphenol		**	6,100	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
4,6-Dinitro-2-methylphenol		**	4.9	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
4-Chloro-3-methylphenol		**	6,100	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2-Nitroaniline		**	610	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
3-Nitroaniline		**	**	**	18	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
4-Nitroaniline		24	240	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
4-Nitrophenol	2,4-Dinitrophenol	**	120	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
N-Nitrosodiphenylamine		99	**	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
N-Nitrosodipropylamine		0.069	**	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Pentachlorophenol		0.89	230	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Phenol		**	18,000	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
bis(2-Ethylhexyl) phthalate		35	1,200	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Butyl benzyl phthalate		260	12,000	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Diethyl phthalate		**	49,000	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22

Table 3-3. Analytical Results Summary for Baseline and Conditioned Soil Samples

Group Analyte	Screening-Level Surrogate	Human Health, Unrestricted-Use Soil (mg/kg)				Sample Results (mg/kg)									
		USEPA RSL ^a		CA-modified Screening Level ^b		Baseline		Condat-Conditioned		BASF-Conditioned		Normet-Conditioned		Normet-Conditioned (with 3% Lime)	
		Carcinogenic	Non-carcinogenic	Carcinogenic	Non-carcinogenic	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL
1,4-Dioxane		4.9	1,800	**	**	NA	NA	NA	NA	NA	NA	—	0.058	NA	NA
Dimethyl Phthalate		**	**	100000	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
di-n-Butyl Phthalate		**	6,100	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
di-n-Octyl Phthalate		**	610	**	2400	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2,4,5-Trichlorophenol		**	6,100	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
2,4,6-Trichlorophenol		44	61	6.9	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene		**	3,400	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Acenaphthylene	Acenaphthene	**	3,400	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Anthracene		**	17,000	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Benzo[a]anthracene		0.15	**	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Benzo[b]fluoranthene		0.15	**	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Benzo[k]fluoranthene		1.5	**	0.38	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Benzo[g,h,i]perylene	Pyrene	**	1,700	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Benzo[a]pyrene		0.015	**	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Chrysene		15	**	3.8	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Dibenz[a,h]anthracene		0.015	**	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Fluoranthene		**	2,300	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Fluorene		**	2,300	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Indeno[1,2,3-cd]pyrene		0.15	**	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Phenanthrene	Anthracene	**	17,000	**	**	—	0.4	—	0.18	0.18	—	—	0.19	—	0.22
Pyrene		**	1,700	**	**	—	0.4	—	0.18	—	0.18	—	0.19	—	0.22
Pesticides															
Aldrin		0.029	1.8	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
alpha-Chlordane	Chlordane (technical grade)	1.6	35	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
beta-Chlordane	Chlordane (technical grade)	1.6	35	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Dalapon		**	1,800	**	**	—	0.006	—	0.0055	—	0.0055	—	0.0057	—	0.0065
4,4'-DDD		2	**	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
4,4'-DDE		1.4	**	**	**	0.00075	—	—	0.00044	—	0.00044	—	0.00045	—	0.00052
4,4'-DDT		1.7	36	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Dicamba		**	1,800	**	**	—	0.006	—	0.0055	—	0.0055	—	0.0057	—	0.0065
2,4-Dichlorophenoxyacetic acid		**	690	**	**	—	0.006	—	0.0055	—	0.0055	—	0.0057	—	0.0065
2,4-Dichlorophenoxybutyric acid		**	490	**	**	—	0.006	—	0.0055	—	0.0055	—	0.0057	—	0.0065
Dichloroprop	Mecoprop	**	61	**	**	—	0.006	—	0.0055	—	0.0055	—	0.0057	—	0.0065
Dieldrin		0.03	3.1	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Dinoseb		**	61	**	**	—	0.006	—	0.0055	—	0.0055	—	0.0057	—	0.0065

Table 3-3. Analytical Results Summary for Baseline and Conditioned Soil Samples

Group Analyte	Screening-Level Surrogate	Human Health, Unrestricted-Use Soil (mg/kg)				Sample Results (mg/kg)									
		USEPA RSL ^a		CA-modified Screening Level ^b		Baseline		Condat-Conditioned		BASF-Conditioned		Normet-Conditioned		Nomet-Conditioned (with 3% Lime)	
		Carcinogenic	Non-carcinogenic	Carcinogenic	Non-carcinogenic	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL	Maximum Detected	Maximum MDL
Endosulfan I	Endosulfan (technical grade)	**	370	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Endosulfan II	Endosulfan (technical grade)	**	370	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Endosulfan Sulfate	Endosulfan (technical grade)	**	370	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Endrin		**	18	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Endrin Aldehyde	Endrin	**	18	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Endrin ketone	Endrin	**	18	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
alpha-HCH		0.077	490	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
beta-HCH		0.27	**	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
delta-HCH	HCH (mixed isomers)	0.27	**	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
gamma-HCH		0.52	21	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Heptachlor		0.11	31	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
Heptachlor Epoxide		0.053	0.79	**	**	—	0.00048	—	0.00044	—	0.00044	—	0.00045	—	0.00052
MCPA		**	31	**	**	—	1.2	—	1.1	—	1.1	—	1.1	—	1.3
Mecoprop		**	61	**	**	—	1.2	—	1.1	—	1.1	—	1.1	—	1.3
Methoxychlor		**	310	**	**	—	0.0048	—	0.0044	—	0.0044	—	0.0045	—	0.0052
Silvex		**	490	**	**	—	0.006	—	0.0055	—	0.0055	—	0.0057	—	0.0065
Toxaphene		0.44	**	**	**	—	0.012	—	0.011	—	0.011	—	0.011	—	0.013
2,4,5-Trichlorophenoxyacetic acid		**	610	**	**	—	0.006	—	0.0055	—	0.0055	—	0.0057	—	0.0065
Polychlorinated Biphenyls (PCBs) - Mixtures															
PCB-1016		6.3	3.9	**	**	—	0.02	—	0.018	—	0.018	—	0.019	—	0.022
PCB-1221		0.14	**	**	**	—	0.02	—	0.018	—	0.018	—	0.019	—	0.022
PCB-1232		0.14	**	**	**	—	0.02	—	0.018	—	0.018	—	0.019	—	0.022
PCB-1242		0.22	**	**	**	—	0.02	—	0.018	—	0.018	—	0.019	—	0.022
PCB-1248		0.22	**	**	**	—	0.02	—	0.018	—	0.018	—	0.019	—	0.022
PCB-1254		0.22	1.1	**	**	—	0.02	—	0.018	—	0.018	—	0.019	—	0.022
PCB-1260		0.22	**	**	**	—	0.02	—	0.018	—	0.018	—	0.019	—	0.022
Total Petroleum Hydrocarbons (TPH)															
TPH-gasoline (low molecular-weight range TPH)		1.1	86	**	**	—	0.58	—	0.53	—	0.55	—	0.56	—	0.63
TPH-diesel (medium molecular-weight range TPH)		0.61	100	**	**	—	6	—	5.5	56	—	27	—	24	—
Total Organic Carbon (TOC)															
TOC		1000 ** 6000 (range for RSL estimation)		**	**	2620	—	1670	—	2090	—	1150	—	1380	—

Table 3-3. Analytical Results Summary for Baseline and Conditioned Soil Samples

Notes:

^a USEPA. 2013. Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites. RSL Table update. May, 2013. <http://www.epa.gov/region9/superfund/prg/index.html>

^b DTSC. 2013. *DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the human health risk assessment process at hazardous waste sites and permitted facilities*. Human Health Risk Assessment (HHRA) Note Number 3. California Department of Toxic Substances Control (DTSC), Human and Ecological Risk Office (HERO). Issue Date: May 21, 2013. <http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-2.pdf>

^c Value is less than estimated Delta soil background concentration of 9.36 mg/kg (CVRWQCB, 2002), the mean concentration of 7.2 mg/kg for soil of the conterminous western U.S. (Shacklette and Boerngen, 1984), and the remediation cleanup level of 12 mg/kg (DTSC, 2009)

shaded values = indicate exceedance of the minimum soil-screening concentration

** = no published screening value

-- = no value (if the analyte was detected, the maximum detected concentration is presented and the method detection limit is omitted; if the analyte was not detected, then a maximum detected concentration is not presented but the maximum value of the method detection limit is presented).

ESL = environmental screening level

MDL = method detection limit

NA = not available. Based on assumption that carcinogenic risk <1x10⁻⁶ and non-carcinogenic hazard index <1.0 are acceptable for unlimited exposure and unrestricted use.

RSL = regional screening level

CVRWQCB = California Regional Water Quality Control Board, Central Valley Region

SFRWQCB = California Regional Water Quality Control Board, San Francisco Bay Region

USEPA = U.S. Environmental Protection Agency

There does not appear to be a consistent trend except for the STLC results for baseline sample 1A-2 and conditioned soil sample 1C-2, where the conditioned soil sample appears to have consistently lower concentrations. Although some results were qualified as having estimated concentrations, as discussed in Section 2.3.2, all data can be used for evaluating environmental conditions.

3.2.2 Waste Characterization

RTM will be a mixture of native subsurface soils and soil conditioner additives. While manufacturer information on typical examples of soil conditioners indicate the compounds generally are not classified as hazardous, care in use and disposal is still necessary as is common practice when using chemicals in accordance with standard industry protocols. Soils are anticipated to consist of inorganic constituents present at naturally occurring background concentrations. A potential concern is that the soil conditioners alter the geochemical conditions in the excavated soil and change the character or leachability of inorganic constituents.

Waste classification in California is accomplished, in part, through comparison of material characteristics (e.g., chemical content) to regulatory thresholds. Thresholds include the total threshold limit concentration, based on solid-phase concentrations of the soil matrix, and STLC, based on an extraction procedure that releases soil-bound materials into liquid in soil pores. As presented in Table 3-4, total concentrations of inorganic constituents and dissolved concentrations of inorganic constituents in baseline and conditioned soil samples are generally orders-of-magnitude lower than corresponding waste-classification thresholds. In general, concentrations of inorganic constituents were broadly similar among the baseline and conditioned soil samples.

Table 3-4. Waste Characterization Results for Baseline and Conditioned Soil Samples

Group Analyte	TTLC ^a (mg/kg)	Sample Maximum (mg/kg)					STLC ^a (µg/L)	Di-WET Sample Maximum (µg/L)				
		Baseline	Condat- Conditioned	BASF- Conditioned	Normet- Conditioned	Normet- Conditioned (Lime)		Baseline	Condat- Conditioned	BASF- Conditioned	Normet- Conditioned	Normet- Conditioned (with 3% Lime)
Inorganic Constituents												
Antimony and/or antimony compounds	500	<1.16	<0.219	0.229	0.27	0.262	15,000	1.54	1.8	1.75	1.59	<0.5
Arsenic and/or arsenic compounds	500	4.37	4.03	4.51	4.23	4.03	5,000	17.4	10.9	14.7	11.3	0.435
Barium and/or barium compounds ^b	10,000	207	200	172	197	188	100,000	320	85.3	62.3	78.7	295
Beryllium and/or beryllium compounds	75	0.591	0.642	<0.541	0.538	0.519	750	0.662	<0.1	0.228	0.109	<0.1
Cadmium and/or cadmium compounds	100	0.579	0.548	0.342	0.439	0.466	1,000	0.28	<0.2	<0.2	<0.2	<0.2
Chromium (VI) compounds	500	<0.594	<0.547	<0.552	<0.568	<0.645	5,000	—	—	—	—	—
Chromium and/or chromium (III) compounds	2,500	62.3	60.3	50.1	56.6	54.3	5,000	39.3	0.971	16.9	7.98	12.5
Cobalt and/or cobalt compounds	8,000	18.3	19.1	14.3	15	14.3	80,000	9.07	0.428	3.19	1.14	0.61
Copper and/or copper compounds	2,500	38.4	37.5	34.7	31.5	29.1	25,000	38.3	15.2	15.7	7.92	11.8
Lead and/or lead compounds	1,000	7.28	7.75	6.9	8.03	7.11	5,000	8.17	1.6	4.05	2.65	0.199
Mercury and/or mercury compounds	20	0.0398	<0.0219	0.0368	0.0246	<0.0258	200	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum and/or molybdenum compounds	3,500	1.16	1.1	0.315	0.384	0.439	350,000	6.97	7.59	7.08	5.93	8.33
Nickel and/or nickel compounds	2,000	72.5	75.7	68	66	60.8	20,000	39.8	2.33	14.7	6.35	0.568
Selenium and/or selenium compounds	100	0.579	0.548	0.183	0.175	0.19	1,000	9.67	8.77	9.1	8.38	3.34
Silver and/or silver compounds	500	<0.579	<0.548	<0.108	0.139	<0.129	5,000	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium and/or thallium compounds	700	0.579	0.548	0.159	0.169	0.161	7,000	<0.2	<0.2	<0.2	<0.2	<0.2
Vanadium and/or vanadium compounds	2,400	65.6	63.8	53.5	60.8	63.2	24,000	72.1	19.9	46.7	26.4	4.29
Zinc and/or zinc compounds	5,000	67.6	NA	64	66.9	62.6	250,000	92.6	43.9	41.2	16.7	14.1

Notes:
^a California Code of Regulations, Title 22, Chapter 11, Article 3.
^b Excluding barite
-- = not analyzed
TTLC = total threshold limit concentration
STLC = soluble threshold limit concentration
mg/kg = milligrams per kilogram
µg/L = micrograms per liter

3.2.3 Human Health

Characterization of health risks at sites commonly involves the use of exposure scenarios as a combined set of conditions (e.g., chemical concentrations) and activities (e.g., household use of well water) to simulate the potential exposure of people (receptors) and to quantify or qualify the potential threats to human health from that exposure (a dose–response relationship).

Characterization of health risks at sites is accomplished at both the federal and state levels generally through a three-tiered triage. Unrestricted land use or *de minimis* (inconsequential) conditions are those where chemicals may be present, but at levels below regulatory-agency-derived health-protective standards and, in essence, a person could be continually exposed for a lifetime to the material without expectation of adverse health effects. The uppermost tier is the opposite: conditions are such that exposure would be expected to elicit adverse health effects, and some sort of response action or mitigation is required. The middle tier is the gray area, where preventive or mitigative measures are controllable options to prevent adverse effects.

De minimis standards for characterizing soil concentrations of chemical releases have been developed by both the EPA and the California Department of Toxic Substances Control (DTSC). These regional screening levels from EPA (EPA, 2013) or the California-Modified Screening Levels from DTSC (DTSC, 2013) represent health-protective soil concentrations acceptable for unlimited exposure and unlimited use. Concentrations of chemicals in soil less than corresponding unrestricted-use screening levels are understood to be without an appreciable threat to human health.

Table 3-3 presents the *de minimis* screening levels with the maximum detected concentrations or the maximum detection limit (per soil sample type) for each of the analytes measured with the methods described in Section 2.3.2. The majority of results for organic constituents were concentrations below the method detection limit, whereas most of the inorganic analytes were detected. In comparison to the screening levels, the majority of detected concentrations and detection limits are below the health protective screening levels, (i.e., are at concentrations which would typically be acceptable for unrestricted land use).

Several entries in Table 3-3 are in red, highlighted with yellow shading; these values indicate a soil sample concentration that exceeds the minimum (lowest) available screening criteria. These exceedances occur for arsenic concentrations detected in baseline and conditioned soil samples, and not-detected method detection limit values for one semi-volatile organic compound, a few polycyclic aromatic hydrocarbons, and total petroleum hydrocarbon as diesel. For the detected concentrations of arsenic, the EPA and DTSC screening levels for potential carcinogenic effects are below typical background concentrations (Shacklette and Boerngen, 1984; CVRWQCB, 2002) and/or regulatory-agency-acceptable remediation goals, which for California sites range up to approximately 12 mg/kg (DTSC, 2007, 2009; Duverge, 2011; Hunter et al., 2005). Consequently, the arsenic screening values are derived mathematical constructs, independent from natural environmental conditions; the soil sample results are representative of background conditions. The non-arsenic highlighted values in Table 3-3 represent typical detection limit concentrations, which, for the most part, are relatively close to but greater than the minimum screening levels. If future sampling is focused toward these eight analytes, then analytical methodological adjustments may be

needed to achieve lower detection limits. In general, analytical methods were sufficiently sensitive to characterize *de minimis* concentrations for a common suite of chemical contaminants and inorganic constituents.

3.2.4 Ecological Resources

As with human exposures, characterization of ecological risks at sites commonly involves the use of exposure scenarios as a combined set of conditions (e.g., chemical contamination) and activities (e.g., plants directly growing in, or animals foraging on, tunnel spoils) to simulate the potential exposure of ecological receptors and to quantify or qualify the potential threats to the environment from that exposure.

Conceptually similar to the soil screening levels developed to protect human health, ecological soil screening levels have been developed by the EPA and other organizations that are protective of birds, mammals, plants, and soil microflora and microfauna. Concentrations of detected analytes are presented in Table 3-5 along with ecologically based soil screening levels. The table highlights several instances where detected concentrations exceed a soil screening benchmark. However, all the exceedances in the conditioned soil samples also occur in the corresponding baseline samples. Screening benchmarks can often be calculated to be at concentrations less than naturally occurring background concentrations. Therefore, the applicability of the ecological soil screening benchmarks should be verified with regulatory agency and/or permitting agency authorities.

Table 3-5. Ecological Screening Guidelines for Detected Analytes

Analyte	Maximum Detected Concentration in Soil (mg/kg)					USEPA Eco-SSLs ^a (mg/kg)				Terrestrial Plants ^b (mg/kg)	Soil Organisms and Microbial Processes ^c (mg/kg)
	Baseline	Condat-Conditioned	BASF-Conditioned	Normet-Conditioned	Normet-Conditioned (with 3% Lime)	Plant	Soil Invertebrate	Bird	Mammal		
Inorganic Constituents											
Ammonia	16	0.738	0.831	--	2.31	**	**	**	**	**	**
Antimony	--	--	0.229	0.27	0.262	**	78	**	0.27	5	**
Arsenic	4.37	4.03	4.51	4.23	4.03	18	**	43	46	10	60
Barium	207	200	172	197	188	**	330	**	2,000	500	3,000
Beryllium	0.591	0.642	--	0.538	0.519	**	40	**	21	10	**
Cadmium	0.579	0.348	0.342	0.439	0.466	32	140	0.77	0.36	4	20
Chromium (total)	62.3	60.3	50.1	56.6	54.3	**	**	**	**	1	0.4
Cr(III)	--	--	--	--	--	**	**	26	34	**	**
Cr(VI)	--	--	--	--	--	**	**	**	130	**	**
Cobalt	18.3	19.1	14.3	15	14.3	13	**	120	230	20	1,000
Copper	38.4	37.5	34.7	31.5	29.1	70	80	28	49	100	60
Lead	7.28	7.75	6.9	8.03	7.11	120	1,700	11	56	50	500
Mercury	0.0398	--	--	0.0246	--	**	**	**	**	0.3	0.1
Molybdenum	1.16	0.282	0.315	0.384	0.439	**	**	**	**	2	200
Nickel	72.5	75.7	68	66	60.8	38	280	210	130	30	90
Nitrate/Nitrite	12.7	0.45	0.315	0.315	--	**	**	**	**	**	**
Selenium	0.579	0.153	0.183	0.175	0.19	0.52	4.1	1.2	0.63	1	70
Silver	--	--	--	0.139	--	560	**	4.2	14	2	50
Thallium	0.579	0.165	0.159	0.169	0.161	**	**	**	**	1	**
Vanadium	65.6	63.8	53.5	60.8	63.2	**	**	7.8	280	2	20
Zinc	67.6	NA	64	66.9	62.6	160	120	46	79	50	100
Organically Complexed Metals											
Methylmercury ^d	0.00005	--	--	--	--	**	<0.001	**	0.00158	**	**
Organochlorine Pesticides											
4,4'-DDE	0.00075	--	--	--	--	**	**	0.093	0.021	**	**
Volatile Organic Compounds (VOCs)											
Naphthalene ^e	0.0032	--	--	--	--	**	29	**	100	**	**

Notes:
^a U.S. Environmental Protection Agency (USEPA) Ecological Soil Screening Levels (Eco-SSLs) (<http://www.epa.gov/ecotox/ecossl/index.html>)
^b Efroymsen, R.A., M.E. Will, G.W. Suter II, and A.C. Wooten. 1997a. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision. ES/ER/TM-85/R3. Prepared for the U.S. Department of Energy, Office of Environmental Management. Prepared by Lockheed Martin Energy Systems, Inc., for the East Tennessee Technology Park, Oak Ridge National Laboratory, Oak Ridge, TN.
^c Efroymsen, R.A., M.E. Will, and G.W. Suter II. 1997b. Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Processes: 1997 Revision. ES/ER/TM-126/R2. Prepared for the U.S. Department of Energy, Office of Environmental Management. Prepared by Lockheed Martin Energy Systems, Inc., for the East Tennessee Technology Park, Oak Ridge National Laboratory, Oak Ridge, TN.
^d USEPA Region 5 Eco screening levels (www.epa.gov/reg5cra/ca/)
^e Assessed as a low molecular weight PAH
shaded cells indicate concentration exceeds at least one ecological screening guideline
** = no published screening value
-- = not detected

3.2.5 Environmental Property Conclusions

Based on the test results in Table 3-3 and 3-4, there is no indication that RTM would require handling as hazardous waste material. RTM would be expected to meet conditions acceptable for unrestricted land uses, with or without added soil conditioners.

However, exposure of people, wildlife and plants to conditioned soil has not been fully assessed under unrestricted-use conditions, creating an uncertainty for potential adverse effects. If RTM is to be placed in the environment where people could contact the soil, either directly (e.g., through skin contact) or indirectly (e.g., as airborne particulate, or as leachate in surface or drinking water), then human health risk assessment(s) will need to be developed. Development of appropriate exposure scenarios for evaluation in the risk assessment will depend on the specific environmental context; for example, uses as surficial landscape fill for a residential area or subsurface use at a construction site. Determination of appropriate exposure scenarios, and the specific risk-assessment details, is a collaborative process with regulatory agency and/or permitting agency authorities (e.g., the California RWQCB, the United States Army Corps of Engineers (USACE), or the DTSC), depending on the re-use option. The scoping process would be used to determine if additional evaluation efforts are necessary to meet agency requirements for allowing re-use (e.g., benthic invertebrate bioassays if spoils are intended for wetland fill, or phytotoxicity testing if spoils are intended for upland re-use).

3.3 Planting Suitability Properties

3.3.1 Conditioner Effects on Soil Properties

A comparison between the planting suitability test results on baseline and conditioned soil samples are presented in Table 3-6. Except for sample 3B-1 that was lime-treated, there does not appear to be a consistent trend between the baseline and conditioned soil test results. Sample 3B-1 exhibited an elevated pH value; therefore, lime-treated soil should be kept away from areas where plant growth is desirable. To increase planting suitability, RTM would require soil amendments as the native soils within the tunnel zone have a low organic content.

3.3.2 Planting Suitability Conclusions

The soil conditioner application rates used for this RTM testing program were purposefully higher than industry typical values that were recommended by the conditioner manufacturers. As a result, the effects of adding conditioners on the soil's planting suitability properties are likely to be higher than would be expected for RTM. Even with increased rates of conditioner application, the testing performed indicates that the conditioner products do not appear to pose a significant threat to planting suitability.

Although the tests performed indicate favorable results for reusability of RTM, if conditioned soil is to be placed in the environment for large-scale uses then additional plant growth tests may be required by regulatory agency and/or permitting agency authorities. These tests are unique and specific to certain conditions, and therefore should be scoped in collaboration with pertinent agencies (e.g., California State Water Resources Control Board (SWRCB) and/or Central Valley Regional Water Quality Control Board (CVRWQCB), California Office

of Environment Health Hazard Assessment, DTSC or the California Environmental Protection Agency).

The safety of human or animal consumption of agricultural crops grown in the conditioned soil was outside the scope of this study. Consultation with the California Department of Food and Agriculture would be required to evaluate this issue further.

Table 3-6. Summary of Planting Suitability Test Results

Sample Description	Sample 1A-1 Baseline (No Conditioner)		Sample 2A-1 Baseline (No Conditioner)		Sample 3A-1 Baseline (No Conditioner)		Sample CC-1		Sample 1C-1 Condat-Conditioned		Sample 2B-1 BASF-Conditioned		Sample 3D-1 Normet-Conditioned		Sample 3B-1 Normet-Conditioned (with 3% Lime)	
Elements																
	ppm		ppm		ppm		ppm		ppm		ppm		ppm		ppm	
phosphorus	2.80		2.98		2.84		21.34		2.79		2.24		2.29		6.98	
potassium	139.43		146.12		137.97		84.25		141.87		123.42		132.56		138.35	
iron	14.11		18.46		16.28		160.87		11.52		10.87		13.68		90.69	
manganese	14.86		14.87		14.19		35.47		12.93		8.70		4.94		15.60	
zinc	0.88		0.90		0.77		1.24		NA		2.78		1.12		1.42	
copper	6.81		6.71		6.58		4.05		6.52		5.49		5.57		8.85	
boron	0.12		0.17		0.21		0.21		0.34		0.09		0.18		0.12	
calcium	269.75		251.56		234.30		292.61		281.93		299.28		330.63		359.78	
magnesium	613.44		700.26		673.00		416.37		770.55		754.82		775.29		245.53	
sodium	385.61		400.72		369.28		189.24		472.55		454.68		440.14		328.41	
sulfur	117.79		97.32		91.08		61.27		177.37		132.93		157.19		286.02	
molybdenum	0.07		0.07		0.06		0.01		0.20		0.08		0.05		0.10	
nickel	0.49		0.44		0.43		0.96		0.33		0.25		0.23		0.99	
aluminum	ND		ND		ND		ND		ND		ND		ND		ND	
arsenic	0.21		0.26		0.22		0.25		0.22		0.15		0.17		0.59	
barium	0.99		1.12		1.07		0.90		1.24		0.80		0.99		0.29	
cadmium	0.04		0.04		0.04		0.06		0.06		0.04		0.05		0.05	
chromium	0.02		0.02		0.03		0.06		ND		0.02		ND		0.27	
cobalt	0.20		0.20		0.31		0.16		0.15		0.13		0.14		0.28	
lead	1.55		1.63		1.59		1.33		1.45		1.20		1.16		2.24	
lithium	0.25		0.25		0.23		0.26		0.26		0.28		0.34		0.30	
mercury	ND		ND		ND		ND		ND		ND		ND		ND	
selenium	ND		0.37		ND		ND		ND		ND		ND		ND	
silver	ND		ND		ND		ND		ND		ND		ND		ND	
strontium	2.68		2.92		2.69		2.85		3.24		3.28		3.66		0.43	
tin	ND		ND		ND		ND		ND		ND		ND		ND	
vanadium	1.20		1.32		1.25		1.25		1.29		1.13		1.31		3.53	
Saturation Extract																
pH value	7.86 ^a		7.91 ^a		7.87 ^a		7.85 ^a		7.75 ^a		7.87 ^a		8.79 ^a		13.36 ^a	
ECe (milli-mho/cm)	1.84		1.33		2.14		1.23		1.72		2.14		1.54		6.48	
	ppm	millieq/l	ppm	millieq/l	ppm	millieq/l	ppm	millieq/l	ppm	millieq/l	ppm	millieq/l	ppm	millieq/l	ppm	millieq/l
calcium	82.6	4.1	56.2	2.8	114.2	5.7	72.3	3.6	92.7	4.6	114.2	5.7	200.6	10.0	359.6	18.0
magnesium	35.5	2.9	23.4	1.9	37.2	3.1	29.4	2.4	37.0	3.1	37.2	3.1	16.9	1.4	1.8	0.1
sodium	191.8	8.3	150.6	6.5	251.7	10.9	124.2	5.4	206.9	9.0	251.7	10.9	168.5	7.3	248.4	10.8
potassium	7.4	0.2	6.7	0.2	13.5	0.3	7.9	0.2	9.5	0.2	13.5	0.3	17.4	0.4	12.3	0.3

Table 3-6. Summary of Planting Suitability Test Results

Sample Description	Sample 1A-1 Baseline (No Conditioner)		Sample 2A-1 Baseline (No Conditioner)		Sample 3A-1 Baseline (No Conditioner)		Sample CC-1		Sample 1C-1 Condat-Conditioned		Sample 2B-1 BASF-Conditioned		Sample 3D-1 Normet-Conditioned		Sample 3B-1 Normet-Conditioned (with 3% Lime)	
cation sum		15.6		11.5		20.1		11.6		16.9		20.1		19.2		29.2
chloride	171	4.8	123	3.5	232	6.5	110	3.1	163	4.6	232	6.5	131	3.7	114	3.2
nitrate as N	19	1.4	15	1.0	3	0.2	14	1.0	3	0.2	3	0.2	1	0.1	2	0.2
phosphorus as P	0.2	0.0	0.2	0.0	0.4	0.0	0.2	0.0	0.2	0.0	0.4	0.0	0.4	0.0	0.2	0.0
sulfate as S	169.4	10.6	111.0	6.9	220.1	13.8	97.2	6.1	195.4	12.2	220.1	13.8	161.0	10.1	3.9	0.2
anion sum		16.8		11.5		20.5		10.2		17.0		20.5		13.9		3.6
boron as B	0.22		0.18		0.11		0.28		0.14		0.11		0.24		0.04	
SAR	4.4		4.3		5.2		3.1		4.6		5.2		3.1		3.6	
est. gypsum requirement-lbs./1000 ft²	185		217		244		87		252		244		248		56	
infiltration rate inches/hour	0.22	sand -36.9%	0.33	sand - 34.6%	0.08	sand - 33.7%	11.10	sand - 57.3%	0.28	sand - 34.0%	0.08	sand - 33.7%	0.69	sand - 33.0%	7.66	sand - 39.5%
soil texture	clay loam	silt - 34.5%	clay loam	silt - 36.6%	clay loam	silt - 35.1%	sandy clay loam	silt - 22.1%	clay loam	silt - 35.8%	clay loam	silt - 35.1%	clay loam	silt - 36.5%	loam	silt - 34.9%
lime (calcium carbonate)	no	clay - 28.6%	no	clay - 28.88%	no	clay - 31.2%	no	clay - 20.6%	no	clay - 30.3%	no	clay - 31.2%	no	clay - 30.5%	yes	clay - 25.6%
organic matter	low/fair		low/fair		low		low/fair		very low		low		low		low/fair	
moisture content of soil	5.2%	gravel > 2 mm	5.2%	gravel > 2 mm	9.4%	gravel over 2 mm	19.3%	gravel over 1/4"	9.7%	gravel over 2 mm	9.4%	gravel over 2 mm	14.3%	gravel over 1/4"	29.8%	gravel over 1/4"
half saturation percentage	27.0%	0.5%	28.2%	0.5%	27.8%	2.5%	26.0%	0.0%	29.7%	0.4%	27.8%	2.5%	29.2%	0.0%	34.8%	0.2%
Cations																
	millieq	% saturation	millieq	% saturation		% saturation		% saturation	millieq	% saturation		% saturation		% saturation		% saturation
potassium	0.35	2%	0.39	1%	0.32	1%	0.25	2%	0.35	1%	0.32	1%	0.34	1%	0.38	0%
sodium	1.23	5%	1.40	5%	1.38	6%	0.72	5%	1.54	6%	1.38	6%	1.51	5%	1.05	1%
calcium	13.76	59%	14.83	58%	13.79	56%	8.65	55%	15.86	62%	13.79	56%	19.66	68%	106.29	98%
magnesium	6.45	28%	6.99	27%	6.64	27%	4.69	30%	7.00	27%	6.64	27%	7.10	25%	1.26	1%
hydrogen	1.60	7%	2.16	8%	2.32	9%	1.52	10%	0.96	4%	2.32	9%	0.32	1%	0.00	0%
total millieq/100 grams	23.39		25.77		24.44		15.83		25.71		24.44		28.93		108.98	

Notes:
a Central Valley Regional Water Quality Control Board screening level for pH without reuse/disposal restrictions is 6.5 to 8.5
shaded cells indicate concentration exceeds screening guideline

4.0 ACKNOWLEDGEMENTS AND LIMITATIONS

4.1 Acknowledgements

The DHCCP project team wishes to acknowledge the valuable expertise and participation of the following individuals in the preparation of this report:

- Tom Cudzilo, contributing author, URS
- Ed Fendick, contributing author, URS
- Chris Hargreaves, contributing author, URS
- Gyeong-Taek Hong, contributing author, URS
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- David Pieczynski, contributing author, URS
- Praba Pirabarooban, Task Order Manager, DWR
- George Strnad, contributing author, URS

The project team gratefully acknowledges all team members for their contributions. The project team also thanks the following soil conditioner manufacturers' representatives that contributed to this effort:

- Jan Babendererde, BASF
- Bobby Cannon, DSI Underground Systems, Inc. (representing Condat)
- Chris Gause, Normet
- Jaime Ibarra, BASF
- Cristobal Lozano, Condat

4.2 Limitations

This report, associated data collection, and preparation have been performed in accordance with the standard of care commonly used as the state-of-practice in the engineering profession. Standard of care is defined as the ordinary diligence exercised by fellow practitioners in this area performing the same services under similar circumstances during the same period.

No warranty, express or implied, is made in the furnishing of this report. Data provided by others has not been independently validated or verified. Data should not be applied to any other projects outside the scope of this study.

This testing program was developed to evaluate RTM for the planned long-term uses identified in Section 1.2. The data obtained is based on the soil and conditioner product samples provided and procedures described herein. Conclusions presented in this report are based on the results of the tests conducted.

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APPENDIX A

Baseline Soil Sample Generation Process

BASELINE SOIL SAMPLE GENERATION PROCESS

1. Sampling

- A. Soil core boxes were selected between elevation -100 to -170 feet mean sea level from borings along the proposed tunnel alignment. An effort was taken to pick an even distribution of borings from north to south.
 - i. Sample selection and mixing was performed by Nicholas Hightower (DWR) and Dave Pieczynski (URS) at the DHCCP sample warehouse in West Sacramento between the dates of July 15 to July 18, 2013.
- B. Soil core samples were split in half lengthwise for the entire interval retained in the core box, except where limited material was available the core was not split nor used for this testing program.
- C. Samples were divided into three general classifications:
 - i. "Clean" Sand
 - ii. "Dirty" Sand
 - iii. Fines (silt and clay)
- D. Samples were kept separate into different buckets based on the classifications above until mixing.
- E. Samples were split using a spackling (or putty) knife and a rock hammer (where needed).
- F. Once a bucket was filled with split sample core, the sample was poured out on a tarp and broken down by a tamper, rock hammer, and/or putty knife.
- G. The broken up soil was placed back in the bucket and set aside for mixing.
- H. Core was removed from a total of 19 holes. Twelve 5-gallon buckets were filled with the split sample core. The samples from the Hood area were initially kept separate from the rest of the samples; they were later added during mixing.

2. Mixing

- A. Each classification type was mixed with the other buckets of the same classification (e.g. all the dirty sand buckets were combined together and mixed separate from the clean sand and fines).
 - i. The soil was poured out of the bucket onto a tarp.
 - ii. The material was mixed by folding the tarp over and over and by using shovels to hand mix the material.
 - iii. The fines were mixed in two batches because of their larger volume.
 - iv. Once each batch was mixed, the fines were mixed together.

- B. The fines were spread over the tarp in a thin layer.
 - i. The clean sand was spread evenly over the fines layer.
 - ii. The clean sand and fines were mixed by folding the tarp over and mixing by shovel.
 - iii. The clean sand and fines were spread thin over the tarp.
 - iv. The mixed dirty sand was evenly spread over the clean sand and fines mixture.
 - v. All of the soil was mixed thoroughly using the same method as above.
 - vi. The mixture was run through again with a tamper, putty knife, and/or rock hammer to break up the larger pieces.
- C. The soil mixture was then screened through a $\frac{3}{4}$ - inch sieve.
- D. The soil was divided equally among twelve 5-gallon buckets, labeled (1A to 1D, 2A to 2D, 3A to 3D), and sealed with a lid and tape.

3. Splitting

- A. Two 2-pound bags of soil were needed for testing by subcontractor laboratories (EMAX and Wallace).
- B. The 1A, 2A and 3A buckets were taken to DWR's Bryte Soil Laboratory for sample splitting.
- C. Samples were split down to generate 2-pound bag samples. The split samples were labeled 1A-1, 1A-2, 2A-1, 2A-2, 3A-1, and 3A-2.

APPENDIX B

Soil Conditioning Process



As-received soil moisture content (approximately 17 percent).



Moisture added to simulate native conditions (approximately 33 percent).



Slump testing of simulated native soil without conditioner.



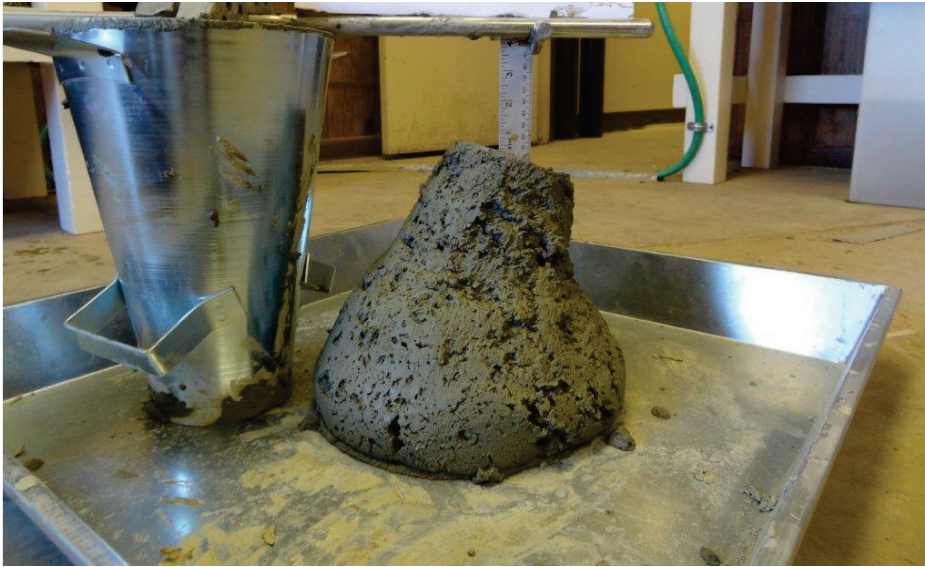
Foam generated from conditioner product using laboratory stirrer.



Initial batch of foam conditioner added to simulate RTM.



Mixing of soil with initial batch of foam conditioner added.



Slump testing of initial batch of conditioned soil.



Second (final) batch of foam conditioner added for this testing program.



Mixing of soil with second (final) batch of foam conditioner added.

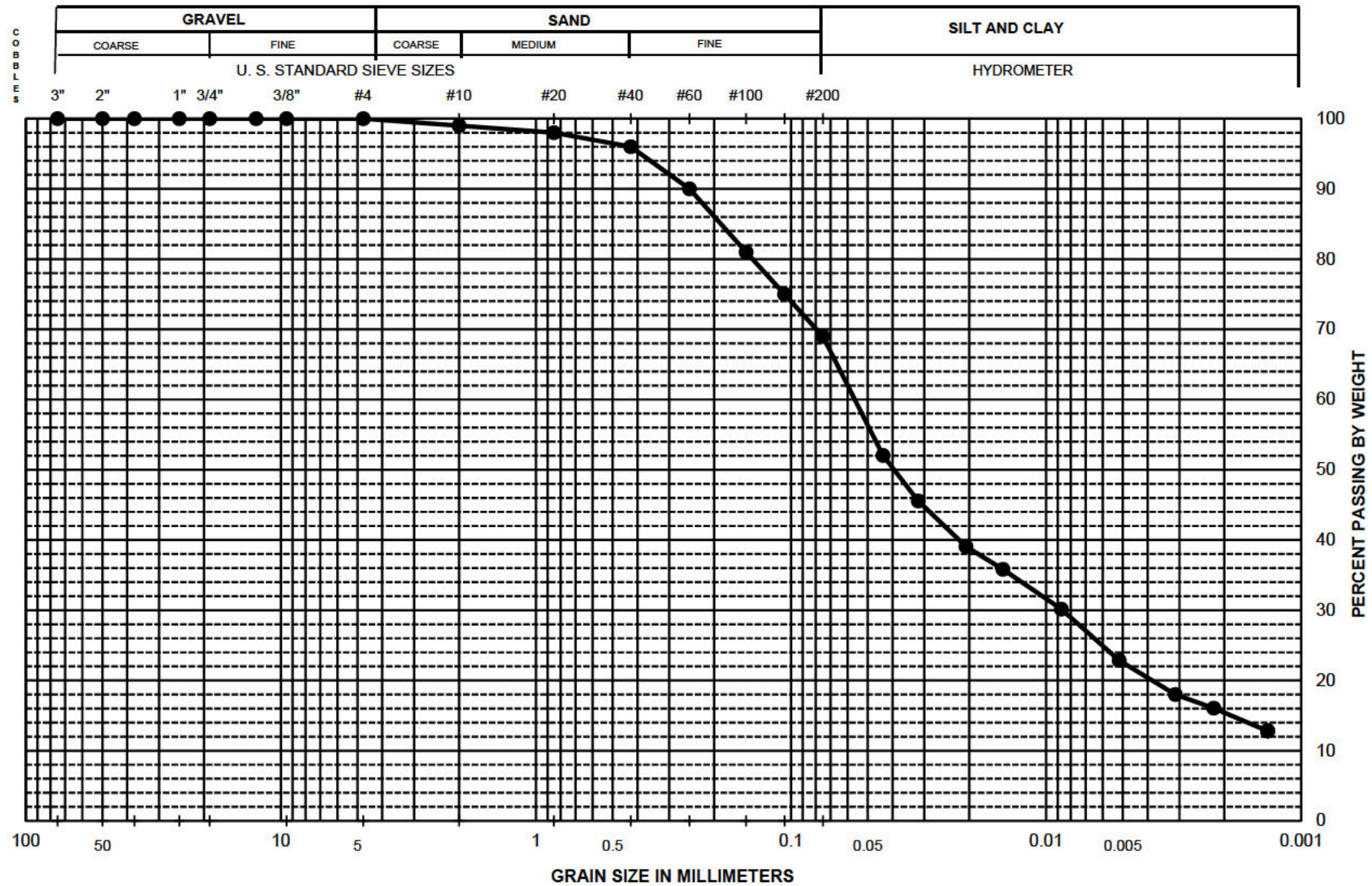


Slump testing of second (final) batch of conditioned soil.

APPENDIX C

Geotechnical Properties Testing Data

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	100.0
#10	2.00	99.0
#20	0.850	98.0
#40	0.425	96.0
#60	0.250	90.0
#100	0.150	81.0
#140	0.106	75.0
#200	0.075	69.0
Hydrometer Analysis		
	0.0436	52.0
	0.0317	45.6
	0.0206	39.1
	0.0148	35.8
	0.0087	30.2
	0.0052	22.9
	0.0031	18.0
	0.0022	16.1
	0.0014	12.8
	0.0014	12.8

% Cobbles	—
% Gravel	0.0
% Sand	31.0
% Fines	69.0

D ₈₅	0.188
D ₆₀	0.056
D ₃₀	0.009
D ₁₅	0.002
D ₁₀	—

Boring No.	Sample No.	Depth (ft)	SYMBOL	W _n (%)	LL	PI	% 5 μ m	Description and Classification
Bulk 1A		NA	•	17.5	38	20	23	Olive gray sandy Clay (CL)

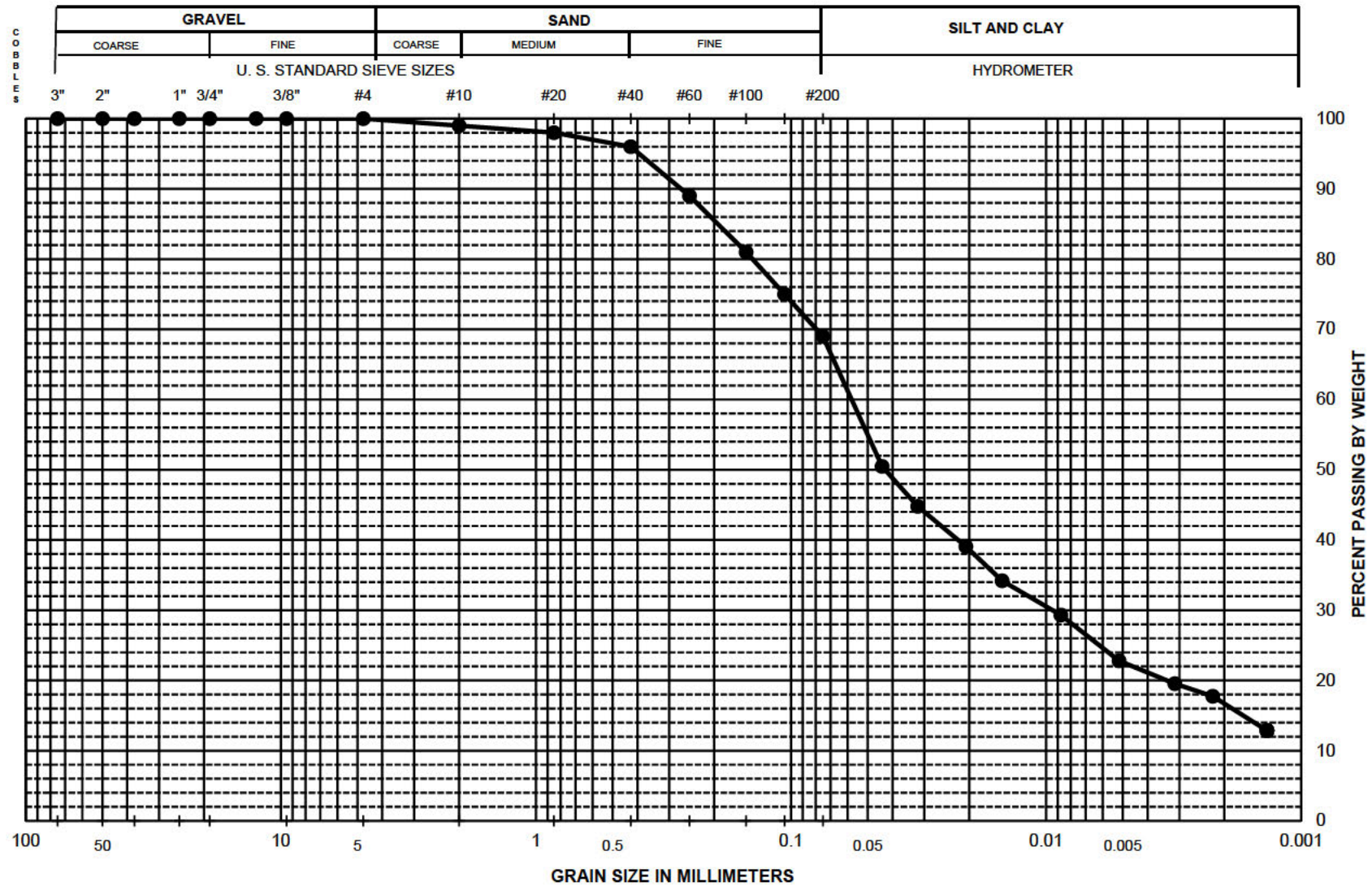
C _u	—
C _c	—

PROJECT NAME: DHCCP

PROJECT NUMBER: 17326261

PARTICLE-SIZE DISTRIBUTION CURVES

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	100.0
#10	2.00	99.0
#20	0.850	98.0
#40	0.425	96.0
#60	0.250	89.0
#100	0.150	81.0
#140	0.106	75.0
#200	0.075	69.0
Hydrometer Analysis		
	0.0439	50.5
	0.0319	44.8
	0.0206	39.1
	0.0149	34.2
	0.0088	29.3
	0.0052	22.8
	0.0031	19.5
	0.0022	17.7
	0.0014	12.9
	0.0014	12.9
% Cobbles		—
% Gravel		0.0
% Sand		31.0
% Fines		69.0
D ₈₅		0.194
D ₆₀		0.058
D ₃₀		0.009
D ₁₅		0.002
D ₁₀		—
C _u		—
C _c		—

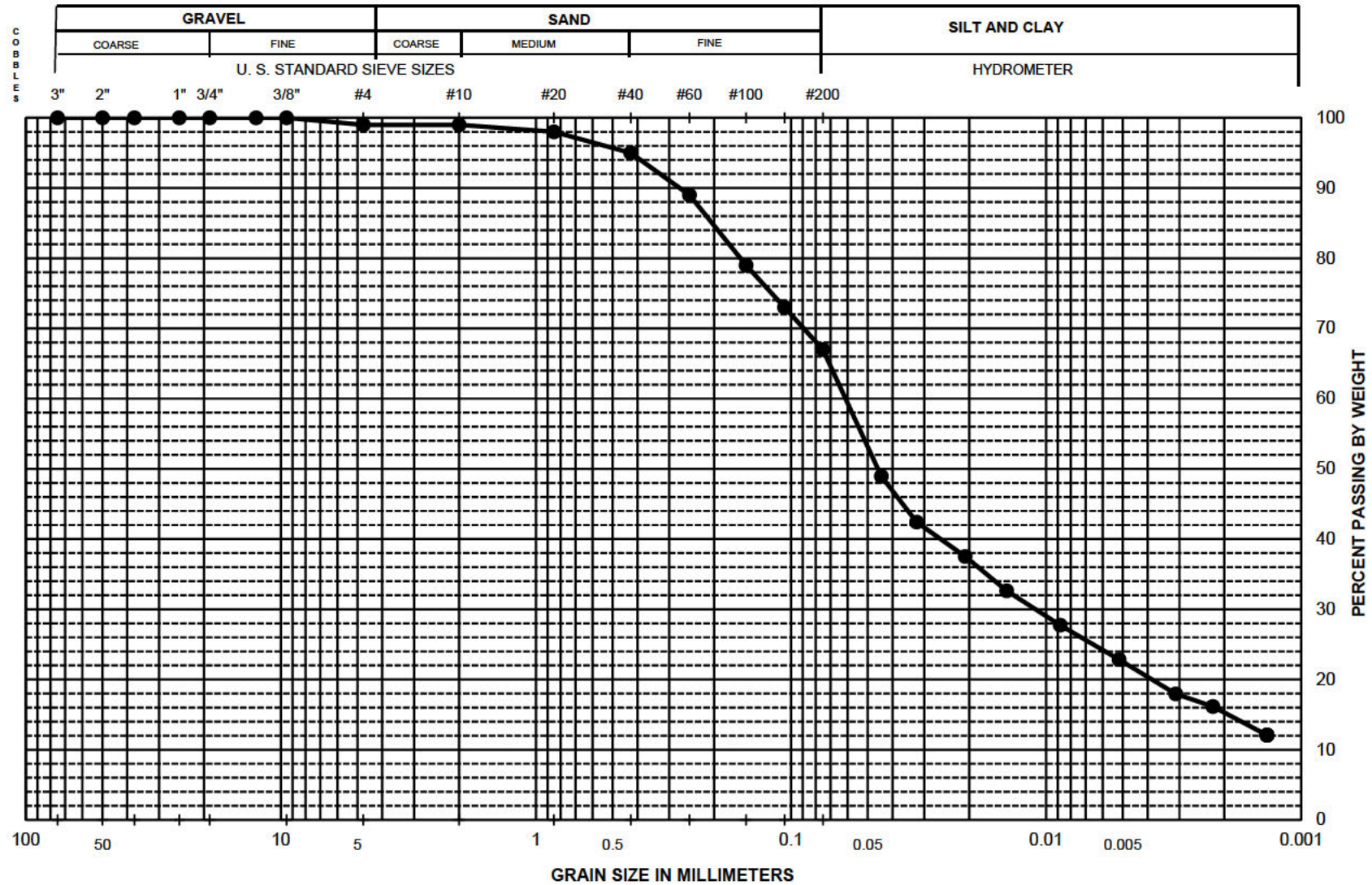
Boring No.	Sample No.	Depth (ft)	SYMBOL	W _n (%)	LL	PI	% 5 μ m	Description and Classification
Bulk 2A		NA	•	17.7	38	19	22	Olive gray sandy Clay (CL)

PROJECT NAME: DHCCP

PROJECT NUMBER: 17326261

PARTICLE-SIZE DISTRIBUTION CURVES

UNIFIED SOIL CLASSIFICATION



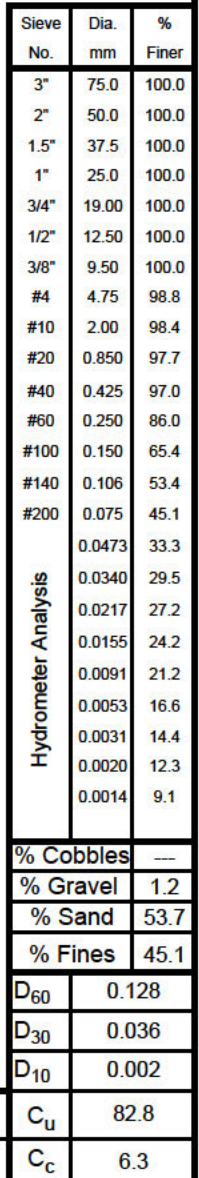
Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.0
#10	2.00	99.0
#20	0.850	98.0
#40	0.425	95.0
#60	0.250	89.0
#100	0.150	79.0
#140	0.106	73.0
#200	0.075	67.0
Hydrometer Analysis		
		0.0443 48.9
		0.0322 42.4
		0.0208 37.5
		0.0143 32.6
		0.0088 27.7
		0.0052 22.8
		0.0031 17.9
		0.0022 16.2
		0.0014 12.1
		0.0014 12.1
% Cobbles		—
% Gravel		1.0
% Sand		32.0
% Fines		67.0
D ₈₅		0.204
D ₆₀		0.061
D ₃₀		0.011
D ₁₅		0.002
D ₁₀		—
C _u		—
C _c		—

Boring No.	Sample No.	Depth (ft)	SYMBOL	W _n (%)	LL	PI	% 5 μ m	Description and Classification
Bulk 3A		NA	•	17.7	38	20	22	Olive gray sandy Clay (CL)

PROJECT NAME: DHCCP

PROJECT NUMBER: 17326261

PARTICLE-SIZE DISTRIBUTION CURVES

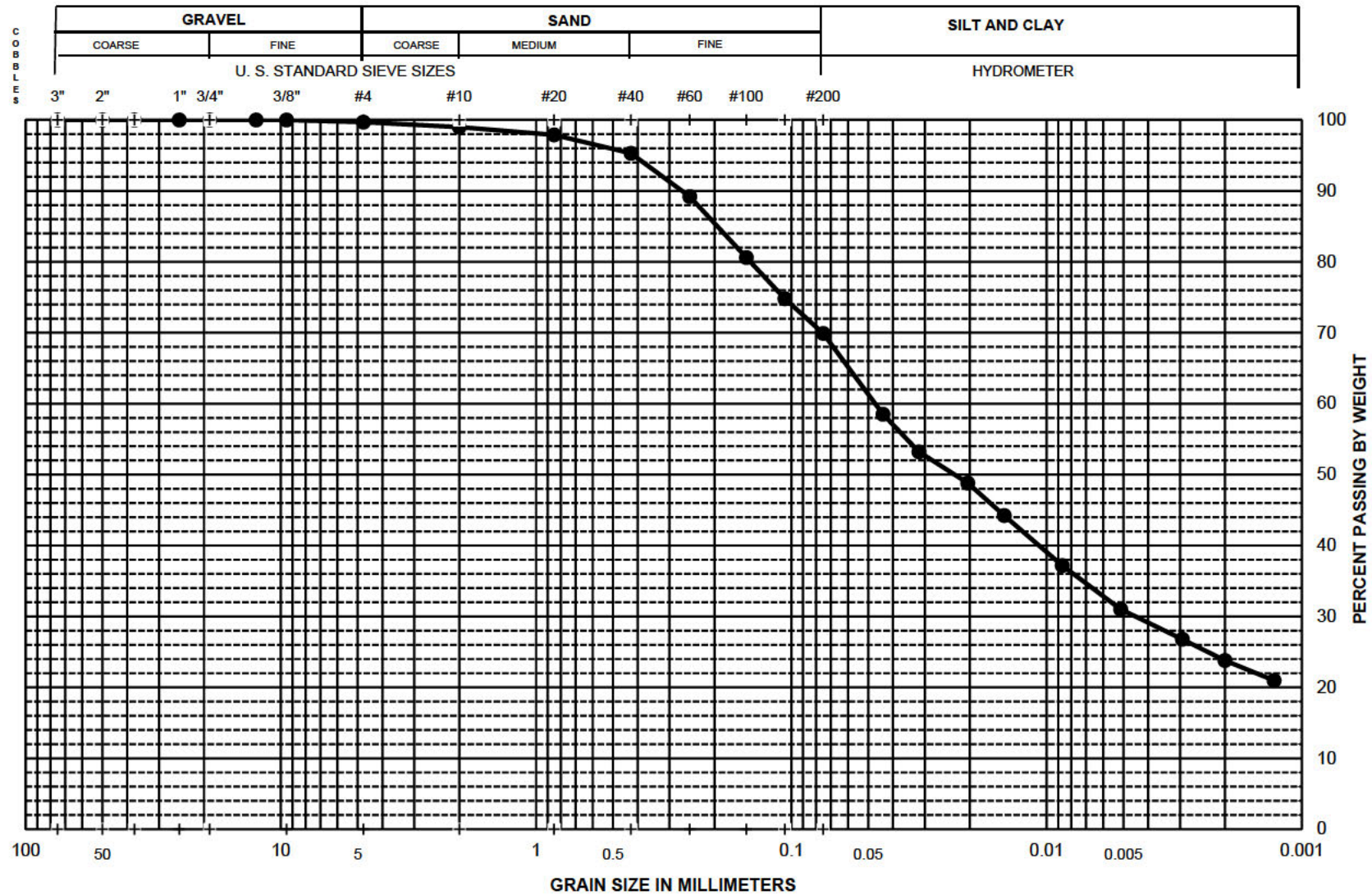


Boring No.	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μ m	Description and Classification	C _u	82.8
Bulk CC			●		32	14	16	Dark olive gray clayey Sand (SC)	C _c	6.3

PROJECT NAME: DHCCP
PROJECT NUMBER: 17326261

PARTICLE-SIZE DISTRIBUTION CURVES

UNIFIED SOIL CLASSIFICATION



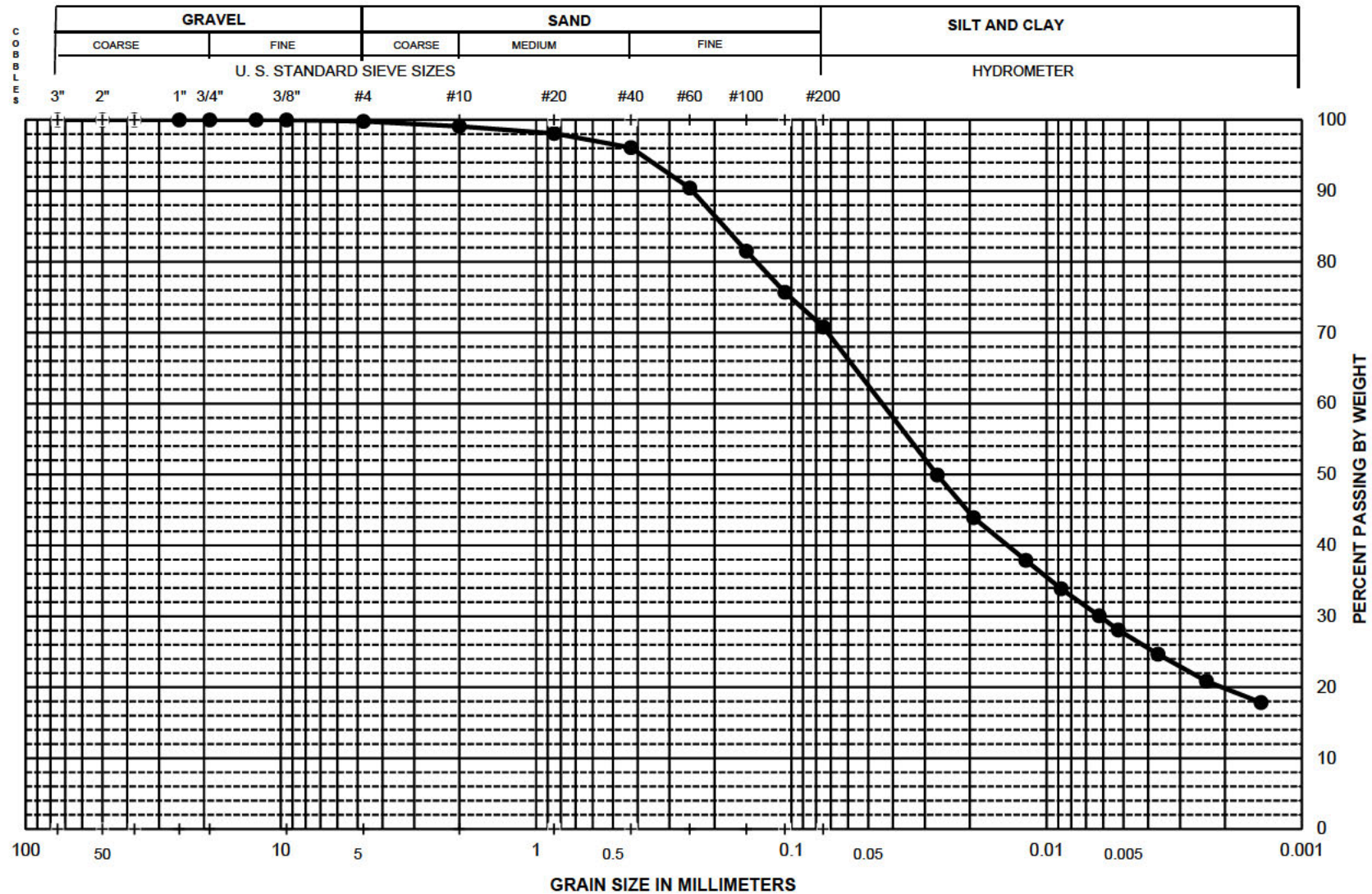
Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.7
#10	2.00	99.0
#20	0.850	97.9
#40	0.425	95.3
#60	0.250	89.2
#100	0.150	80.6
#140	0.106	74.8
#200	0.075	69.9
Hydrometer Analysis		
	0.0438	58.5
	0.0316	53.2
	0.0204	48.8
	0.0147	44.2
	0.0087	37.2
	0.0051	31.0
	0.0029	26.8
	0.0020	23.8
	0.0013	21.0
% Cobbles		—
% Gravel		0.3
% Sand		29.8
% Fines		69.9
D ₆₀	0.047	
D ₃₀	0.004	
D ₁₀	—	
C _u	—	
C _c	—	

Boring No.	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μ m	Description and Classification
Bulk 1C			•		40	23	31	Olive gray sandy Clay (CL)

PROJECT NAME: DHCCP
PROJECT NUMBER: 17326261

PARTICLE-SIZE DISTRIBUTION CURVES

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.8
#10	2.00	99.1
#20	0.850	98.1
#40	0.425	96.1
#60	0.250	90.4
#100	0.150	81.5
#140	0.106	75.7
#200	0.075	70.8
Hydrometer Analysis	0.0268	49.9
	0.0193	43.9
	0.0121	37.9
	0.0088	33.9
	0.0062	30.1
	0.0052	28.1
	0.0037	24.7
	0.0024	20.9
	0.0014	17.8

% Cobbles —

% Gravel 0.2

% Sand 29.0

% Fines 70.8

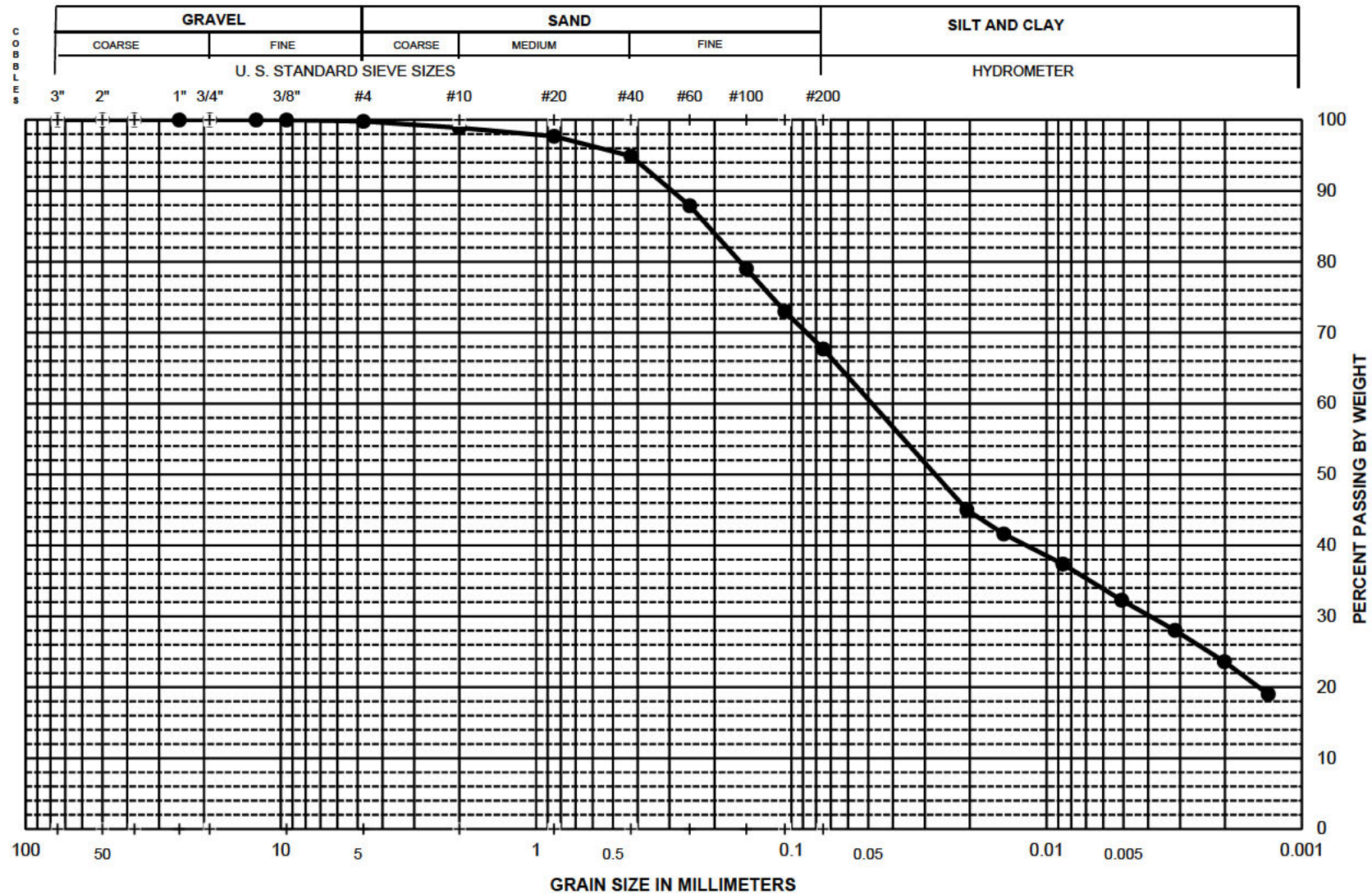
D₆₀ 0.044D₃₀ 0.006D₁₀ —C_u —C_c —

Boring No.	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μ m	Description and Classification
Bulk 2B			•		40	22	28	Olive gray Clay with sand (CL)

PROJECT NAME: DHCCP
PROJECT NUMBER: 17326261

PARTICLE-SIZE DISTRIBUTION CURVES

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.8
#10	2.00	98.9
#20	0.850	97.7
#40	0.425	94.9
#60	0.250	87.9
#100	0.150	79.0
#140	0.106	73.0
#200	0.075	67.7
Hydrometer Analysis	0.0205	45.0
	0.0147	41.6
	0.0086	37.4
	0.0051	32.3
	0.0031	28.0
	0.0020	23.6
	0.0014	19.0

% Cobbles	—
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% Gravel	0.2
----------	-----

% Sand	32.1
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% Fines	67.7
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D ₆₀	0.048
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D ₃₀	0.004
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D ₁₀	—
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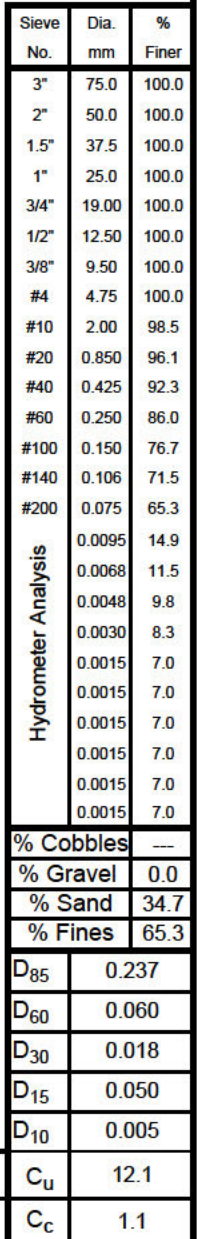
C _u	—
----------------	---

C _c	—
----------------	---

Boring No.	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μ m	Description and Classification
Bulk 3D			•		40	22	32	Olive gray sandy Clay (CL)

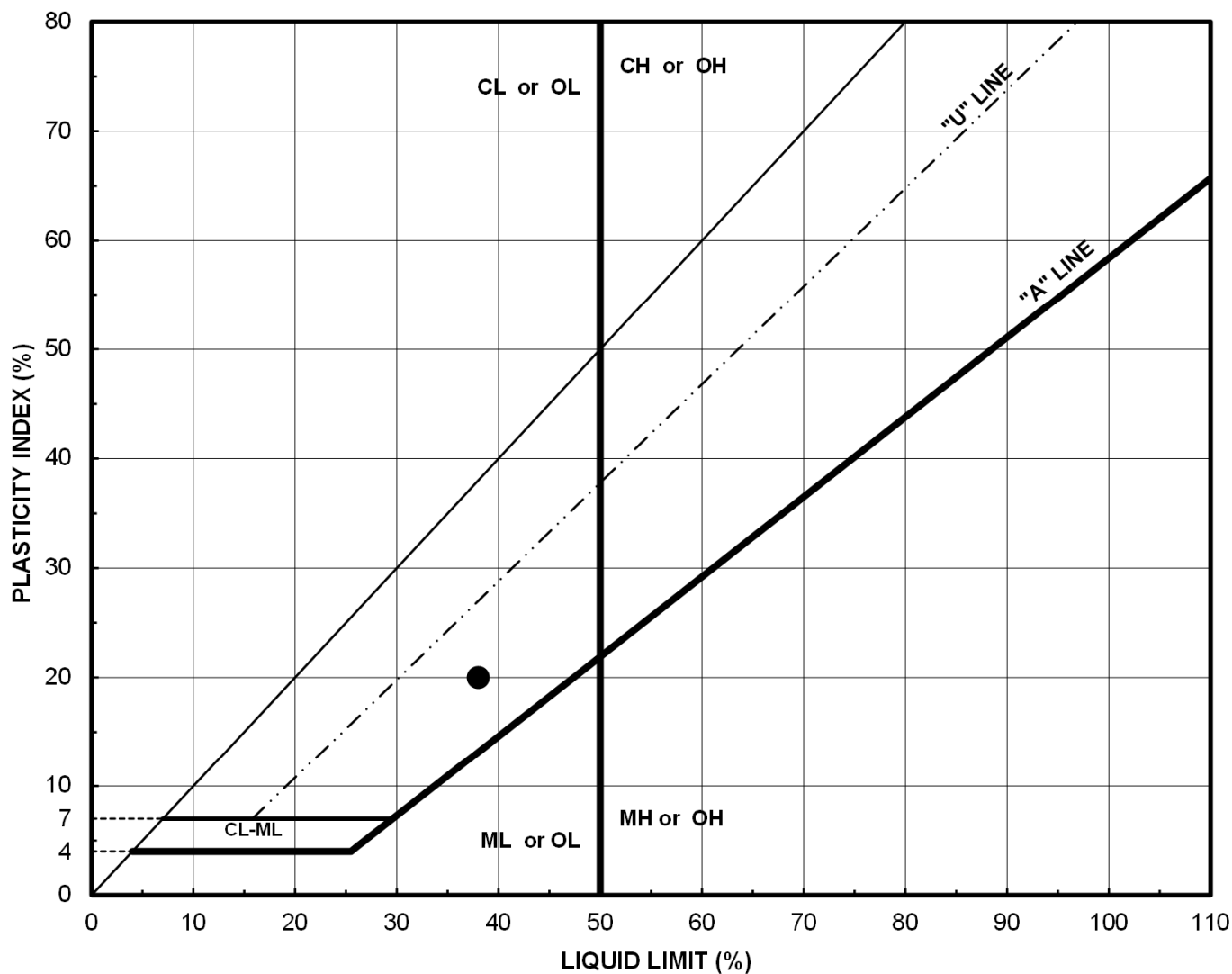
PROJECT NAME: DHCCP
PROJECT NUMBER: 17326261

PARTICLE-SIZE DISTRIBUTION CURVES

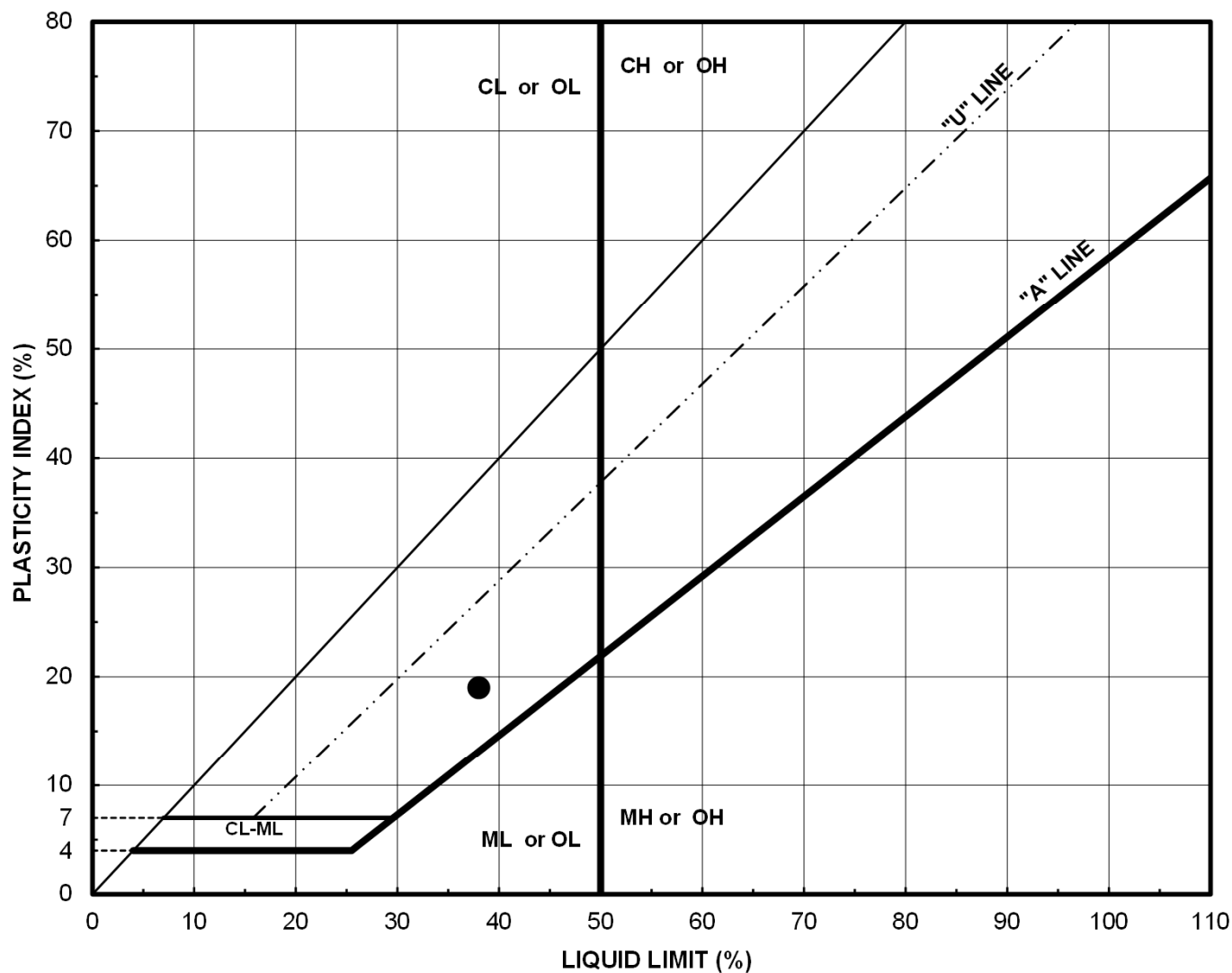


Boring No.	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μ m	Description and Classification	C _u	12.1
Bulk 3B	3 % lime		●	NA	46	9	10	Olive gray sandy Silt (ML)	C _c	1.1

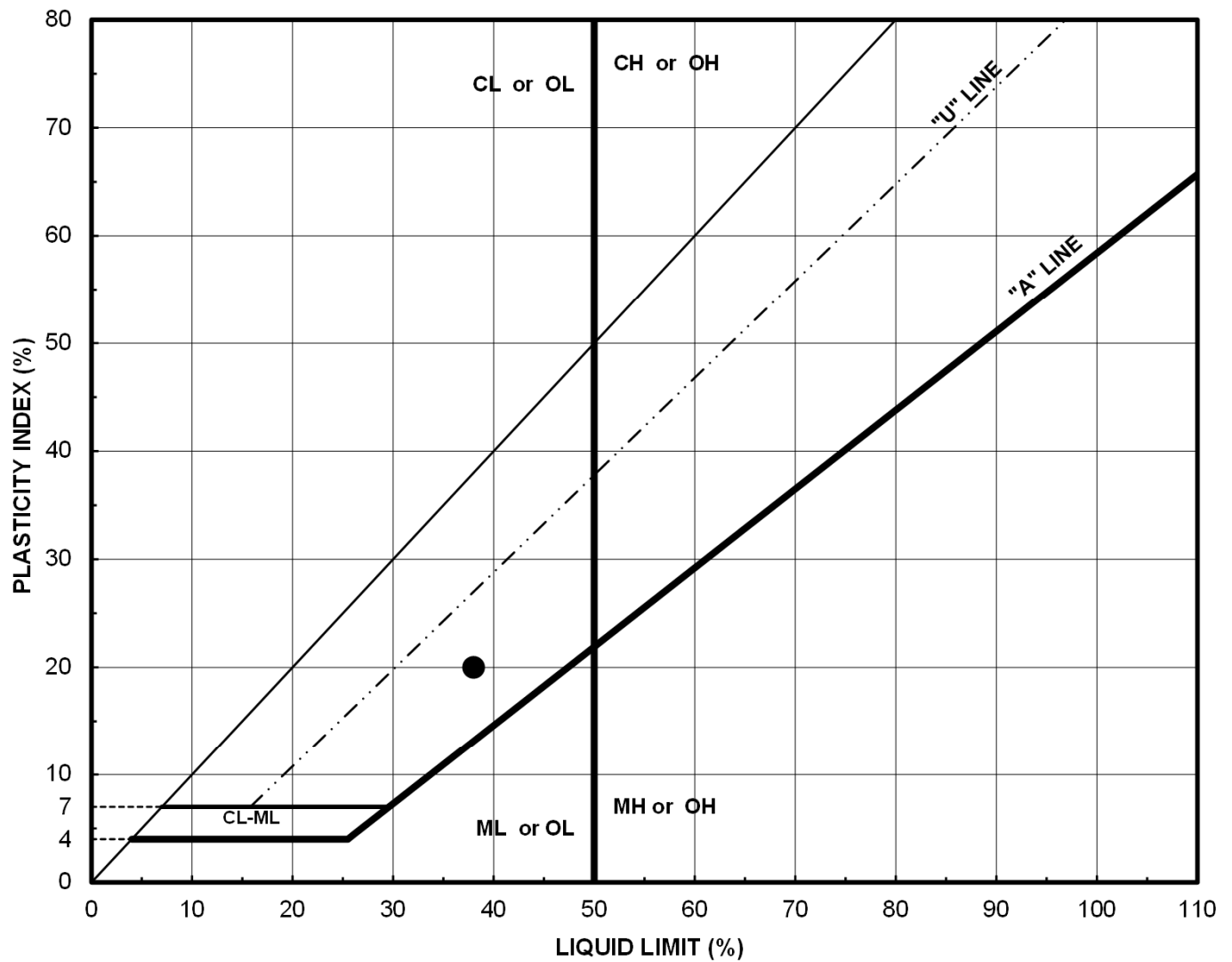
PARTICLE-SIZE DISTRIBUTION CURVES



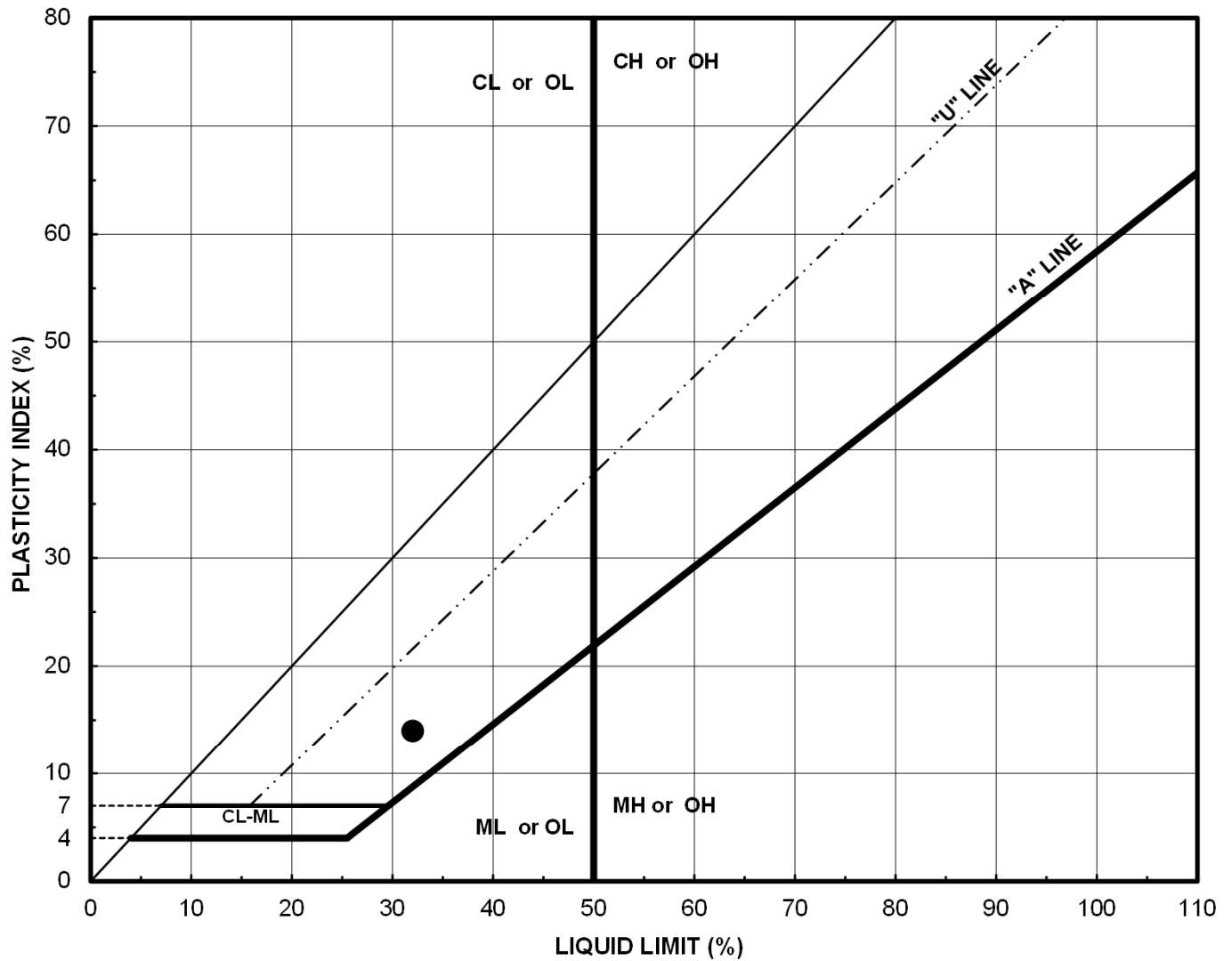
Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk 1A		NA	17.5	38	20	Olive gray sandy Clay (CL)
Project Name: DHCCP Project Number: 17326261						
PLASTICITY CHART						



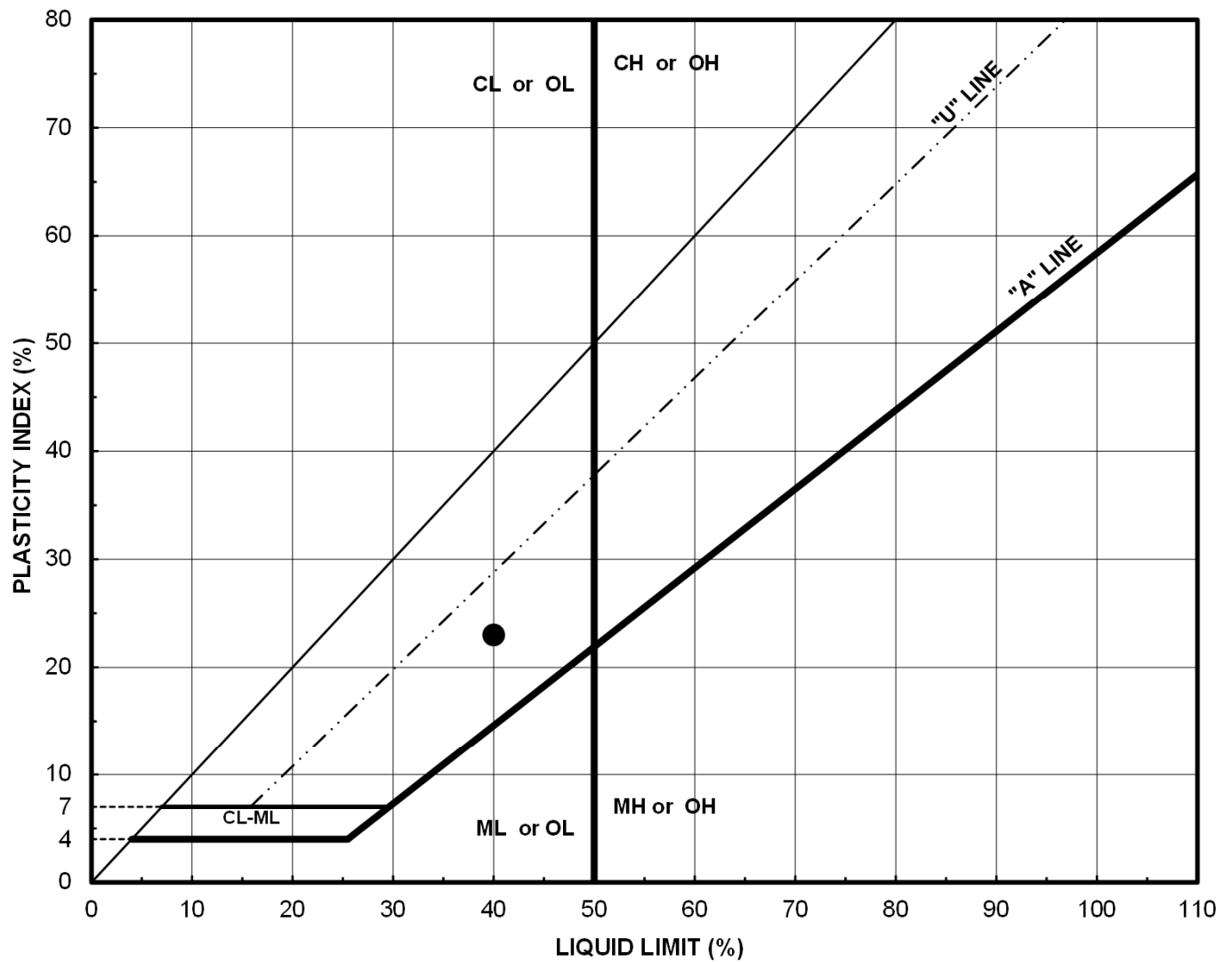
Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk 2A		NA	17.7	38	19	Olive gray sandy Clay (CL)
Project Name: DHCCP Project Number: 17326261						
						PLASTICITY CHART



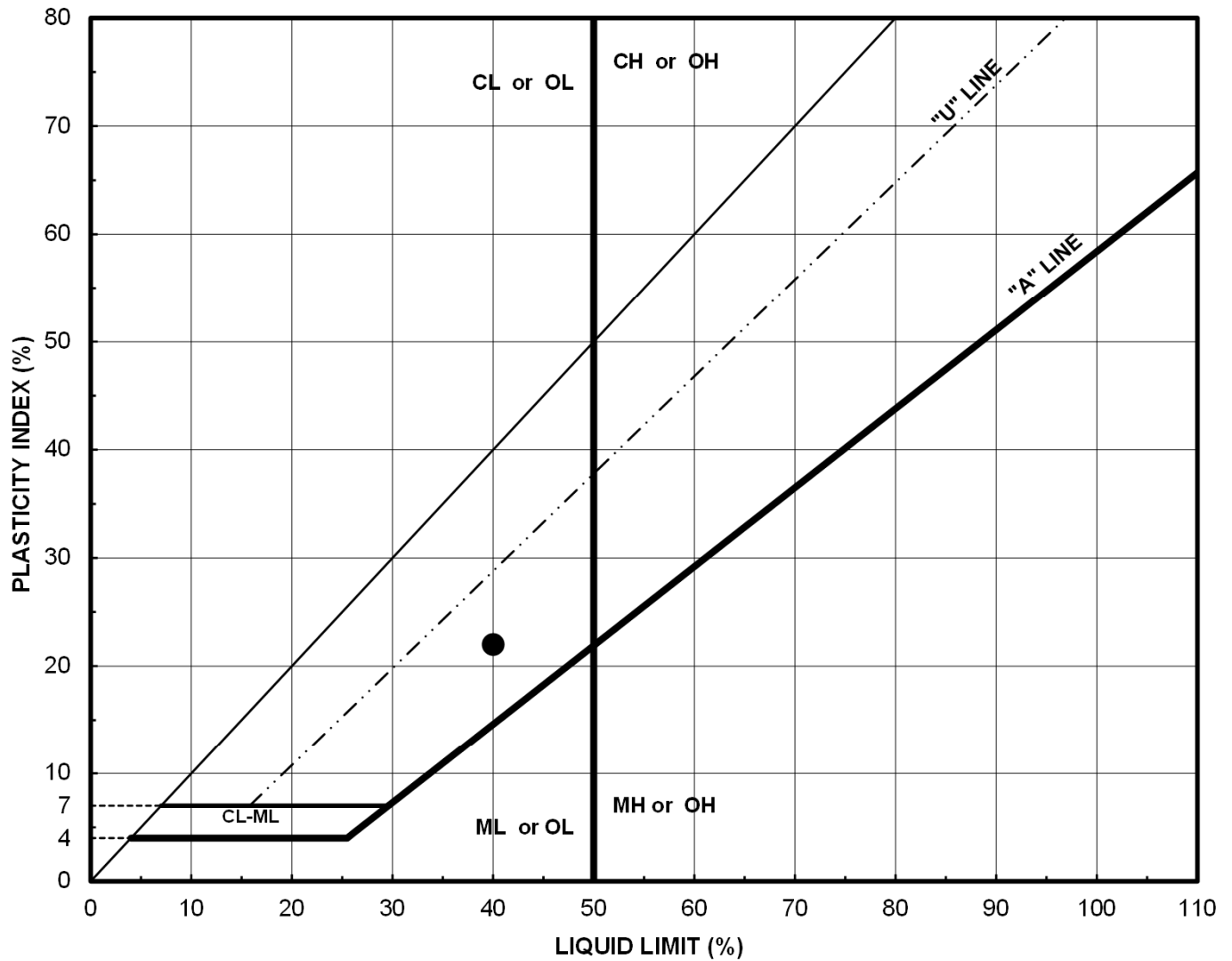
Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk 3A		NA	17.7	38	20	Olive gray sandy Clay (CL)
Project Name: DHCCP Project Number: 17326261						
PLASTICITY CHART						



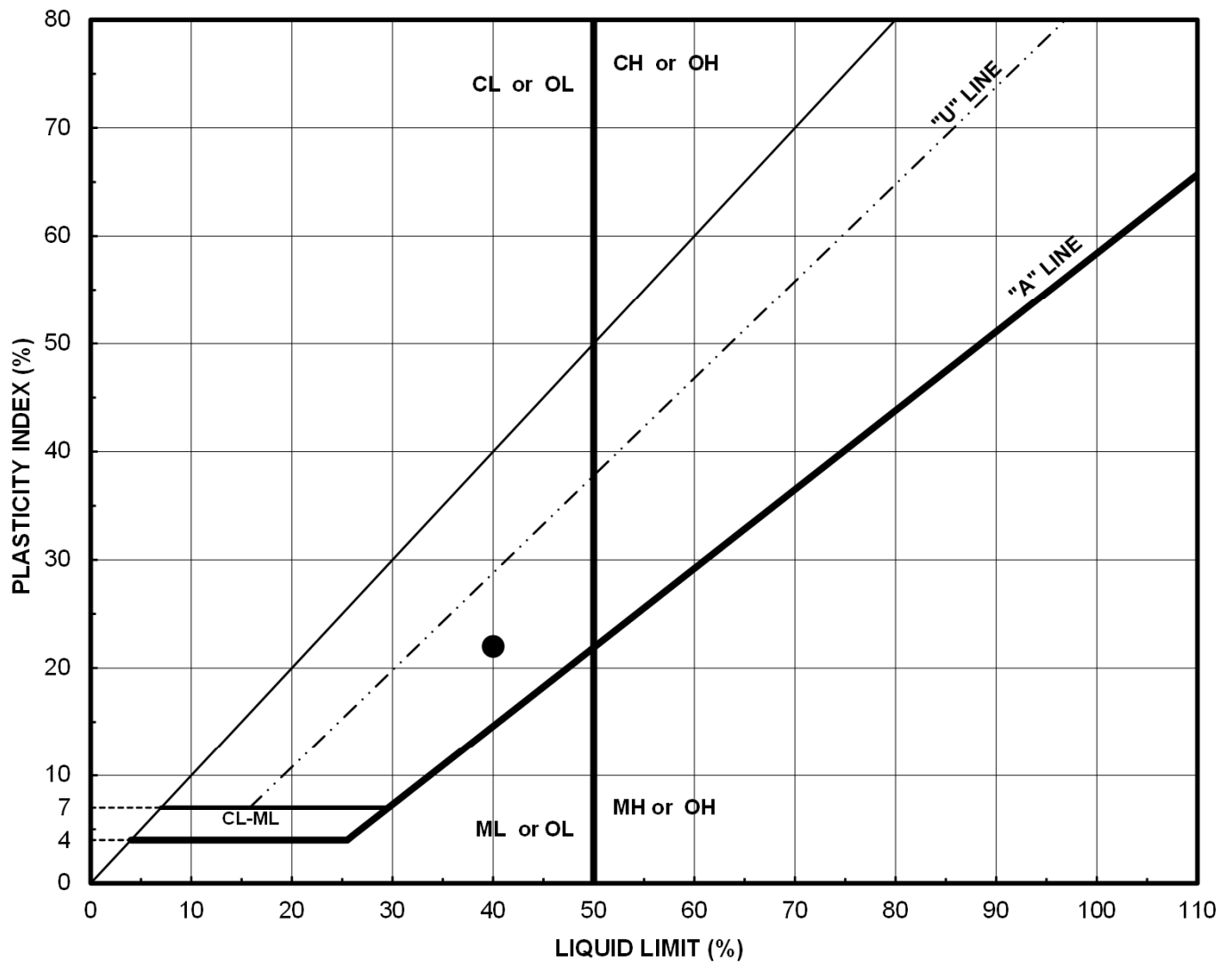
Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk CC			NA	32	14	Dark olive gray clayey Sand (SC)
<div> <div>Project Name: DHCCP</div> <div>Project Number: 17326261</div> </div> <div>PLASTICITY CHART</div>						



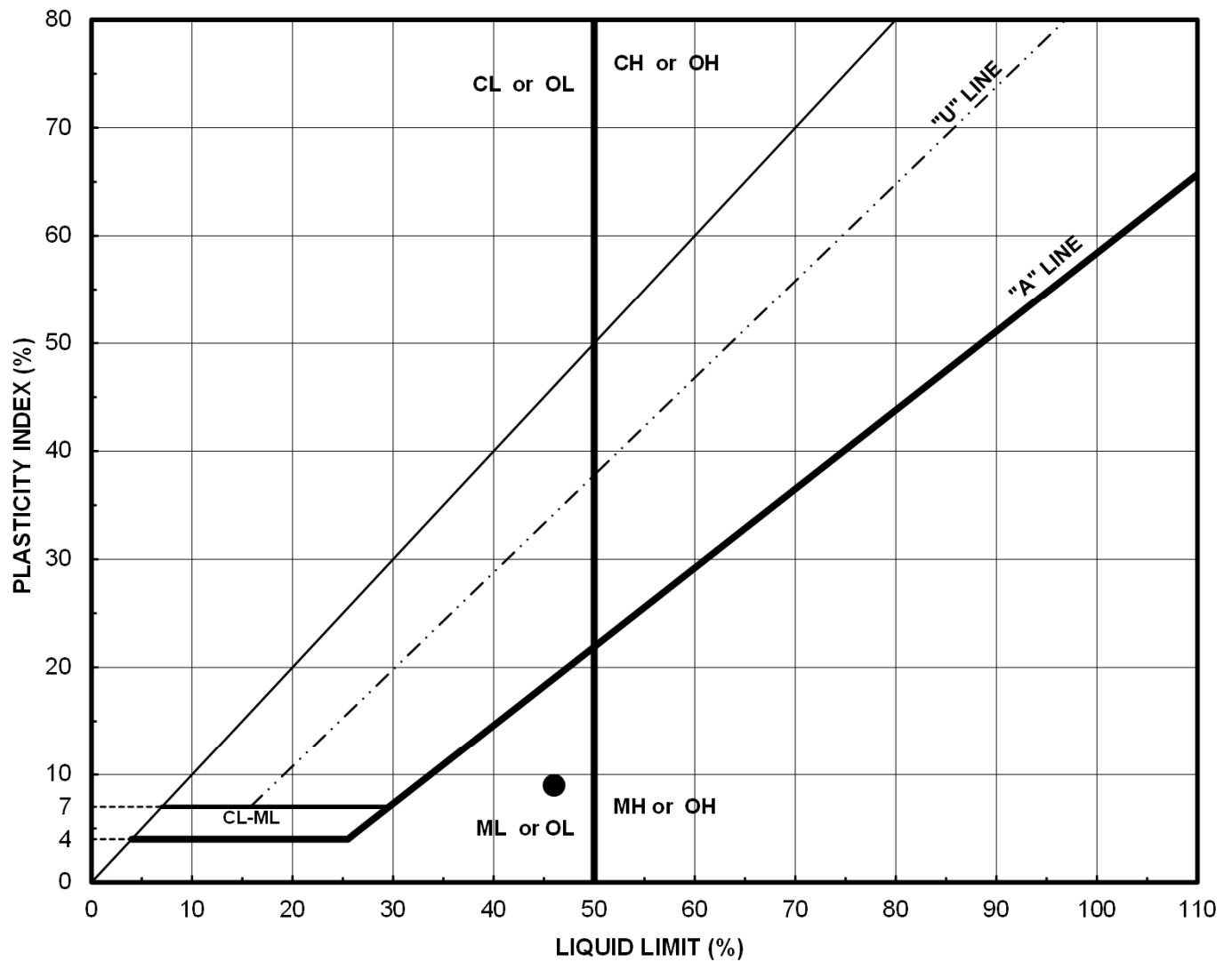
Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk 1C			NA	40	23	Olive gray sandy Clay (CL)
<div> <div>Project Name: DHCCP</div> <div>Project Number: 17326261</div> </div> <div>PLASTICITY CHART</div>						



Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk 2B			NA	40	22	Olive gray Clay with sand (CL)
Project Name: DHCCP Project Number: 17326261						
PLASTICITY CHART						

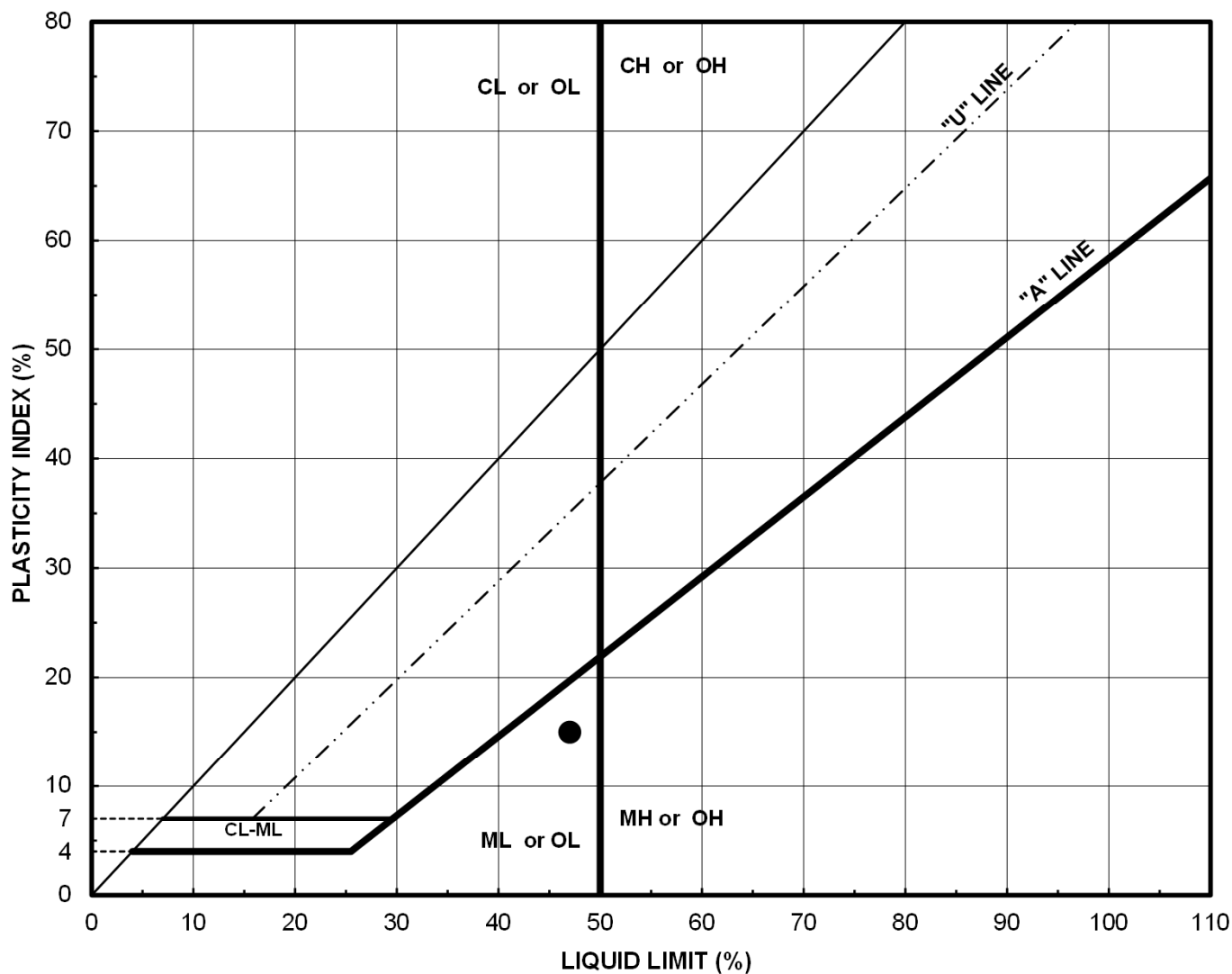


Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk 3D			NA	40	22	Olive gray sandy Clay (CL)
Project Name: DHCCP Project Number: 17326261						
PLASTICITY CHART						



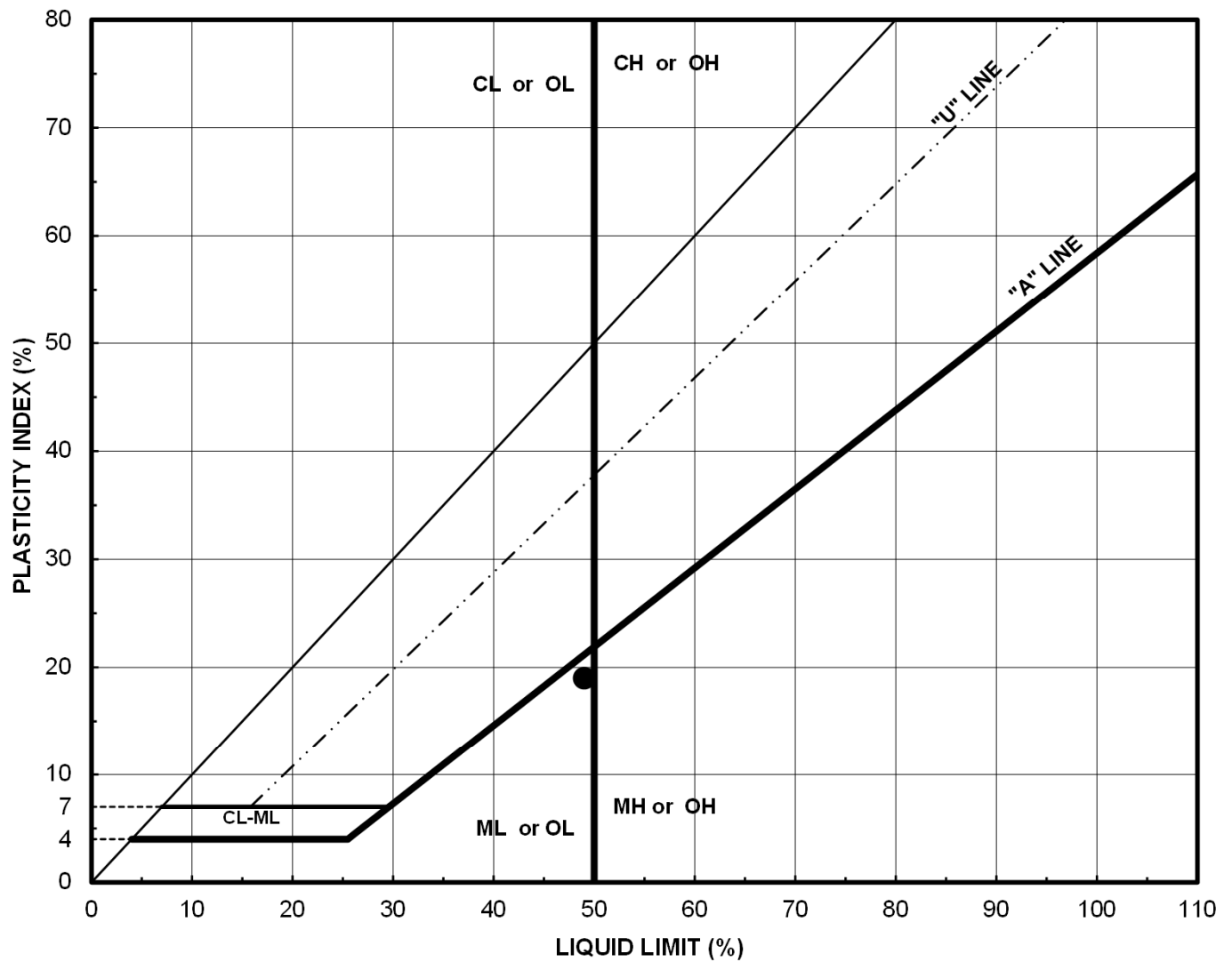
Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk 3B	3 % lime		NA	46	9	Olive gray sandy Silt (ML)
Project Name: DHCCP						
Project Number: 17326261						

PLASTICITY CHART



Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk 3B	2 % lime		NA	47	15	Olive gray sandy Silt (ML)
Project Name: DHCCP						
Project Number: 17326261						

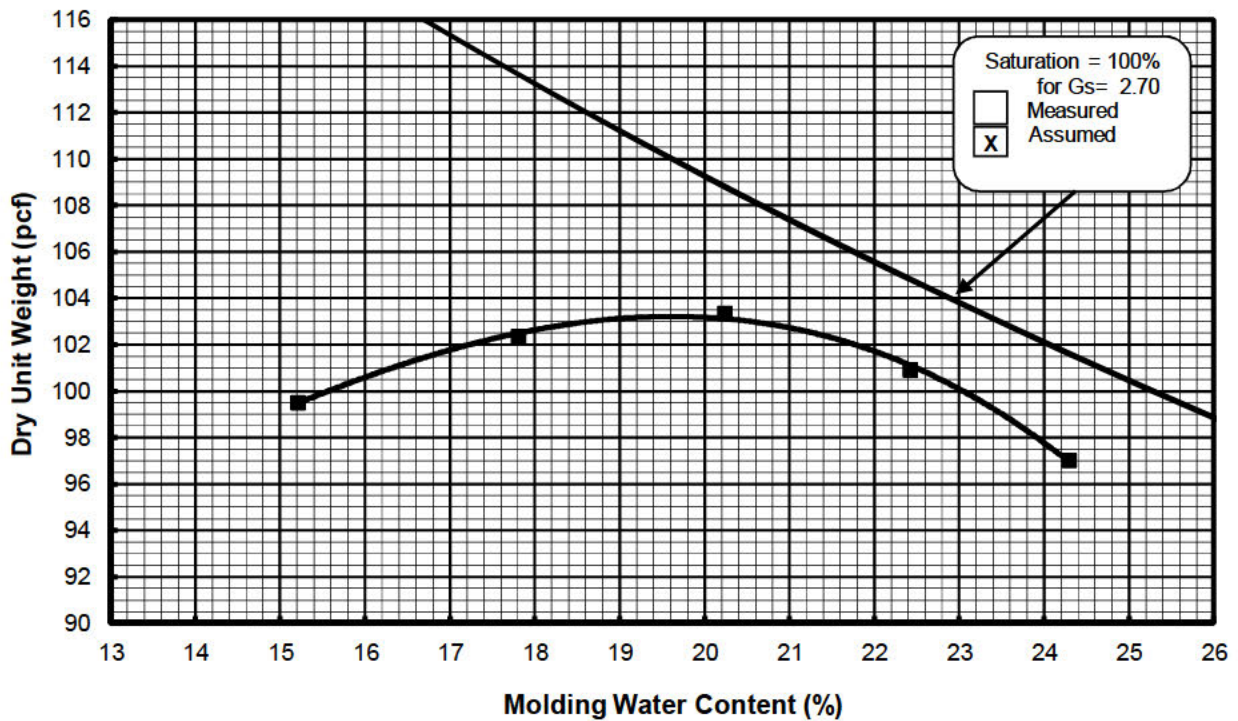
PLASTICITY CHART



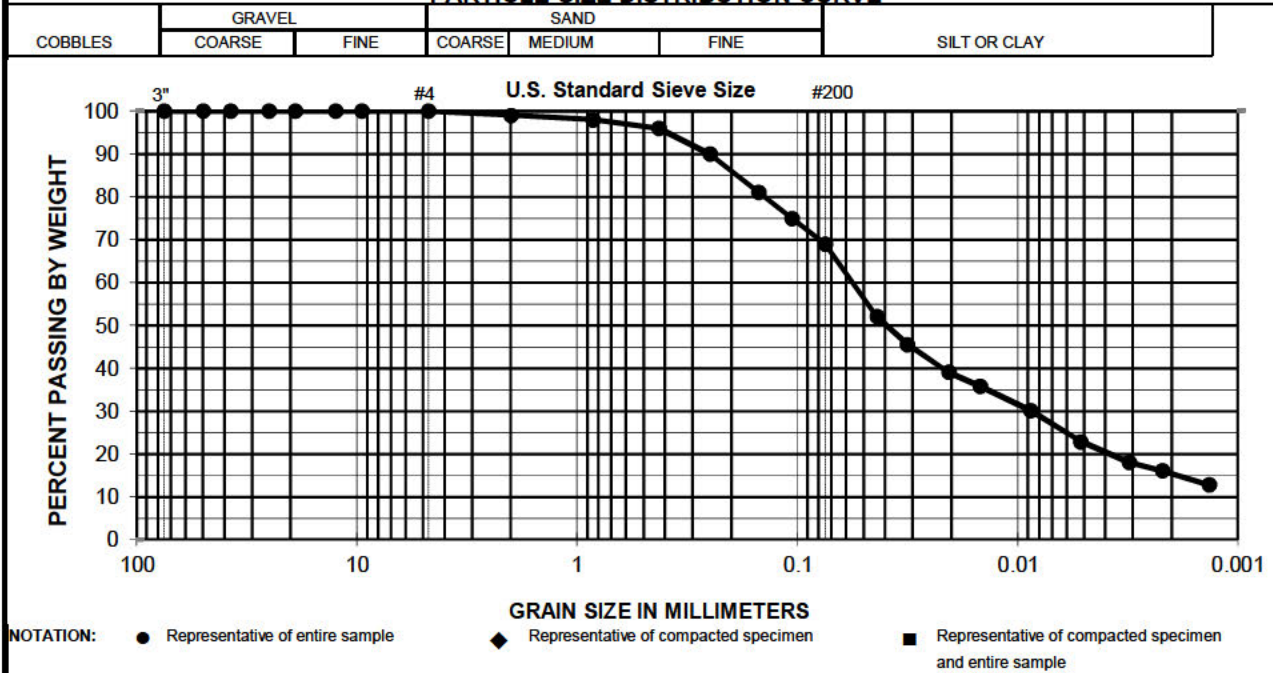
Boring Number	Sample Number	Depth (ft)	Water Content (%)	LL	PI	DESCRIPTION / CLASSIFICATION
Bulk 3B	1 % lime		NA	49	19	Olive gray sandy Silt (ML)
Project Name: DHCCP						
Project Number: 17326261						

PLASTICITY CHART

Test Method: ● ASTM D 1557 ■ ASTM D 698 ◆ CA-DWR: S-10 ○ Other Effort

Compaction Procedure: **B** Specimen Preparation Method: **Moist**

PARTICLE-SIZE DISTRIBUTION CURVE

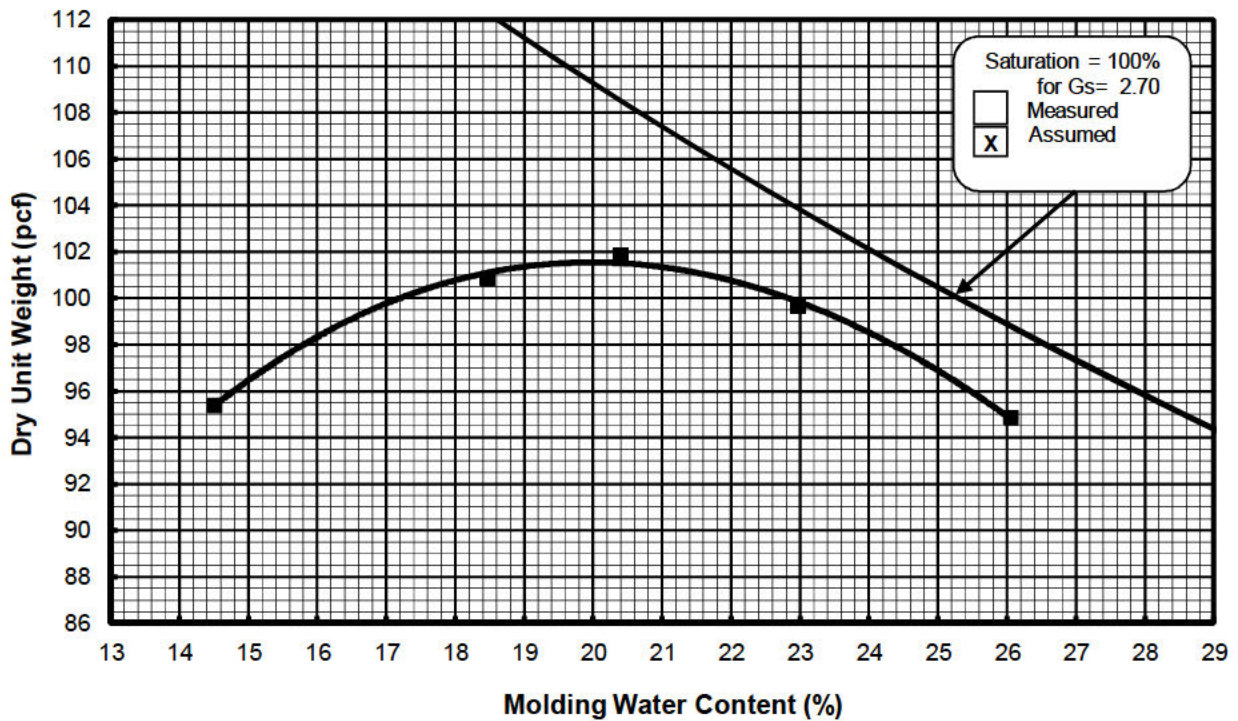


Boring Number	Sample Number	Depth (ft.)	Optimum WC (%)	Maximum DUW (pcf)	Description and/or Classification
Bulk 1A		NA	19.5	103.0	Olive gray sandy Clay (CL)

PROJECT NAME: DHCCP
PROJECT NUMBER: 17326261

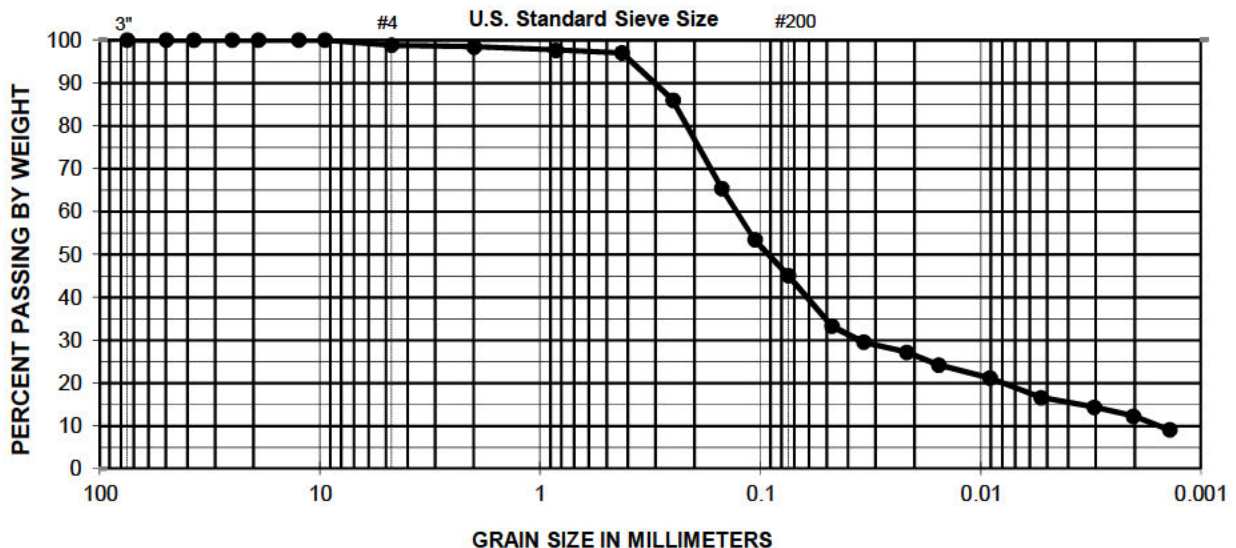
COMPACTION AND INDEX
PROPERTY DATA

Compaction Procedure: **A** Specimen Preparation Method: **Moist**



PARTICLE-SIZE DISTRIBUTION CURVE

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	



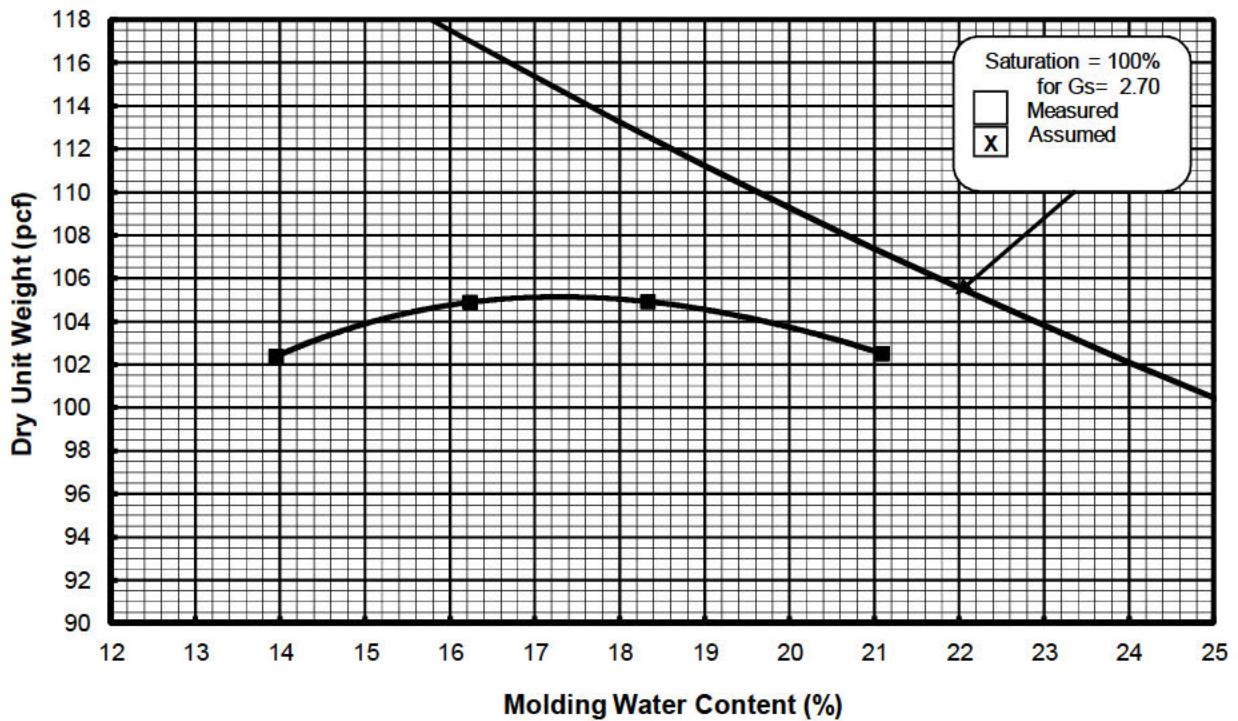
NOTATION: ● Representative of entire sample

Boring Number	Sample Number	Depth (ft.)	Optimum WC (%)	Maximum DUW (pcf)	Description and/or Classification
					Dark olive gray clayey Sand (SC)
Bulk CC			20.5	101.5	

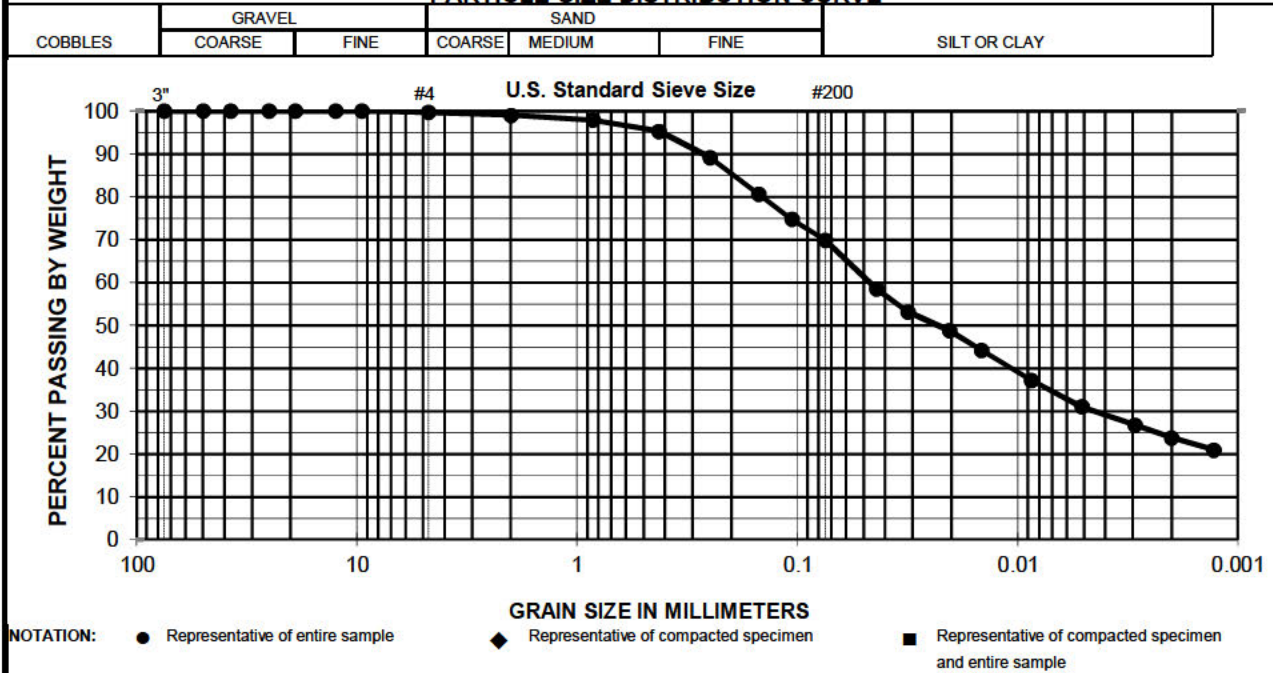
PROJECT NAME: DHCCP
PROJECT NUMBER: 17326261

COMPACTION AND INDEX PROPERTY DATA

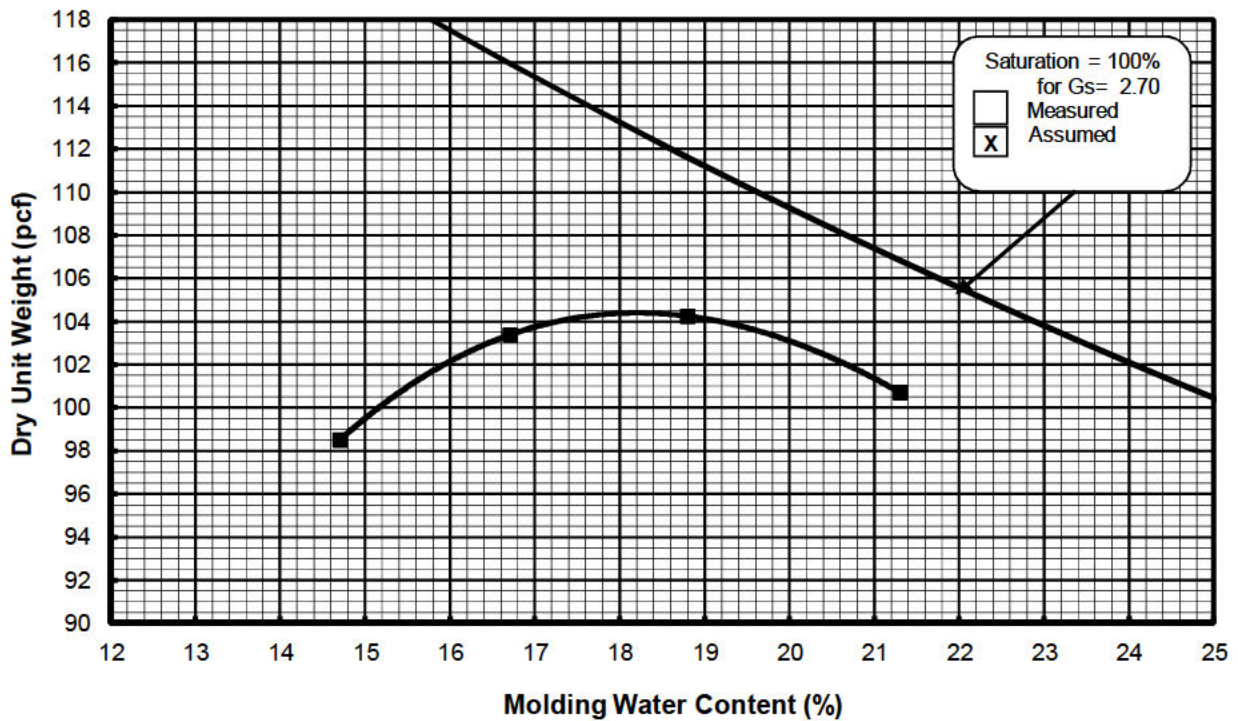
Test Method: ● ASTM D 1557 ■ ASTM D 698 ◆ CA-DWR: S-10 ○ Other Effort

Compaction Procedure: **A** Specimen Preparation Method: **Moist**

PARTICLE-SIZE DISTRIBUTION CURVE

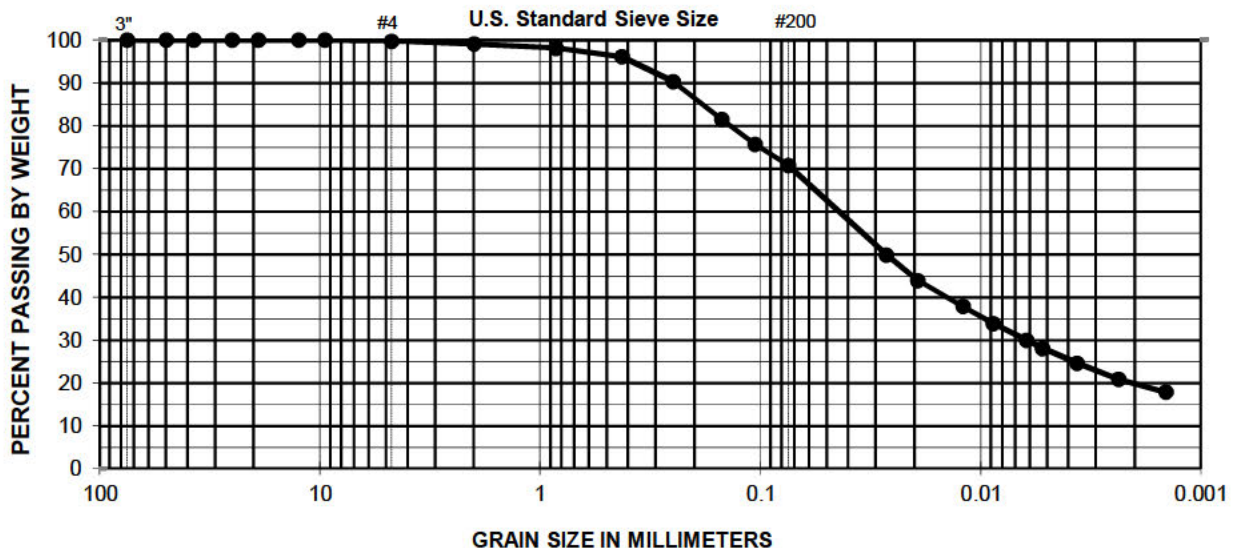


Compaction Procedure: **A** Specimen Preparation Method: **Moist**



PARTICLE-SIZE DISTRIBUTION CURVE

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	



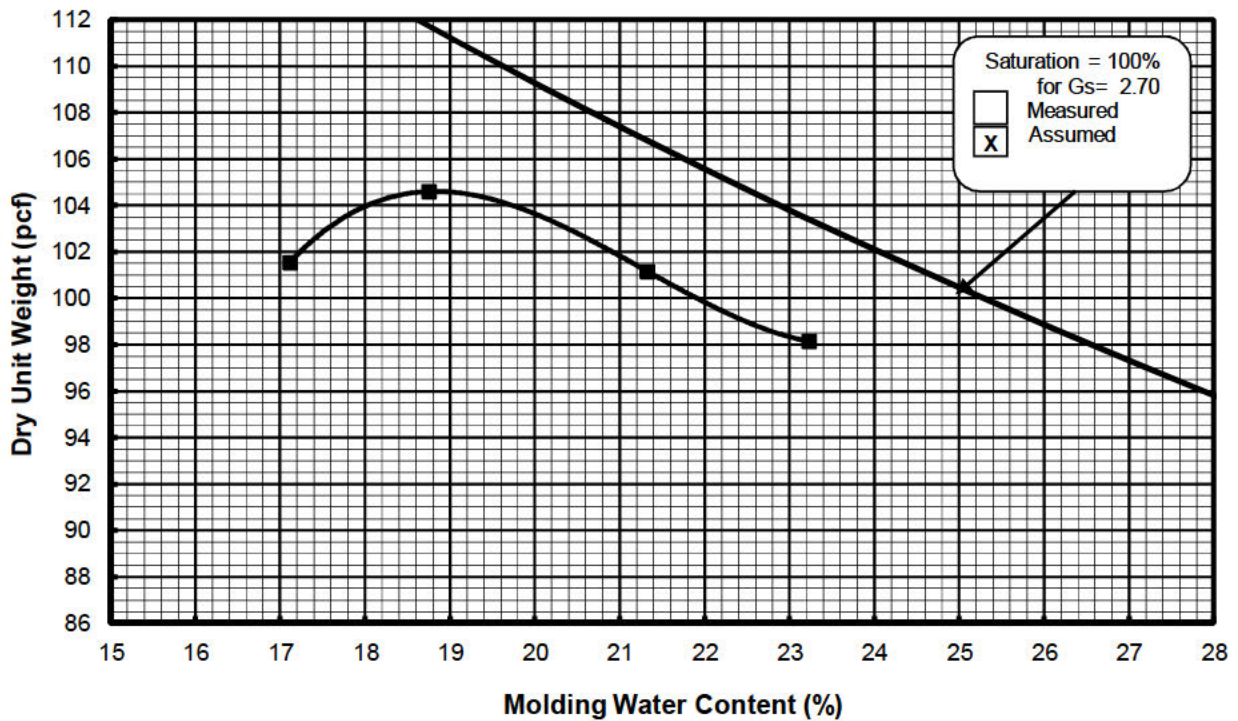
NOTATION: ● Representative of entire sample ◆ Representative of compacted specimen ■ Representative of compacted specimen and entire sample

Boring Number	Sample Number	Depth (ft.)	Optimum WC (%)	Maximum DUW (pcf)	Description and/or Classification
					Olive gray Clay with sand (CL)
Bulk 2B			18.0	104.5	

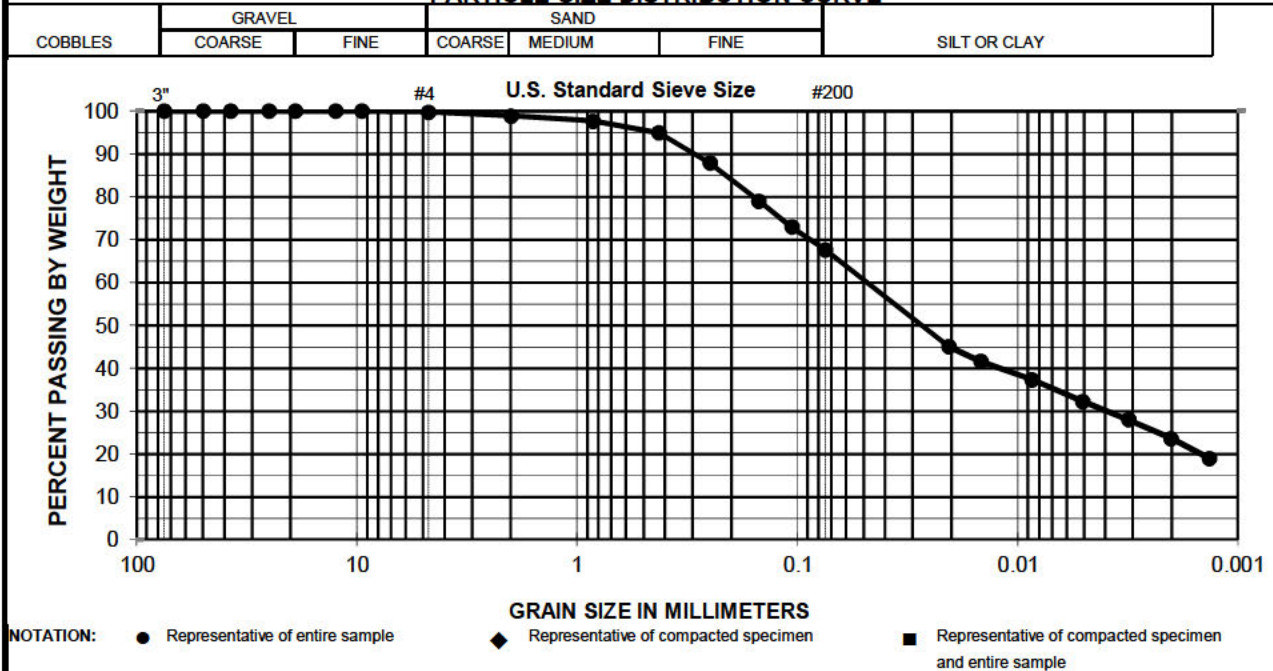
PROJECT NAME: DHCCP
PROJECT NUMBER: 17326261

COMPACTION AND INDEX PROPERTY DATA

Test Method: ● ASTM D 1557 ■ ASTM D 698 ◆ CA-DWR: S-10 ○ Other Effort

Compaction Procedure: **A** Specimen Preparation Method: **Moist**

PARTICLE-SIZE DISTRIBUTION CURVE

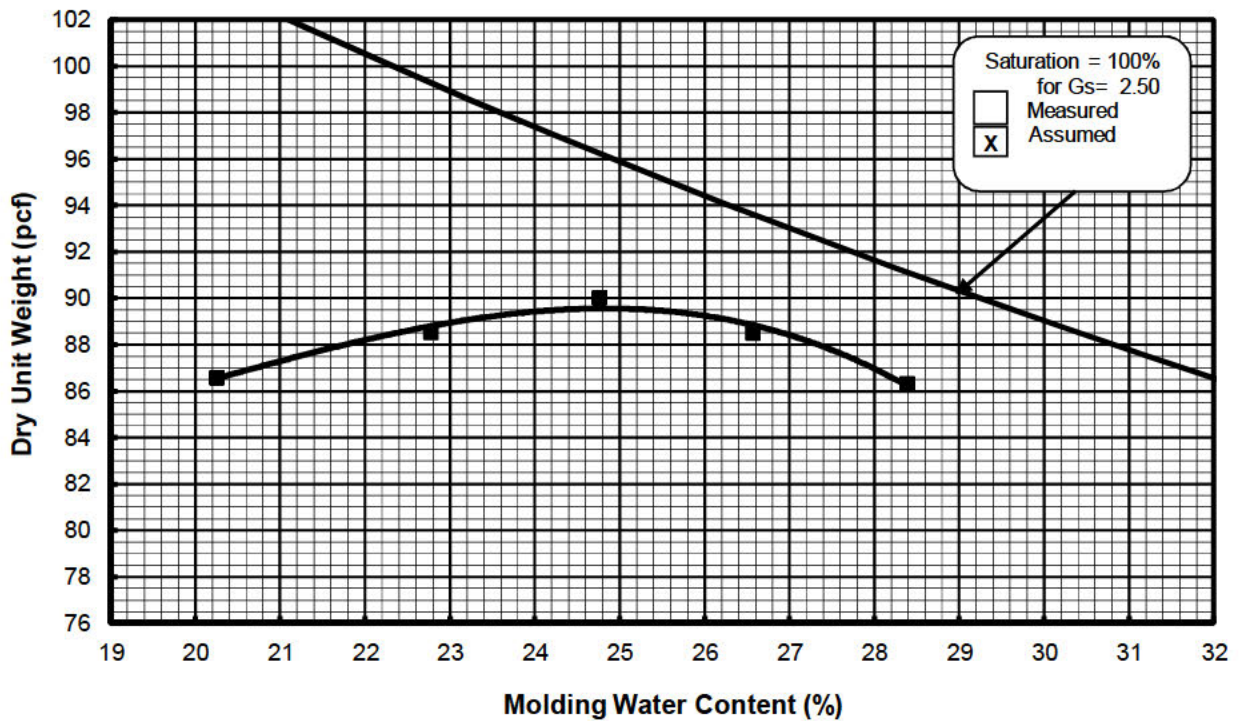


Boring Number	Sample Number	Depth (ft.)	Optimum WC (%)	Maximum DUW (pcf)	Description and/or Classification
Bulk 3D			19.0	104.5	Olive gray sandy Clay (CL)

PROJECT NAME: DHCCP
PROJECT NUMBER: 17326261

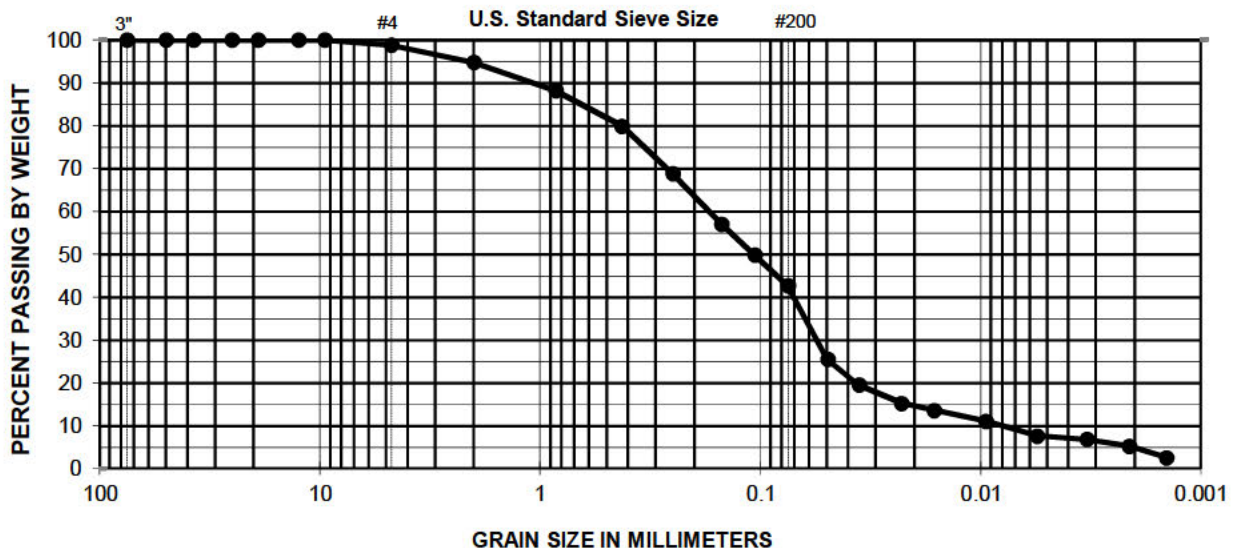
COMPACTION AND INDEX
PROPERTY DATA

Test Method: ● ASTM D 1557 ■ ASTM D 698 ◆ CA-DWR: S-10 ○ Other Effort
Compaction Procedure: **A** Specimen Preparation Method: **Moist**



PARTICLE-SIZE DISTRIBUTION CURVE

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

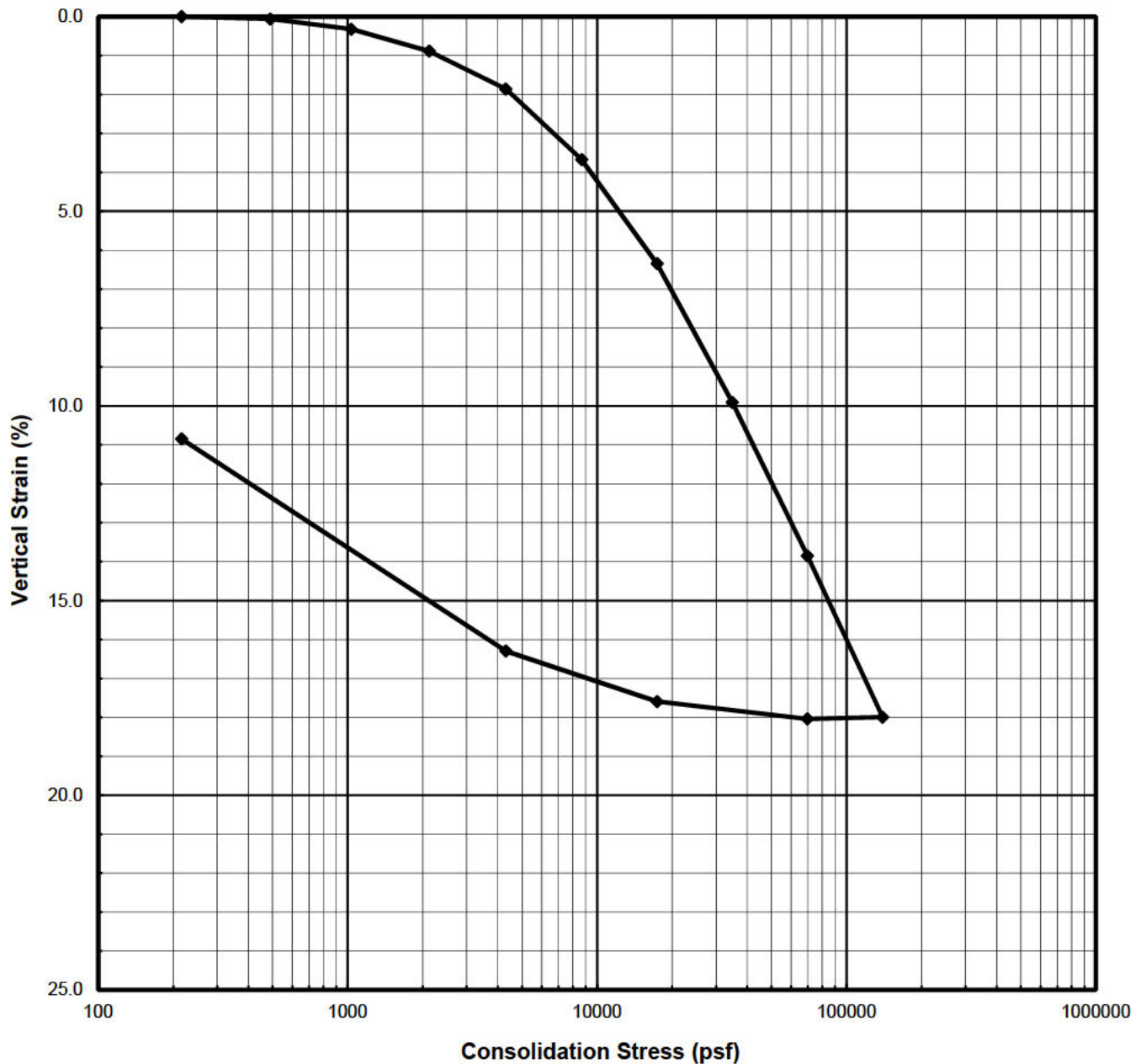


NOTATION: ● Representative of entire sample ◆ Representative of compacted specimen ■ Representative of compacted specimen and entire sample

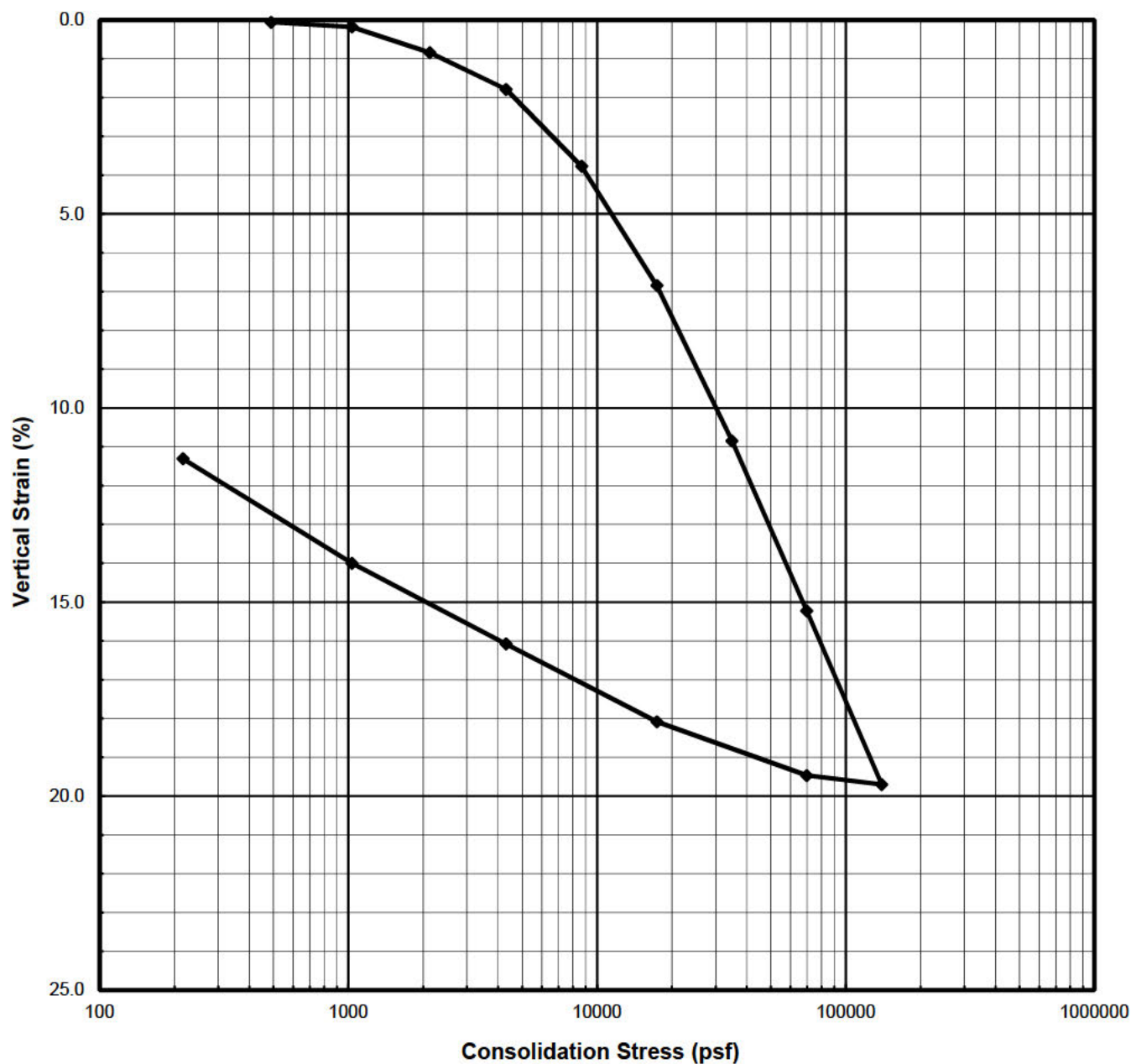
Boring Number	Sample Number	Depth (ft.)	Optimum WC (%)	Maximum DUW (pcf)	Description and/or Classification
					Olive gray silty Sand (SM)
Bulk 3B			25.0	89.5	

PROJECT NAME: DHCCP
PROJECT NUMBER: 17326261

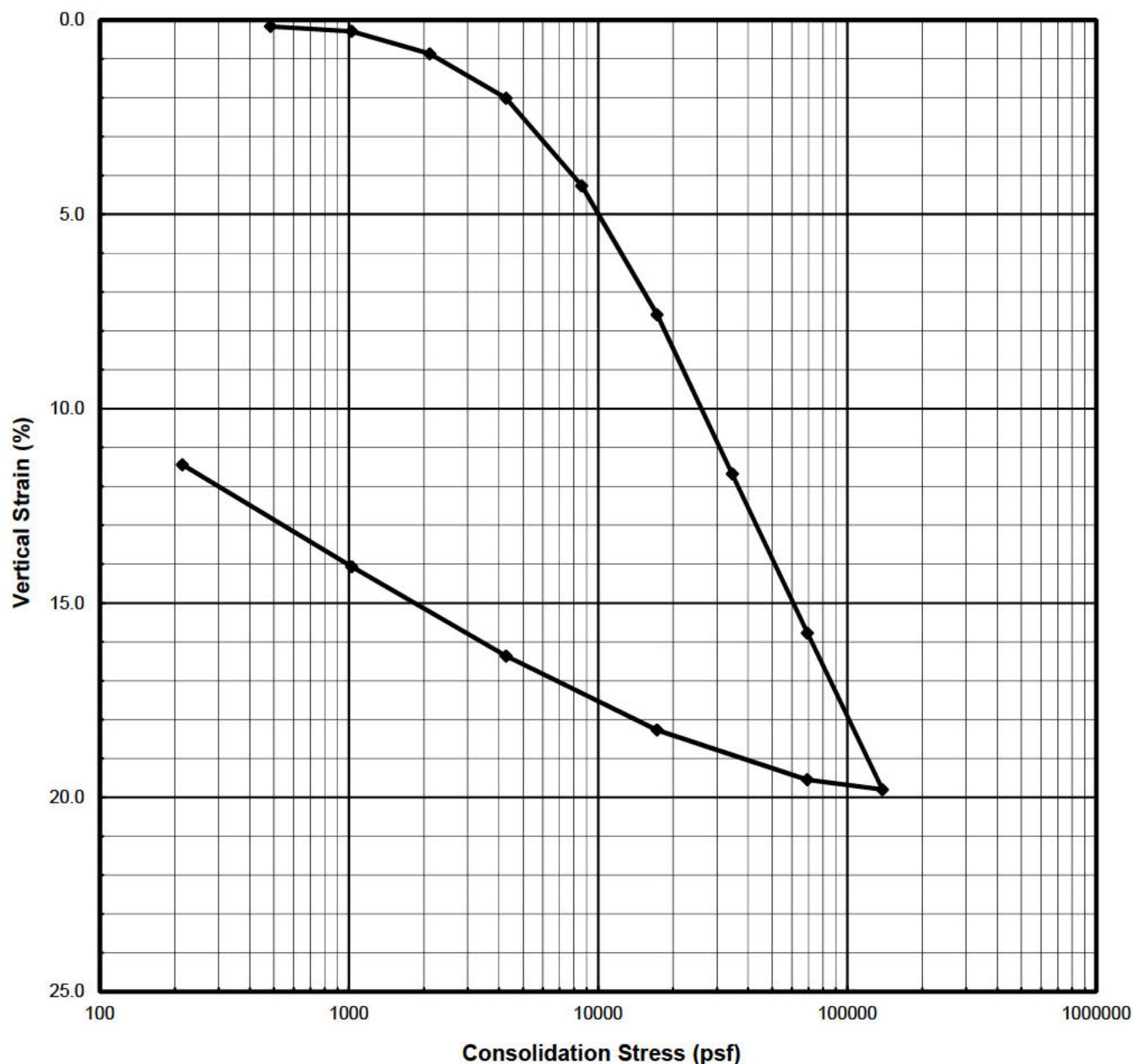
COMPACTION AND INDEX PROPERTY DATA



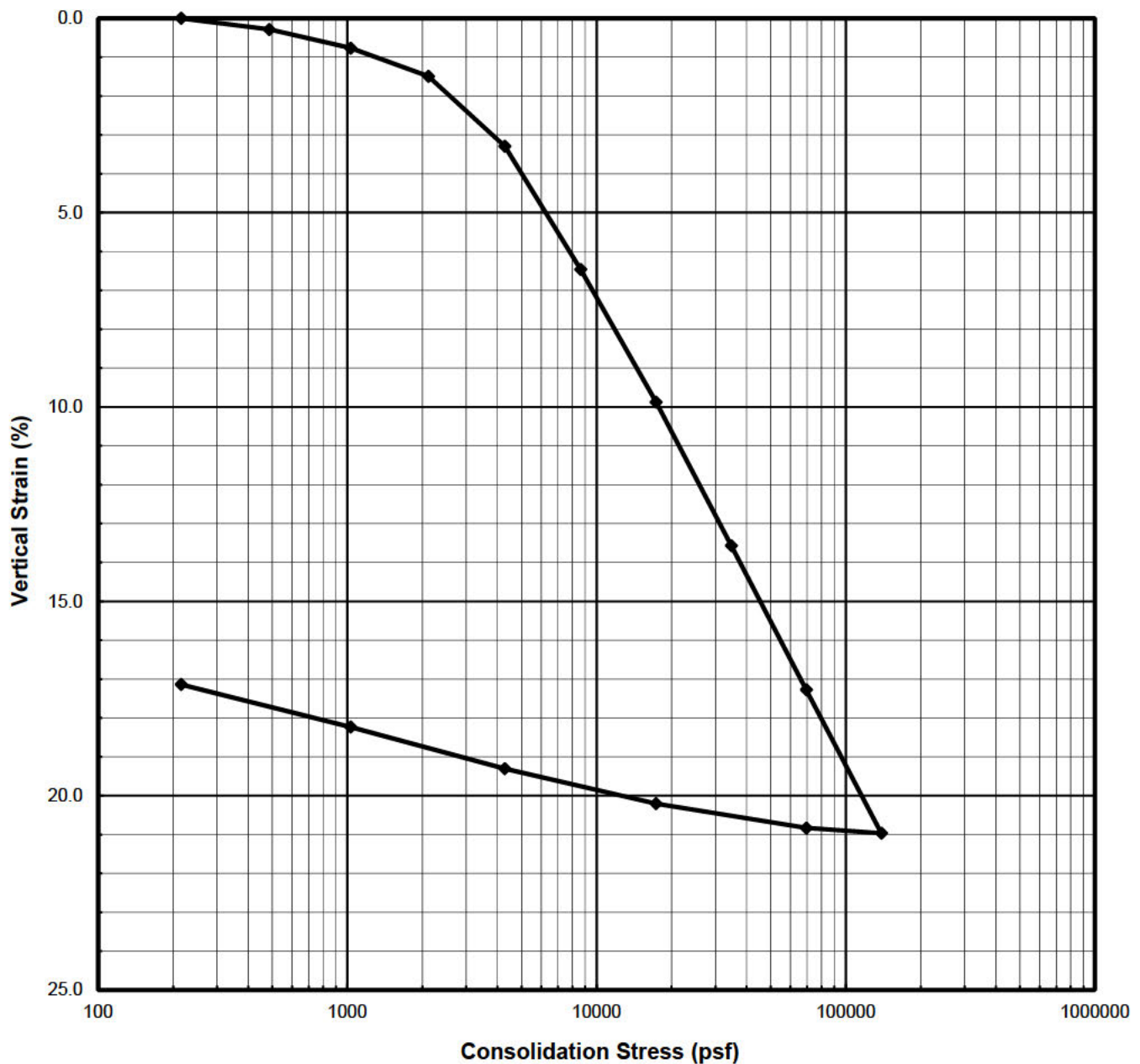
Description:		Olive gray sandy Clay (CL)									
Boring No.:	Bulk 1A		Liquid Limit		38	%	Specific Gravity		2.70	assumed	
Sample No.:			Plasticity Index		20	%	Strain for Saturation		17.82	%	
Depth (ft m)	NA	NA	Fines Content		69.0	%	Water added at		85	psf	
	Water Content (%)	Total Unit Weight		Dry Unit Weight		Saturation (%)	Void Ratio	Height		Diameter	
		(pcf)	(kN/m ³)	(pcf)	(kN/m ³)			(inches)	(cm)	(inches)	(cm)
Initial	19.0	116.3	18.27	97.7	15.35	71.1	0.72	0.872	2.21	1.925	4.890
Final	17.5	135.2	21.25	115.1	18.07	102.5	0.46	0.787	2.00		
URS		DHCCP					CONSOLIDATION TEST				
		Project Number: 17326261					ASTM D2435				
		Test Start Date: 8/9/2013									



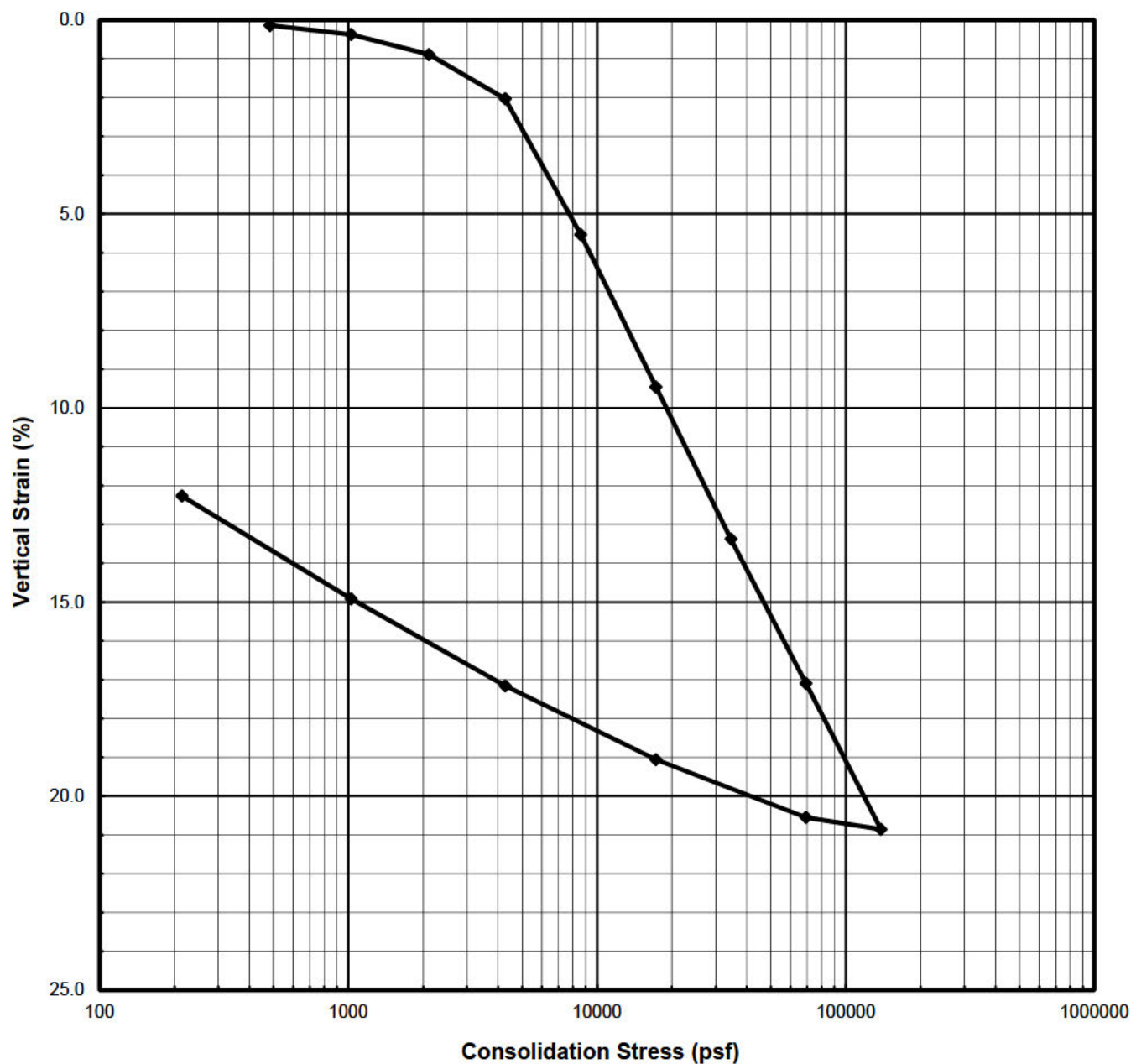
Description:		Olive gray sandy Clay (CL)													
Boring No.:	Bulk		Liquid Limit		38	%	Specific Gravity		2.70	assumed					
Sample No.:	2A				Plasticity Index				19			%	Strain for Saturation		10.92
Depth (ft m)					Fines Content				69.0			%	Water added at		216
	Water Content (%)	Total Unit Weight		Dry Unit Weight		Saturation (%)	Void Ratio	Height		Diameter					
		(pcf)	(kN/m³)	(pcf)	(kN/m³)			(inches)	(cm)	(inches)	(cm)				
Initial	19.0	117.1	18.39	98.4	15.46	72.2	0.71	0.894	2.27	1.925	4.890				
Final	20.2	131.0	20.57	108.9	17.11	100.2	0.54	0.808	2.05						
URS	DHCCP						CONSOLIDATION TEST								
	Project Number: 17326261						ASTM D2435								
	Test Start Date: 9/13/2013														



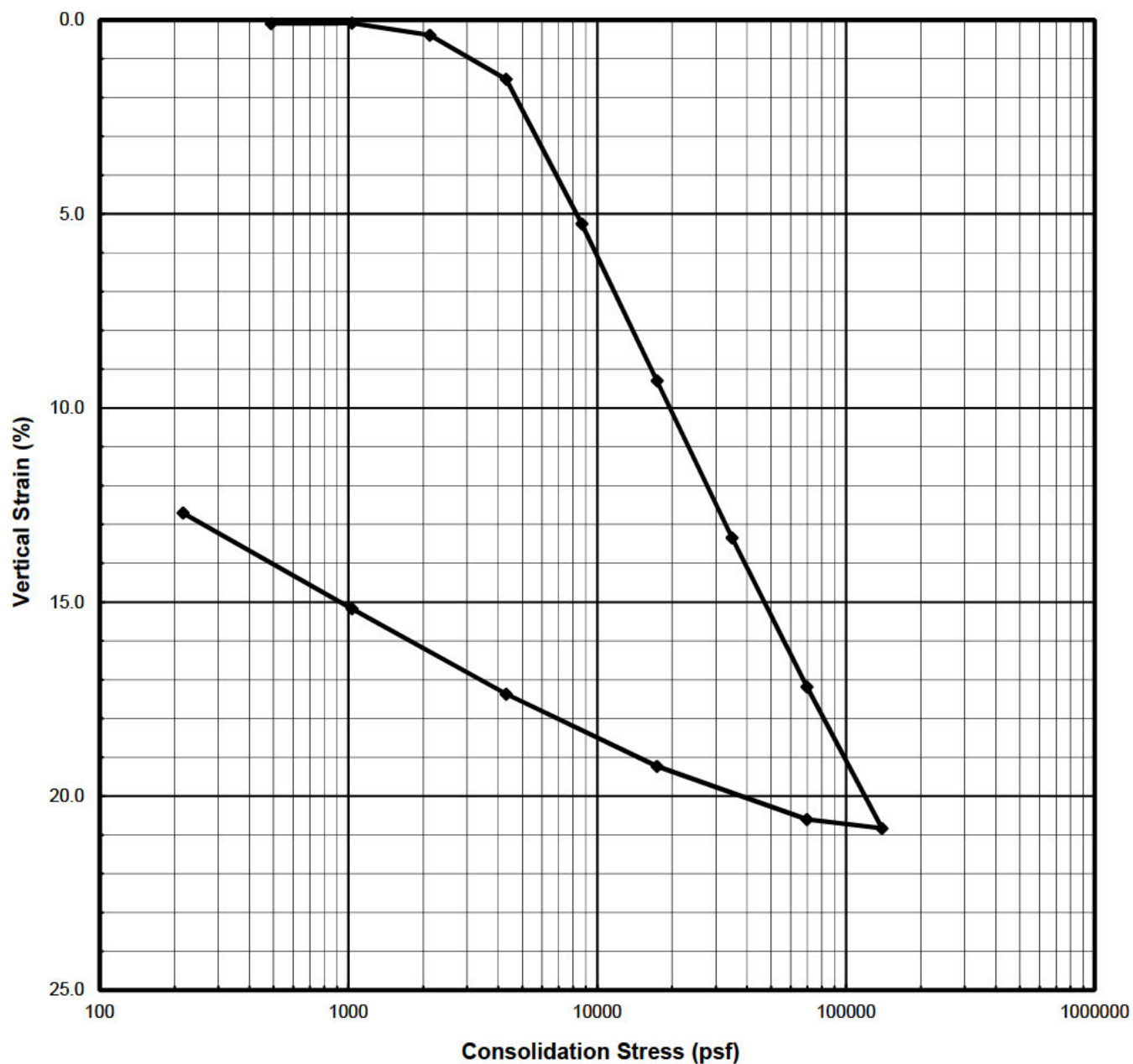
Description:		Olive gray sandy Clay (CL)									
Boring No.:	Bulk 3A		Liquid Limit		38	%	Specific Gravity		2.70	assumed	
Sample No.:			Plasticity Index		20	%	Strain for Saturation		10.51	%	
Depth (ft m)	NA		Fines Content		67.5	%	Water added at		214	psf	
	Water Content (%)	Total Unit Weight		Dry Unit Weight		Saturation (%)	Void Ratio	Height		Diameter	
		(pcf)	(kN/m ³)	(pcf)	(kN/m ³)			(inches)	(cm)	(inches)	(cm)
Initial	18.9	117.7	18.49	98.9	15.54	73.0	0.70	0.797	2.02	1.933	4.910
Final	19.4	129.5	20.35	108.5	17.05	95.0	0.55	0.727	1.85		
URS		DHCCP					CONSOLIDATION TEST				
		Project Number: 17326261					ASTM D2435				
		Test Start Date: 10/2/2013									



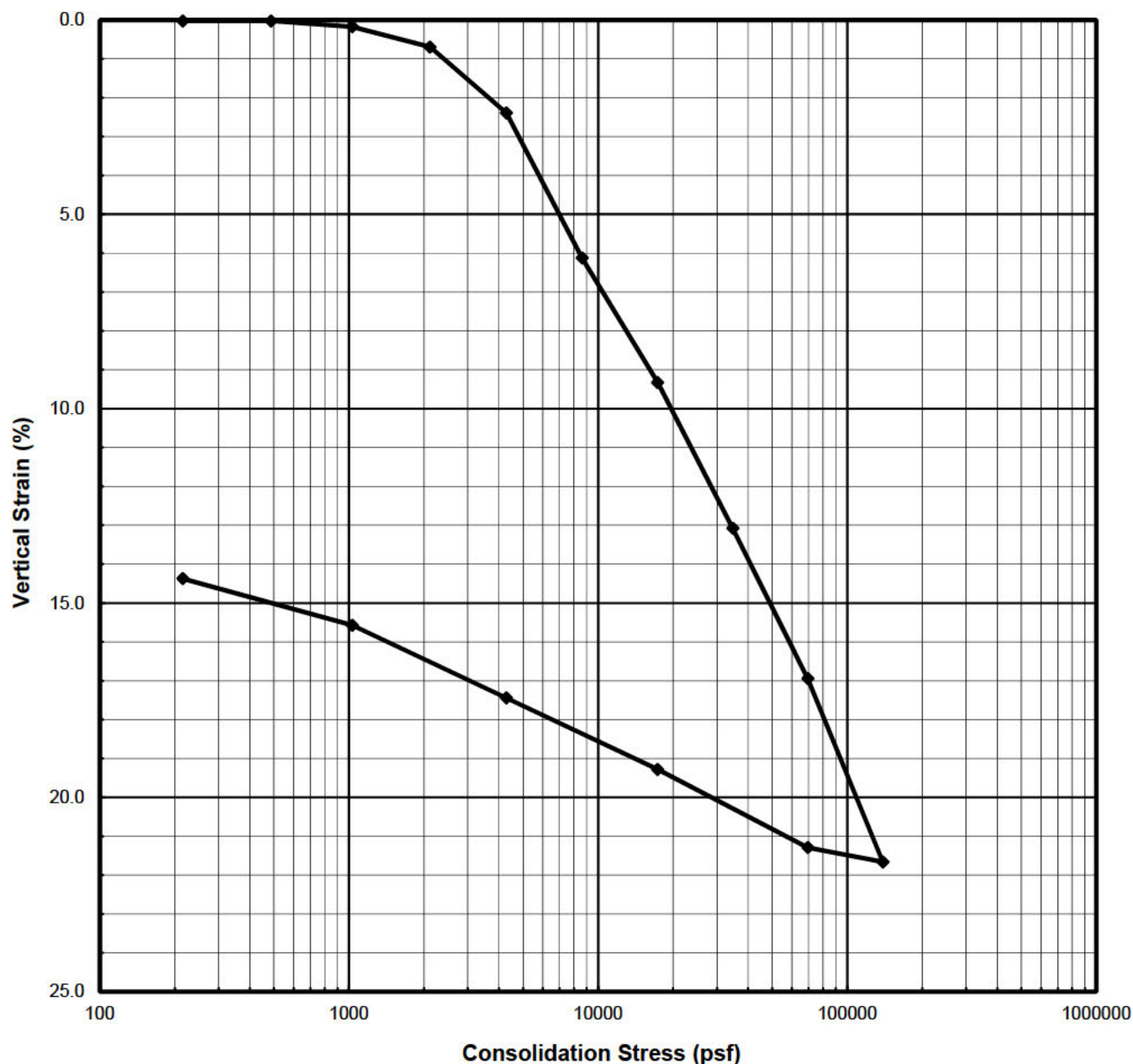
Description:		Dark olive gray clayey Sand (SC)													
Boring No.:	Bulk CC		Liquid Limit		32	%	Specific Gravity		2.70	assumed					
Sample No.:		Plasticity Index			14	%			Strain for Saturation			13.09	%		
Depth (ft m)						Fines Content						45.1	%	Water added at	
	Water Content (%)	Total Unit Weight		Dry Unit Weight		Saturation (%)	Void Ratio	Height		Diameter					
		(pcf)	(kN/m ³)	(pcf)	(kN/m ³)			(inches)	(cm)	(inches)	(cm)				
Initial	20.5	117.2	18.41	97.3	15.28	75.8	0.73	0.878	2.23	1.929	4.900				
Final	15.2	136.5	21.44	118.4	18.61	97.7	0.42	0.746	1.89						
URS	DHCCP						CONSOLIDATION TEST								
	Project Number: 17326261						ASTM D2435								
	Test Start Date: 12/5/2013														



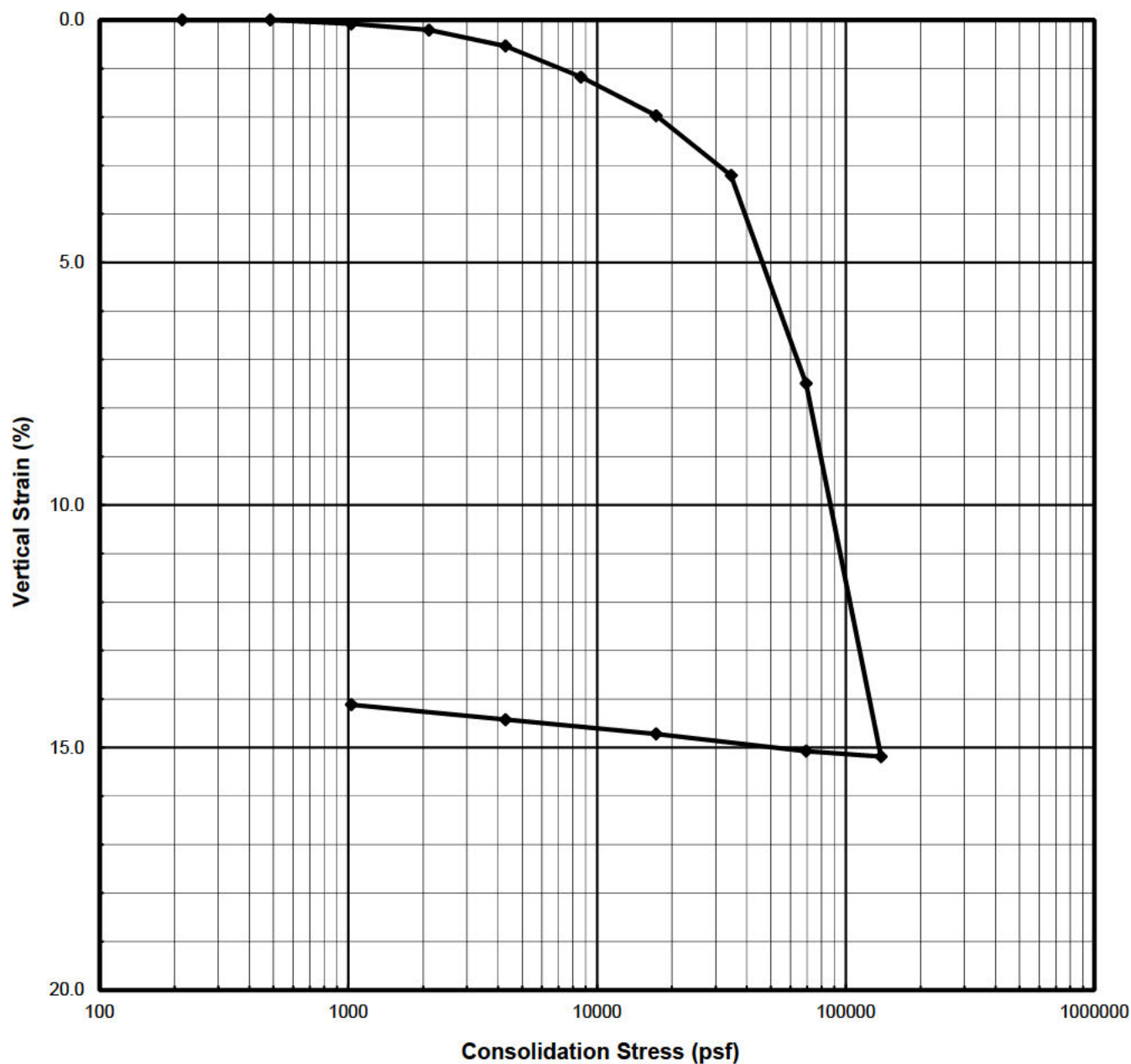
Description:		Olive gray sandy Clay (CL)									
Boring No.:	Bulk 1C	Liquid Limit		40	%	Specific Gravity		2.70	assumed		
Sample No.:				23	%			9.45			
Depth (ft m)				69.9	%			214			
		Fines Content		69.9	%	Water added at		214	psf		
	Water Content (%)	Total Unit Weight		Dry Unit Weight		Saturation (%)	Void Ratio	Height		Diameter	
		(pcf)	(kN/m ³)	(pcf)	(kN/m ³)			(inches)	(cm)	(inches)	(cm)
Initial	18.1	120.0	18.85	101.6	15.96	74.6	0.66	0.857	2.18	1.933	4.910
Final	17.6	132.9	20.87	113.0	17.75	97.1	0.49	0.770	1.96		
URS		DHCCP					CONSOLIDATION TEST				
		Project Number: 17326261					ASTM D2435				
		Test Start Date: 10/18/2013									



Description:		Olive gray Clay with sand (CL)									
Boring No.:	Bulk 2B		Liquid Limit		40	%	Specific Gravity		2.70	assumed	
Sample No.:					Plasticity Index				22		
Depth (ft m)			Fines Content		70.8	%	Water added at		216	psf	
	Water Content (%)	Total Unit Weight		Dry Unit Weight		Saturation (%)	Void Ratio	Height		Diameter	
		(pcf)	(kN/m³)	(pcf)	(kN/m³)			(inches)	(cm)	(inches)	(cm)
Initial	18.3	118.2	18.57	99.9	15.70	72.2	0.68	0.870	2.21	1.925	4.890
Final	18.0	134.3	21.10	113.9	17.89	101.6	0.48	0.763	1.94		
URS	DHCCP					CONSOLIDATION TEST					
	Project Number: 17326261					ASTM D2435					
	Test Start Date: 10/18/2013										



Description:		Olive gray sandy Clay (CL)													
Boring No.:	Bulk 3D		Liquid Limit		40	%	Specific Gravity		2.70	assumed					
Sample No.:		Plasticity Index			22	%			Strain for Saturation			6.82	%		
Depth (ft m)						Fines Content						67.7	%	Water added at	
	Water Content (%)	Total Unit Weight		Dry Unit Weight		Saturation (%)	Void Ratio	Height		Diameter					
		(pcf)	(kN/m³)	(pcf)	(kN/m³)			(inches)	(cm)	(inches)	(cm)				
Initial	20.8	120.4	18.91	99.7	15.65	81.6	0.69	0.866	2.20	1.929	4.900				
Final	18.3	134.9	21.20	114.0	17.91	104.1	0.48	0.756	1.92						
URS	DHCCP						CONSOLIDATION TEST								
	Project Number: 17326261						ASTM D2435								
	Test Start Date: 11/25/2013														



Description:		Olive gray silty Sand (SM)									
Boring No.:	Bulk 3D	Liquid Limit		37	%	Specific Gravity		2.70	assumed		
Sample No.:				2	%			14.73			
Depth (ft m)				42.7	%			215			
		Fines Content		42.7	%	Water added at		215	psf		
	Water Content (%)	Total Unit Weight		Dry Unit Weight		Saturation (%)	Void Ratio	Height		Diameter	
		(pcf)	(kN/m ³)	(pcf)	(kN/m ³)			(inches)	(cm)	(inches)	(cm)
Initial	24.9	106.9	16.79	85.6	13.44	69.6	0.96	0.877	2.23	1.931	4.905
Final	26.6	123.4	19.38	97.4	15.30	98.9	0.73	0.775	1.97		
URS		DHCCP					CONSOLIDATION TEST				
		Project Number: 17326261					ASTM D2435				
		Test Start Date: 12/5/2013									

DHCCP
Hydraulic Conductivity Test
ASTM D 5084

Exploration Number	Bulk 1A	
Sample Number		
Depth (feet)		
USCS Classification	CL	
Liquid Limit (%)	38	
Plasticity Index (%)	20	
Percent Fines (-#200 sieve)	69.0	
Specific Gravity (assumed)	2.70	
Consolidation Pressure (ksf)	Set-up	1.0
Specimen Height (in)	2.986	2.979
Specimen Area (in ²)	6.619	6.653
Specimen Volume (in ³)	19.76	19.82
Water Content (%)	19.5	26.9
Wet Unit Weight (pcf)	117.7	124.8
Dry Unit Weight (pcf)	98.5	98.3
Degree of Saturation (%)	74.0	101.4
Void Ratio	0.71	0.72
Hydraulic Conductivity, K ₂₀ C (cm/sec)	XXX	1.6E-05

DHCCP
Hydraulic Conductivity Test
ASTM D 5084

Exploration Number	Bulk 2A	
Sample Number		
Depth (feet)		
USCS Classification	CL	
Liquid Limit (%)	38	
Plasticity Index (%)	19	
Percent Fines (-#200 sieve)	69.0	
Specific Gravity (assumed)	2.70	
Consolidation Pressure (ksf)	Set-up	1.1
Specimen Height (in)	3.948	3.937
Specimen Area (in ²)	6.633	6.591
Specimen Volume (in ³)	26.19	25.95
Water Content (%)	20.1	27.6
Wet Unit Weight (pcf)	117.0	125.4
Dry Unit Weight (pcf)	97.4	98.3
Degree of Saturation (%)	74.2	104.2
Void Ratio	0.73	0.71
Hydraulic Conductivity, K ₂₀ C (cm/sec)	XXX	7.7E-06

DHCCP
Hydraulic Conductivity Test
ASTM D 5084

Exploration Number	Bulk 3A	
Sample Number		
Depth (feet)		
USCS Classification	CL	
Liquid Limit (%)	38	
Plasticity Index (%)	20	
Percent Fines (-#200 sieve)	67.2	
Specific Gravity (assumed)	2.70	
Consolidation Pressure (ksf)	Set-up	1.0
Specimen Height (in)	3.639	3.647
Specimen Area (in ²)	6.637	6.593
Specimen Volume (in ³)	24.15	24.04
Water Content (%)	18.7	27.4
Wet Unit Weight (pcf)	115.9	123.5
Dry Unit Weight (pcf)	97.6	97.0
Degree of Saturation (%)	69.4	102.8
Void Ratio	0.73	0.72
Hydraulic Conductivity, K ₂₀ C (cm/sec)	XXX	1.0E-05

DHCCP
Hydraulic Conductivity Test
ASTM D 5084

Exploration Number	Bulk CC	
Sample Number		
Depth (feet)		
USCS Classification	SC	
Liquid Limit (%)	32	
Plasticity Index (%)	14	
Percent Fines (-#200 sieve)	45.1	
Specific Gravity (assumed)	2.70	
Consolidation Pressure (ksf)	Set-up	1.0
Specimen Height (in)	5.991	5.962
Specimen Area (in ²)	6.596	6.402
Specimen Volume (in ³)	39.52	38.17
Water Content (%)	20.2	25.0
Wet Unit Weight (pcf)	116.8	126.1
Dry Unit Weight (pcf)	97.2	100.9
Degree of Saturation (%)	74.2	100.1
Void Ratio	0.73	0.67
Hydraulic Conductivity, K ₂₀ C (cm/sec)	XXX	1.9E-05

DHCCP
Hydraulic Conductivity Test
ASTM D 5084

Boring Number	Bulk 1C	
Sample Number		
Depth (feet)		
USCS Classification	CL	
Liquid Limit (%)	40	
Plasticity Index (%)	23	
Percent Fines (-#200 sieve)	69.9	
Specific Gravity (assumed)	2.70	
Consolidation Pressure (ksf)	Set-up	1.0
Specimen Height (in)	5.998	5.966
Specimen Area (in ²)	6.610	6.559
Specimen Volume (in ³)	39.65	39.13
Water Content (%)	18.3	25.0
Wet Unit Weight (pcf)	119.0	127.6
Dry Unit Weight (pcf)	100.6	102.0
Degree of Saturation (%)	73.2	103.2
Void Ratio	0.68	0.65
Hydraulic Conductivity, $K_{20\text{ C}}$ (cm/sec)	XXX	4.2E-07

DHCCP
Hydraulic Conductivity Test
ASTM D 5084

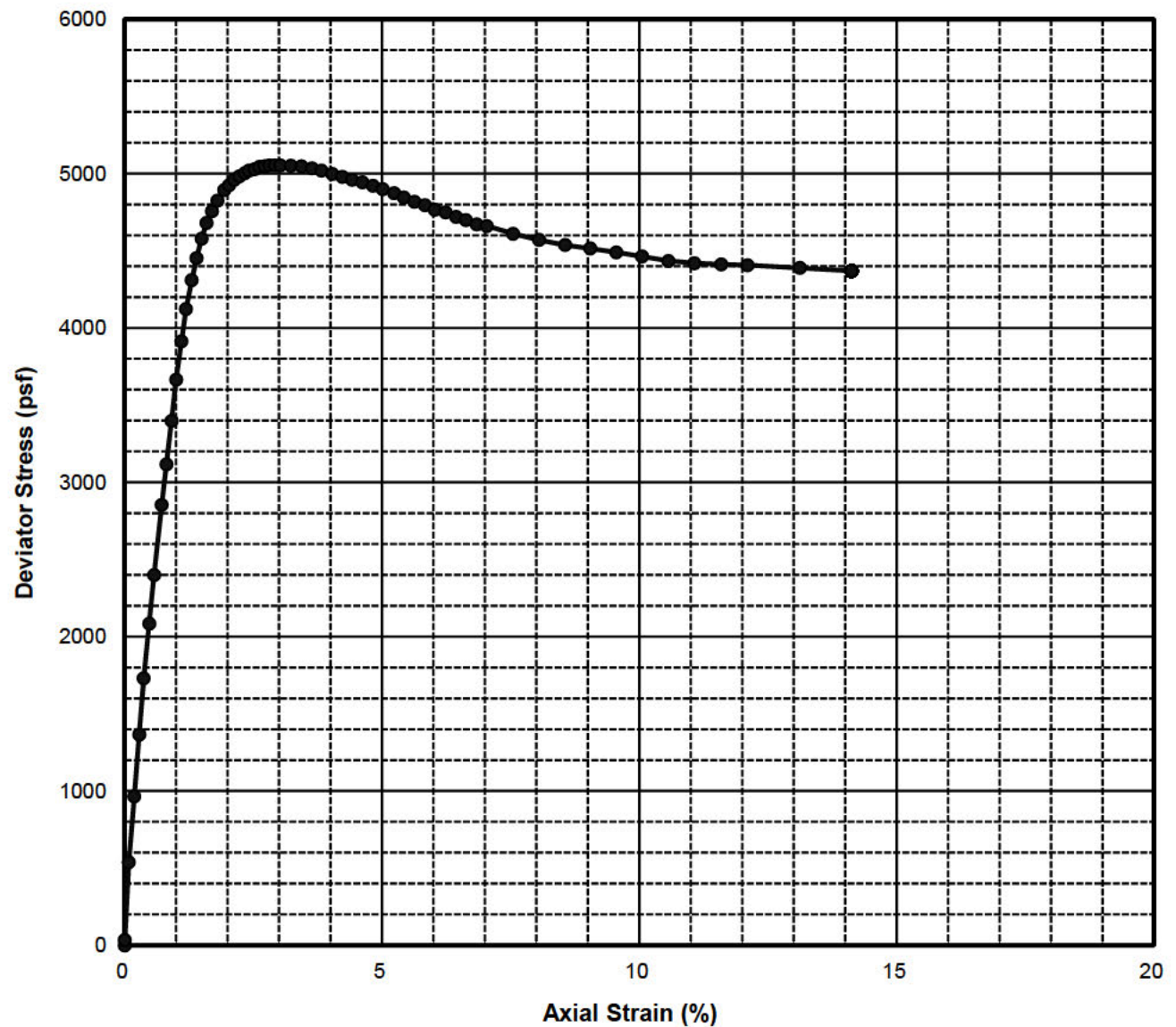
Boring Number	Bulk 2B	
Sample Number		
Depth (feet)		
USCS Classification	CL	
Liquid Limit (%)	40	
Plasticity Index (%)	22	
Percent Fines (-#200 sieve)	70.8	
Specific Gravity (assumed)	2.70	
Consolidation Pressure (ksf)	Set-up	1.0
Specimen Height (in)	5.999	5.996
Specimen Area (in ²)	6.614	6.592
Specimen Volume (in ³)	39.68	39.52
Water Content (%)	19.0	25.4
Wet Unit Weight (pcf)	118.1	125.1
Dry Unit Weight (pcf)	99.3	99.8
Degree of Saturation (%)	73.4	99.1
Void Ratio	0.70	0.69
Hydraulic Conductivity, $K_{20\text{ C}}$ (cm/sec)	XXX	9.2E-08

DHCCP
Hydraulic Conductivity Test
ASTM D 5084

Exploration Number	Bulk 3D	
Sample Number		
Depth (feet)		
USCS Classification	CL	
Liquid Limit (%)	40	
Plasticity Index (%)	22	
Percent Fines (-#200 sieve)	67.7	
Specific Gravity (assumed)	2.70	
Consolidation Pressure (ksf)	Set-up	1.0
Specimen Height (in)	2.979	2.972
Specimen Area (in ²)	6.605	6.520
Specimen Volume (in ³)	19.68	19.38
Water Content (%)	20.8	24.3
Wet Unit Weight (pcf)	120.7	126.3
Dry Unit Weight (pcf)	100.0	101.6
Degree of Saturation (%)	81.7	99.2
Void Ratio	0.69	0.66
Hydraulic Conductivity, K ₂₀ C (cm/sec)	XXX	3.8E-08

DHCCP
Hydraulic Conductivity Test
ASTM D 5084

Exploration Number	Bulk 3B	
Sample Number		
Depth (feet)		
USCS Classification	SM	
Liquid Limit (%)	37	
Plasticity Index (%)	2	
Percent Fines (-#200 sieve)	42.7	
Specific Gravity (assumed)	2.70	
Consolidation Pressure (ksf)	Set-up	1.0
Specimen Height (in)	6.010	6.004
Specimen Area (in ²)	6.642	6.510
Specimen Volume (in ³)	39.92	39.09
Water Content (%)	24.8	35.5
Wet Unit Weight (pcf)	105.3	116.7
Dry Unit Weight (pcf)	84.4	86.1
Degree of Saturation (%)	67.1	100.3
Void Ratio	1.00	0.96
Hydraulic Conductivity, K ₂₀ C (cm/sec)	XXX	8.8E-05



Cell Pressure (psf) = 490

Strain Rate (%/min) = 0.75

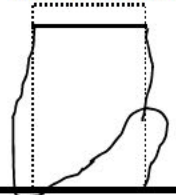
Peak Deviator Stress (psf): 5053

Axial Strain during confinement (%): 0.15

Failure Sketch

Water Content (%)	Length (in)	Diameter (in)	Wet Unit Weight (pcf)	Degree of Saturation (%)
19.5	5.999	2.900	117.1	73.3

assumed Specific Gravity, G_s = 2.70



Project Name: DHCCP

Project Number: 17326261

Boring Number: Bulk 1A

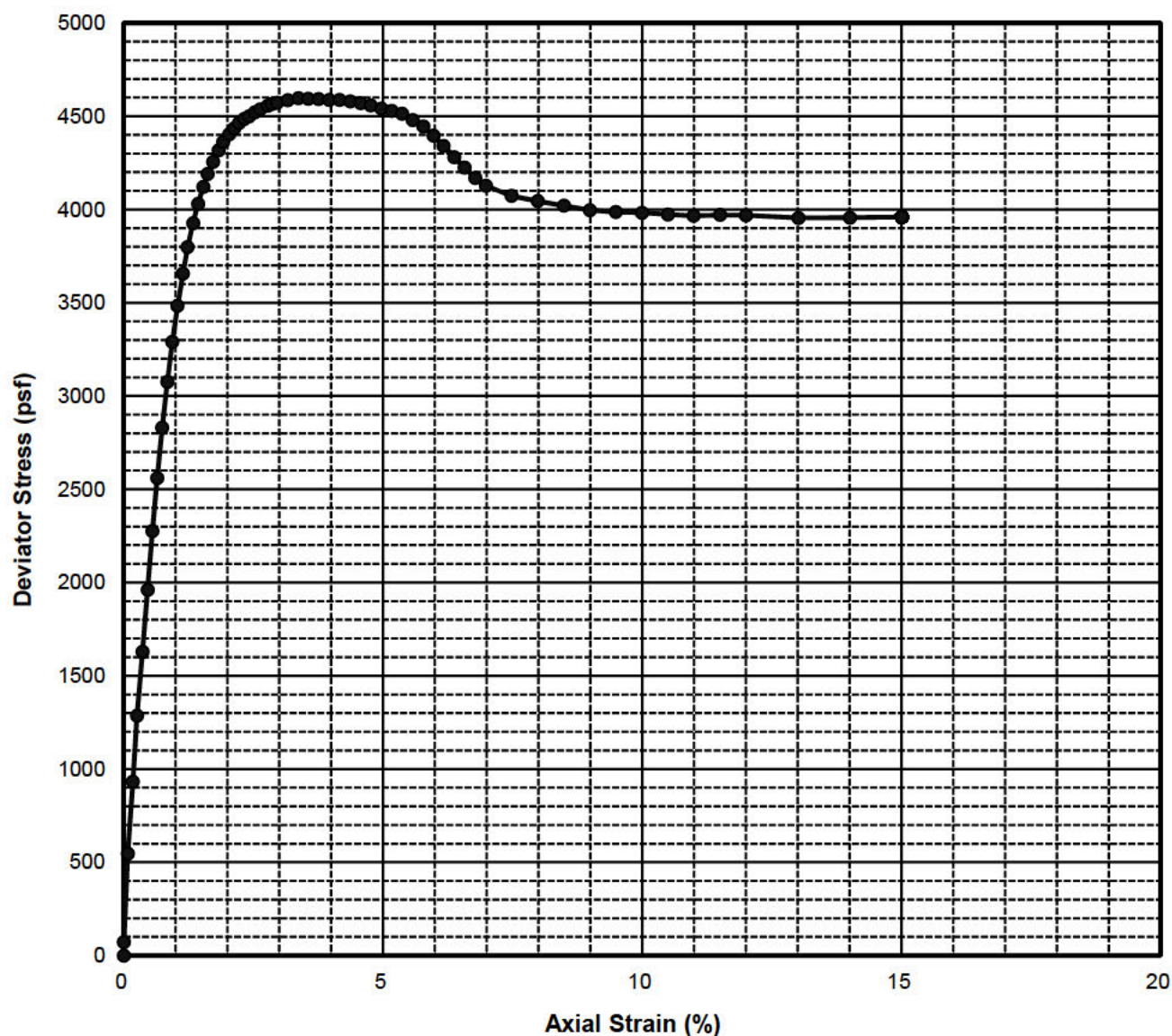
Sample No.:

Depth (ft):

Description and/or Classification:

Olive gray sandy Clay (CL)

**UNCONSOLIDATED - UNDRAINED
TRIAXIAL COMPRESSION TEST
ASTM D2850**



Cell Pressure (psf) = 490
 Strain Rate (%/min) = 0.75
 Axial Strain during confinement (%): 0.10

Peak Deviator Stress (psf): 4597

Water Content (%)	Length (in)	Diameter (in)	Wet Unit Weight (pcf)	Degree of Saturation (%)
19.6	6.013	2.903	116.7	73.1

assumed Specific Gravity, G_s = 2.70

Failure Sketch



Project Name: DHCCP

Project Number: 17326261

Boring Number: Bulk

Sample No.: 2A

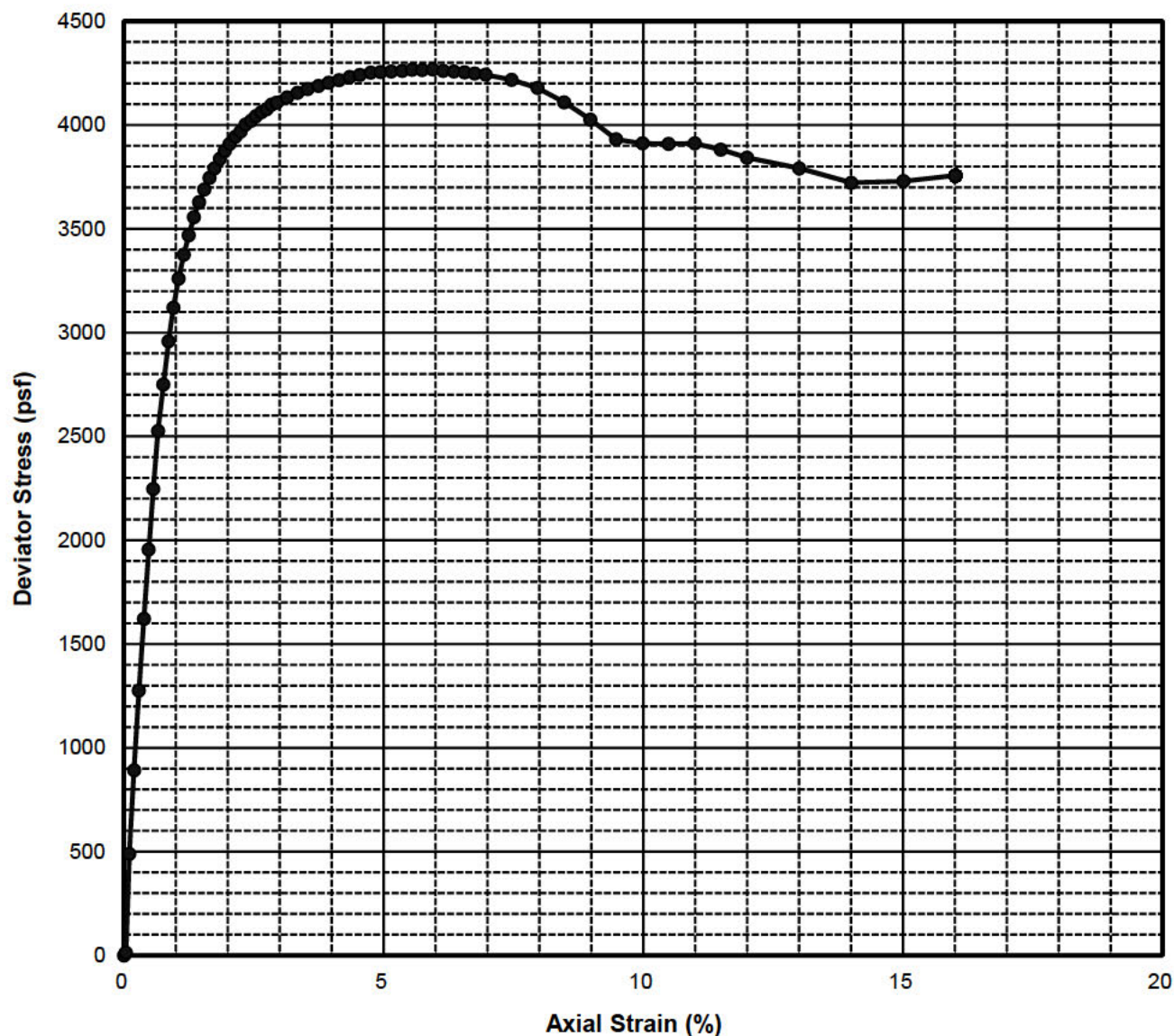
Depth (ft):

NA

Description and/or Classification:

Olive gray sandy Clay (CL)

UNCONSOLIDATED - UNDRAINED
 TRIAXIAL COMPRESSION TEST
 ASTM D2850



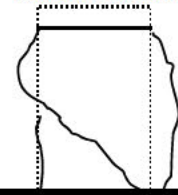
Cell Pressure (psf) = 490
 Strain Rate (%/min) = 1.00
 Axial Strain during confinement (%): 0.10

Peak Deviator Stress (psf): 4268

Water Content (%)	Length (in)	Diameter (in)	Wet Unit Weight (pcf)	Degree of Saturation (%)
18.7	6.002	2.900	116.7	70.9

assumed Specific Gravity, G_s = 2.70

Failure Sketch



Project Name: DHCCP

Project Number: 17326261

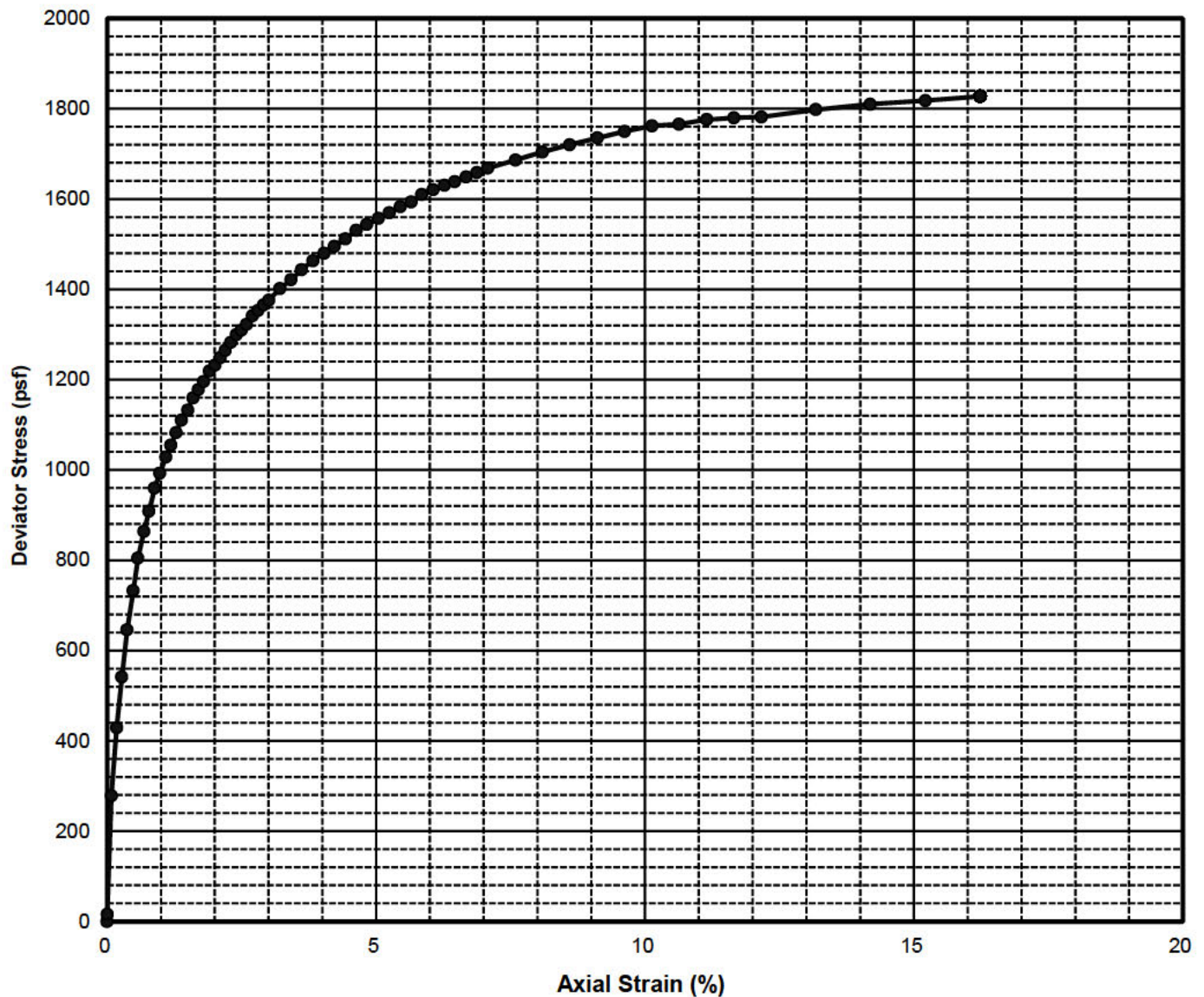
Boring Number: Bulk 3A

Sample No.:

Depth (ft):

Description and/or Classification: Olive gray Clay (CL)

UNCONSOLIDATED - UNDRAINED
 TRIAXIAL COMPRESSION TEST
 ASTM D2850



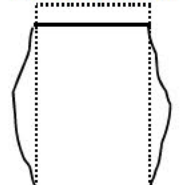
Cell Pressure (psf) = 490
 Strain Rate (%/min) = 1.00
 Axial Strain during confinement (%): 0.15

Peak Deviator Stress (psf): 1817

Water Content (%)	Length (in)	Diameter (in)	Wet Unit Weight (pcf)	Degree of Saturation (%)
20.2	5.991	2.898	116.6	74.1

assumed Specific Gravity, G_s = 2.70

Failure Sketch



Project Name: DHCCP

Project Number: 17326261

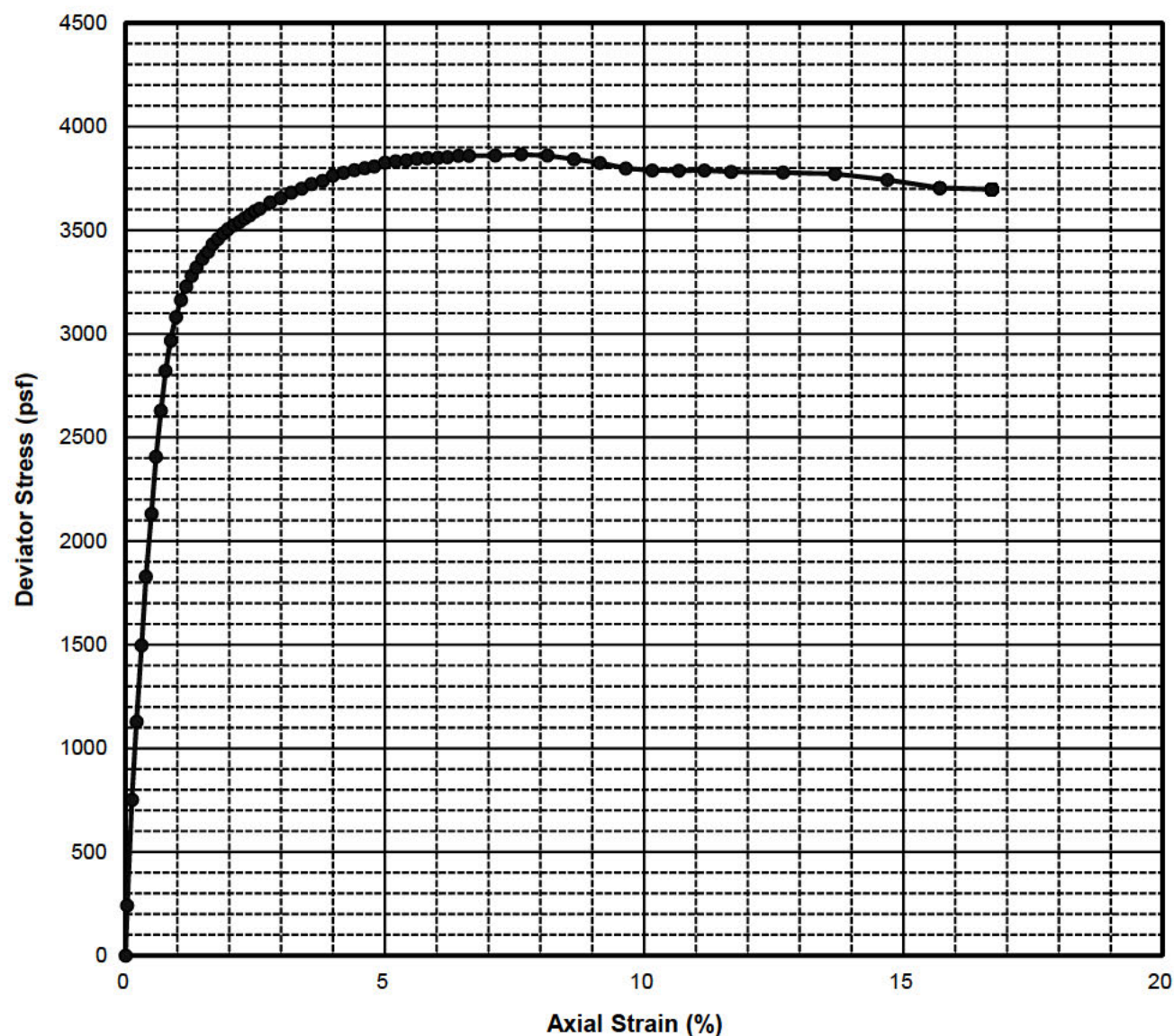
Boring Number: Bulk CC

Sample No.:

Depth (ft):

Description and/or Classification: Dark olive gray clayey Sand (SC)

**UNCONSOLIDATED - UNDRAINED
 TRIAXIAL COMPRESSION TEST
 ASTM D2850**



Cell Pressure (psf) = 490

Strain Rate (%/min) = 0.75

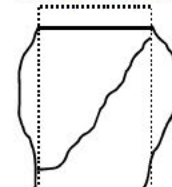
Peak Deviator Stress (psf): 3866

Axial Strain during confinement (%): 0.12

Failure Sketch

Water Content (%)	Length (in)	Diameter (in)	Wet Unit Weight (pcf)	Degree of Saturation (%)
18.2	5.989	2.901	118.3	72.2

assumed Specific Gravity, G_s = 2.70



Project Name: DHCCP

Project Number: 17326261

Boring Number: Bulk 1C

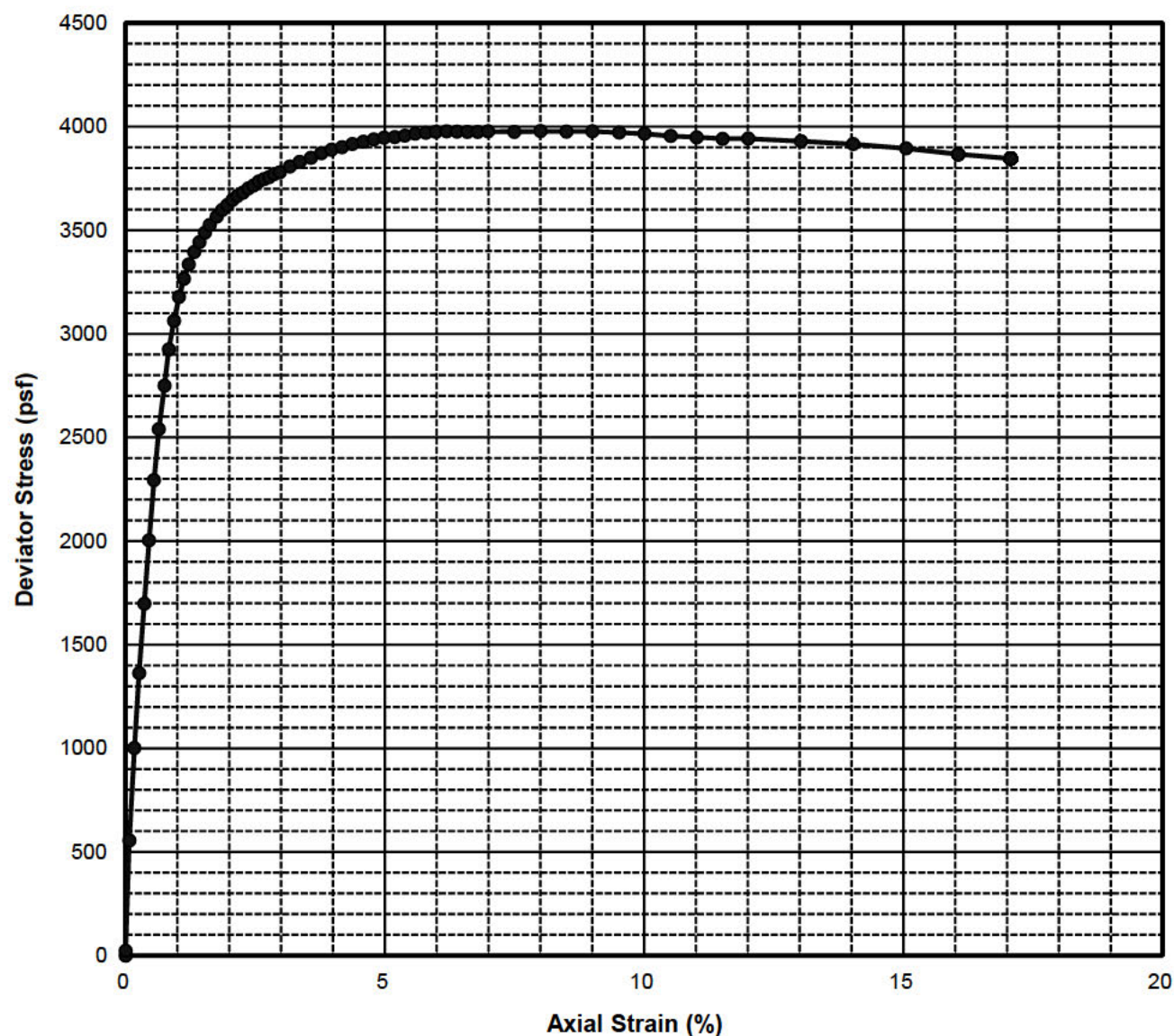
Sample No.:

Depth (ft):

Description and/or Classification:

Olive gray sandy Clay (CL)

UNCONSOLIDATED - UNDRAINED
TRIAXIAL COMPRESSION TEST
ASTM D2850



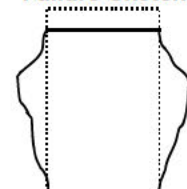
Cell Pressure (psf) = 490
 Strain Rate (%/min) = 0.75
 Axial Strain during confinement (%): 0.12

Peak Deviator Stress (psf): 3978

Water Content (%)	Length (in)	Diameter (in)	Wet Unit Weight (pcf)	Degree of Saturation (%)
18.9	6.003	2.900	118.2	73.6

assumed Specific Gravity, $G_s = 2.70$

Failure Sketch



Project Name: DHCCP

Project Number: 17326261

Boring Number: Bulk 2B

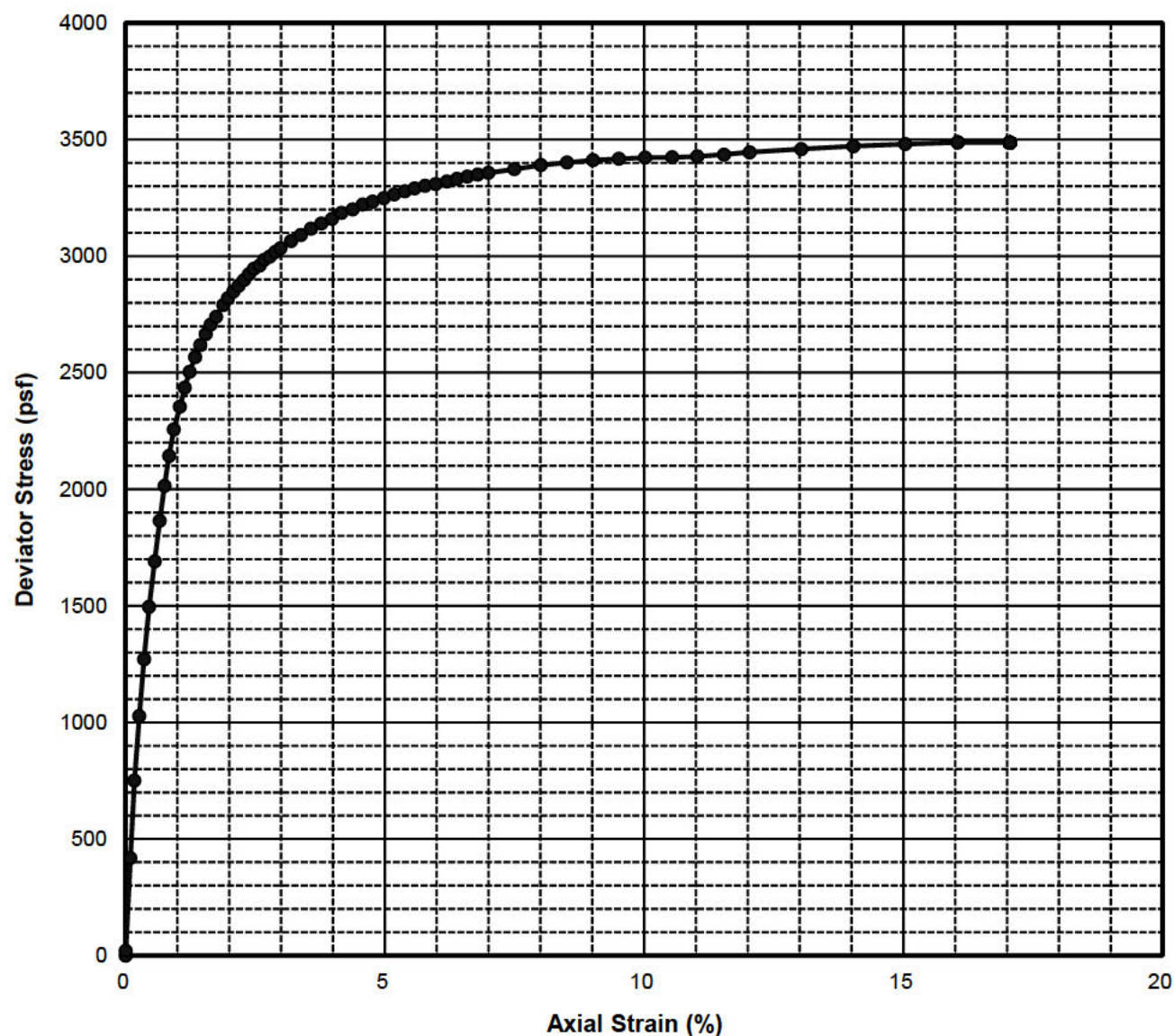
Sample No.:

Depth (ft):

Description and/or Classification:

Olive gray Clay with sand (CL)

UNCONSOLIDATED - UNDRAINED
 TRIAXIAL COMPRESSION TEST
 ASTM D2850



Cell Pressure (psf) = 490
 Strain Rate (%/min) = 1.00
 Axial Strain during confinement (%): 0.13

Peak Deviator Stress (psf): 3480

Water Content (%)	Length (in)	Diameter (in)	Wet Unit Weight (pcf)	Degree of Saturation (%)
20.9	5.994	2.899	120.3	81.5

assumed Specific Gravity, $G_s = 2.70$

Failure Sketch



Project Name: DHCCP

Project Number: 17326261

Boring Number: Bulk 3D

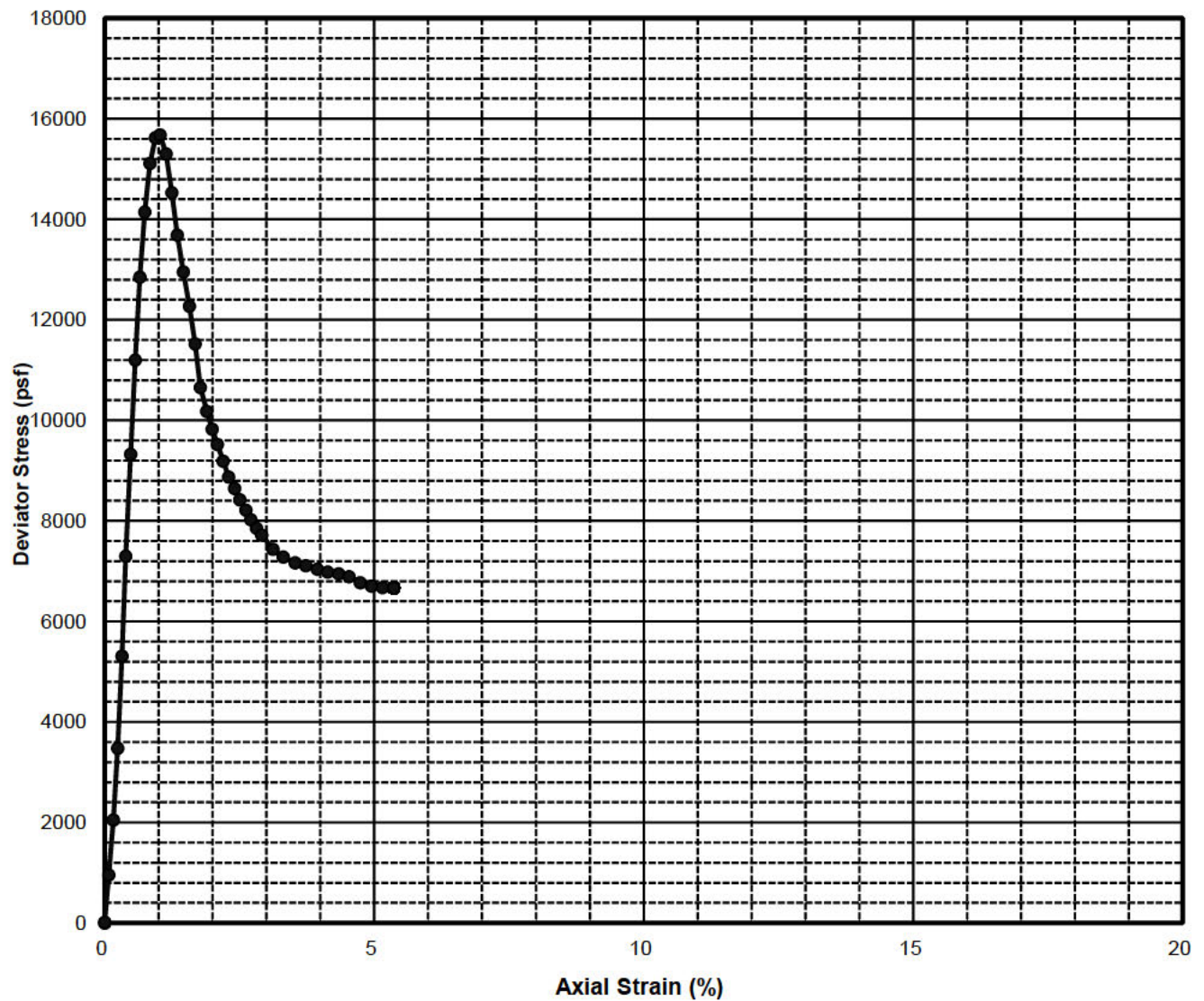
Sample No.:

Depth (ft):

Description and/or Classification:

Olive gray sandy Clay (CL)

UNCONSOLIDATED - UNDRAINED
 TRIAXIAL COMPRESSION TEST
 ASTM D2850



Cell Pressure (psf) = 490

Strain Rate (%/min) = 1.00

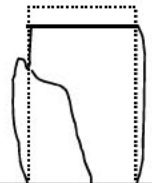
Peak Deviator Stress (psf): 15679

Axial Strain during confinement (%): 0.05

Water Content (%)	Length (in)	Diameter (in)	Wet Unit Weight (pcf)	Degree of Saturation (%)
24.8	6.007	2.906	105.7	67.8

assumed Specific Gravity, G_s = 2.70

Failure Sketch



Project Name: DHCCP

Project Number: 17326261

Boring Number: Bulk 3B

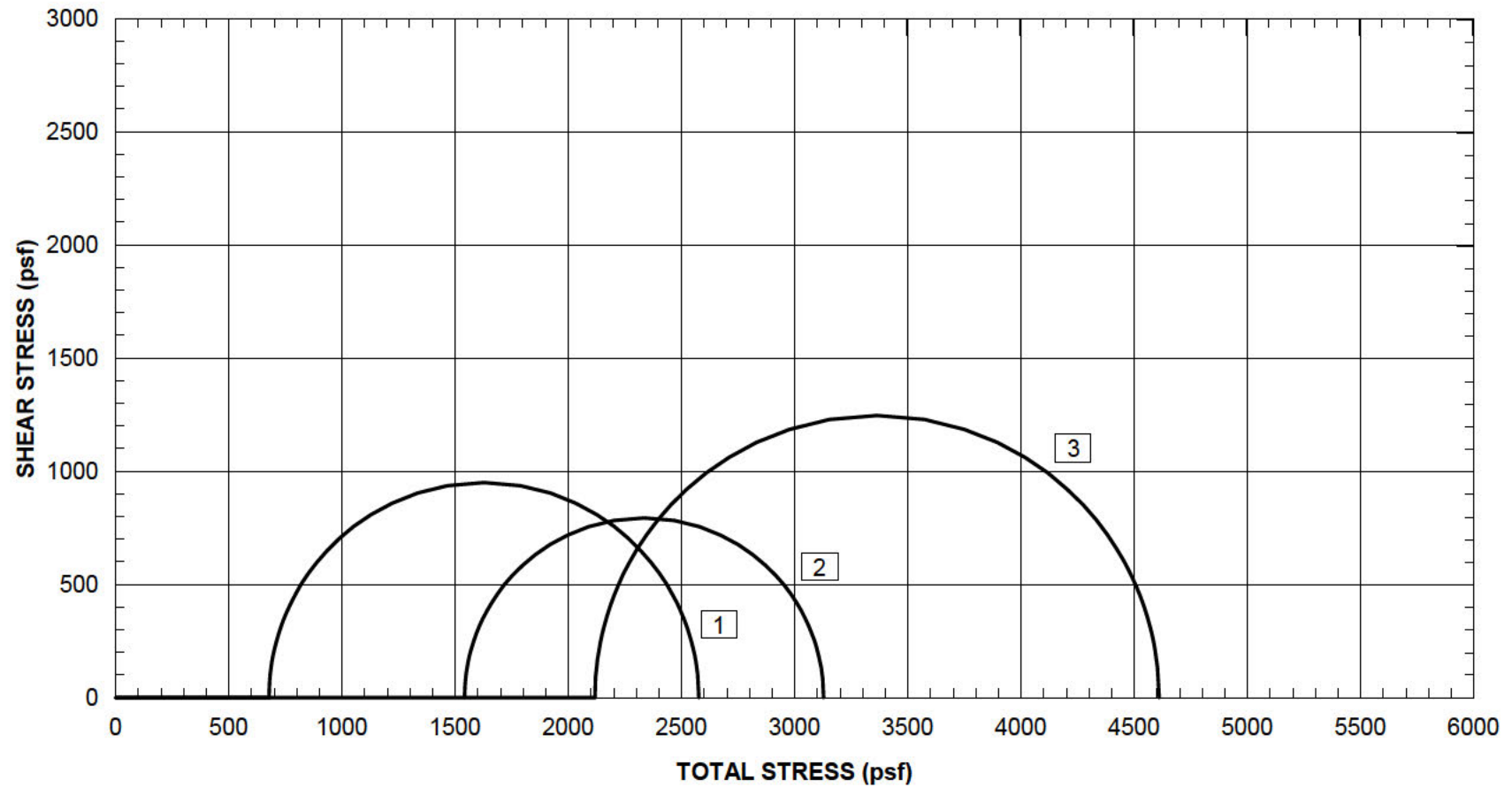
Sample No.:

Depth (ft):

Description and/or
Classification:

Olive gray silty Sand (SM)

UNCONSOLIDATED -
UNDRAINED TRIAXIAL
COMPRESSION TEST
ASTM D2850



Legend

- 1.) Bulk 1A, Effective Confining Stress = 677 psf
- 2.) Bulk 1A, Effective Confining Stress = 1541 psf
- 3.) Bulk 1A, Effective Confining Stress = 2117 psf

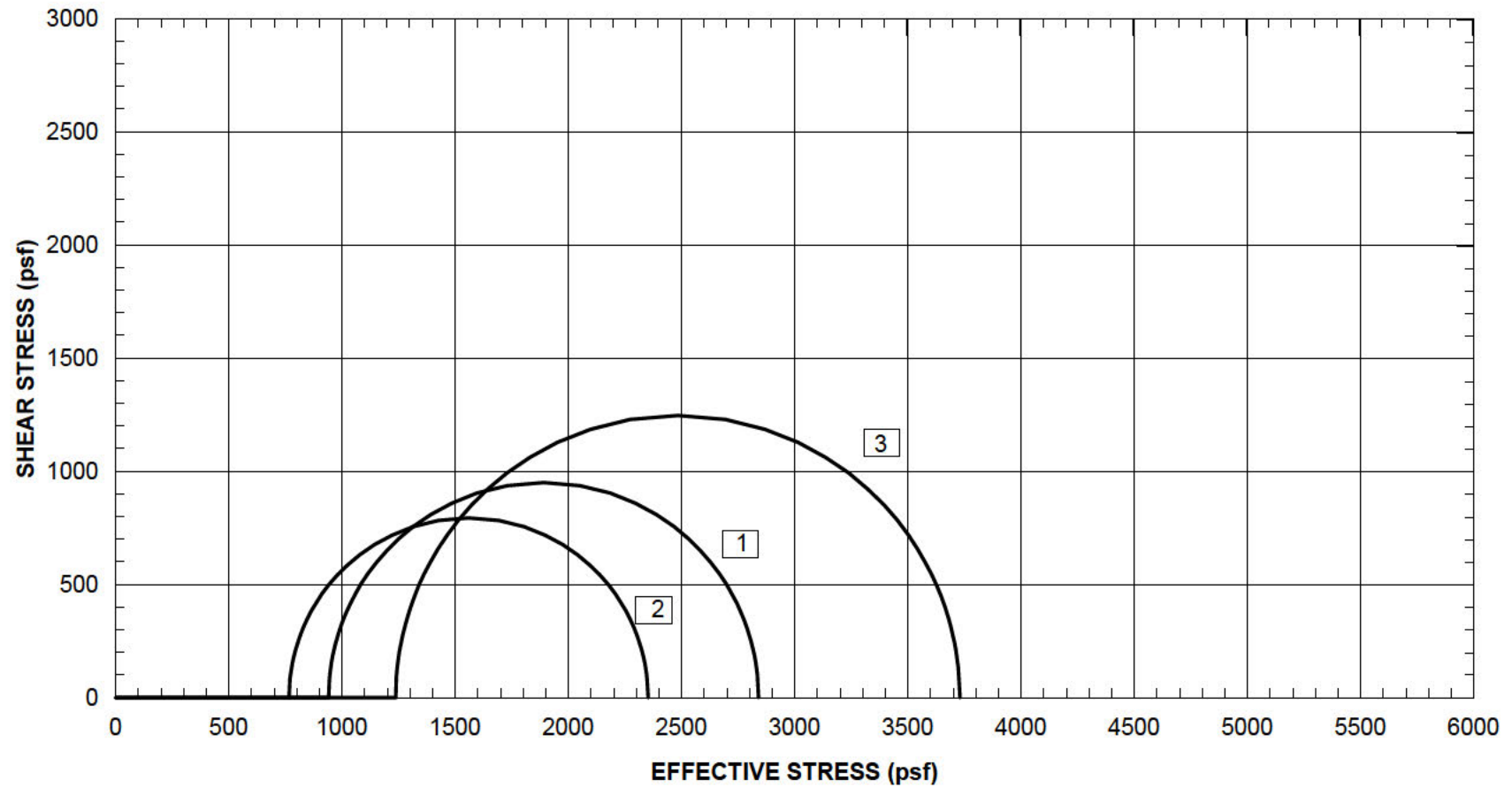
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: August 2013

Project Name: DHCCP

Fig.:

**Legend**

- 1.) Bulk 1A, Effective Confining Stress = 677 psf
- 2.) Bulk 1A, Effective Confining Stress = 1541 psf
- 3.) Bulk 1A, Effective Confining Stress = 2117 psf

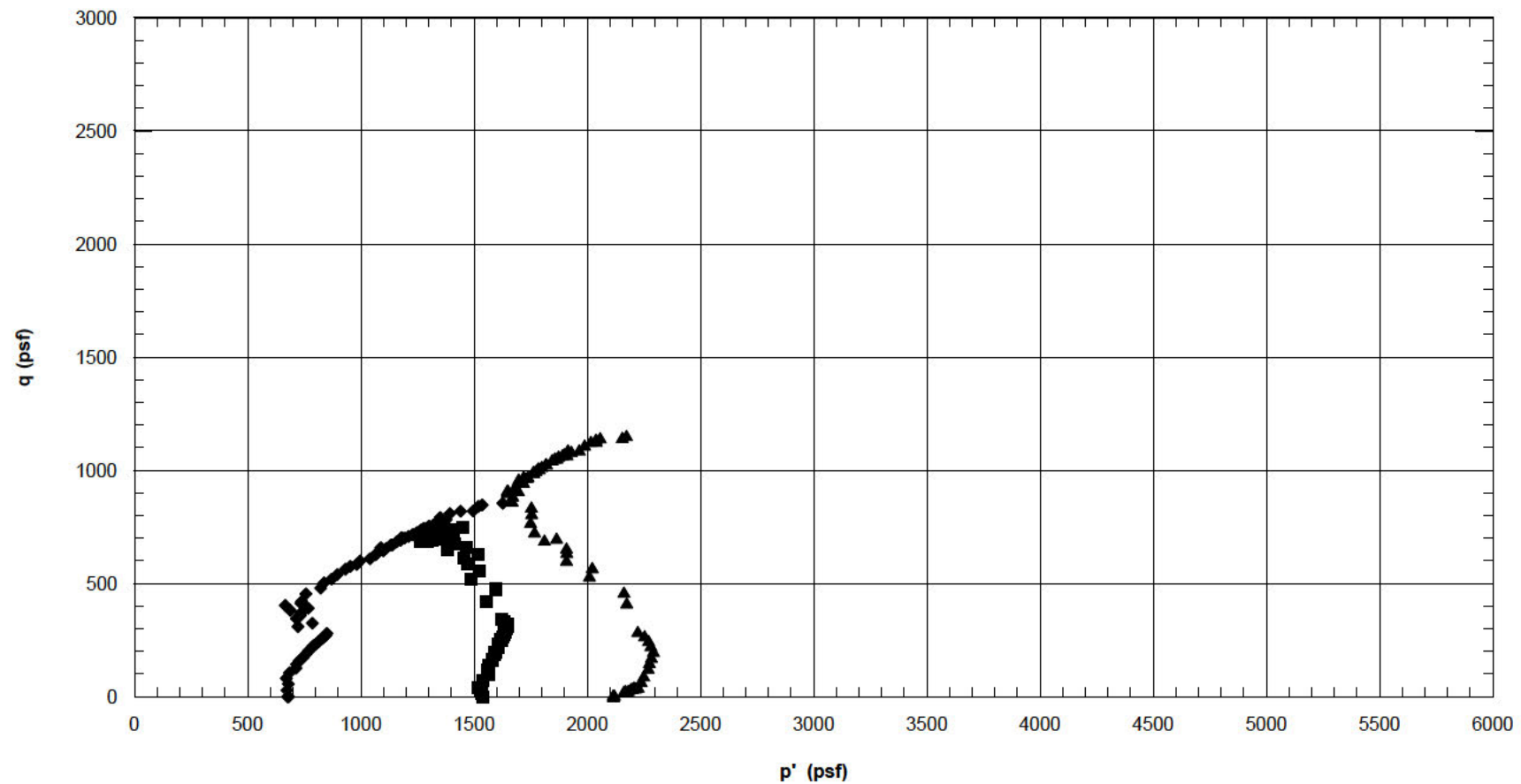
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: August 2013

Project Name: DHCCP

Fig.:



p' - q PLOT OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS

Project No.: 17326261

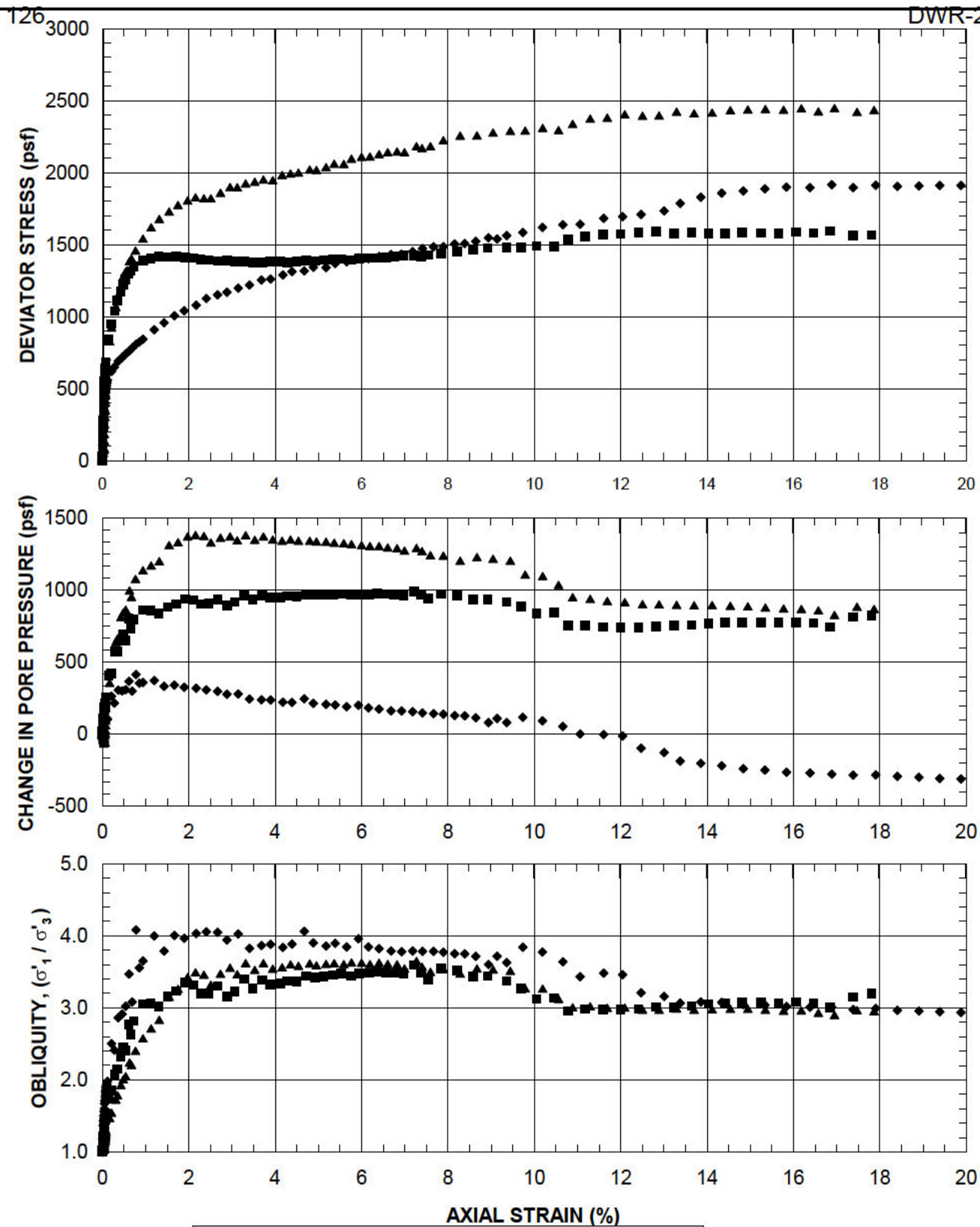
Date: August 2013

Project Name: DHCCP

Fig.:

pq_DHCCP Bulk 1A.grf

URS



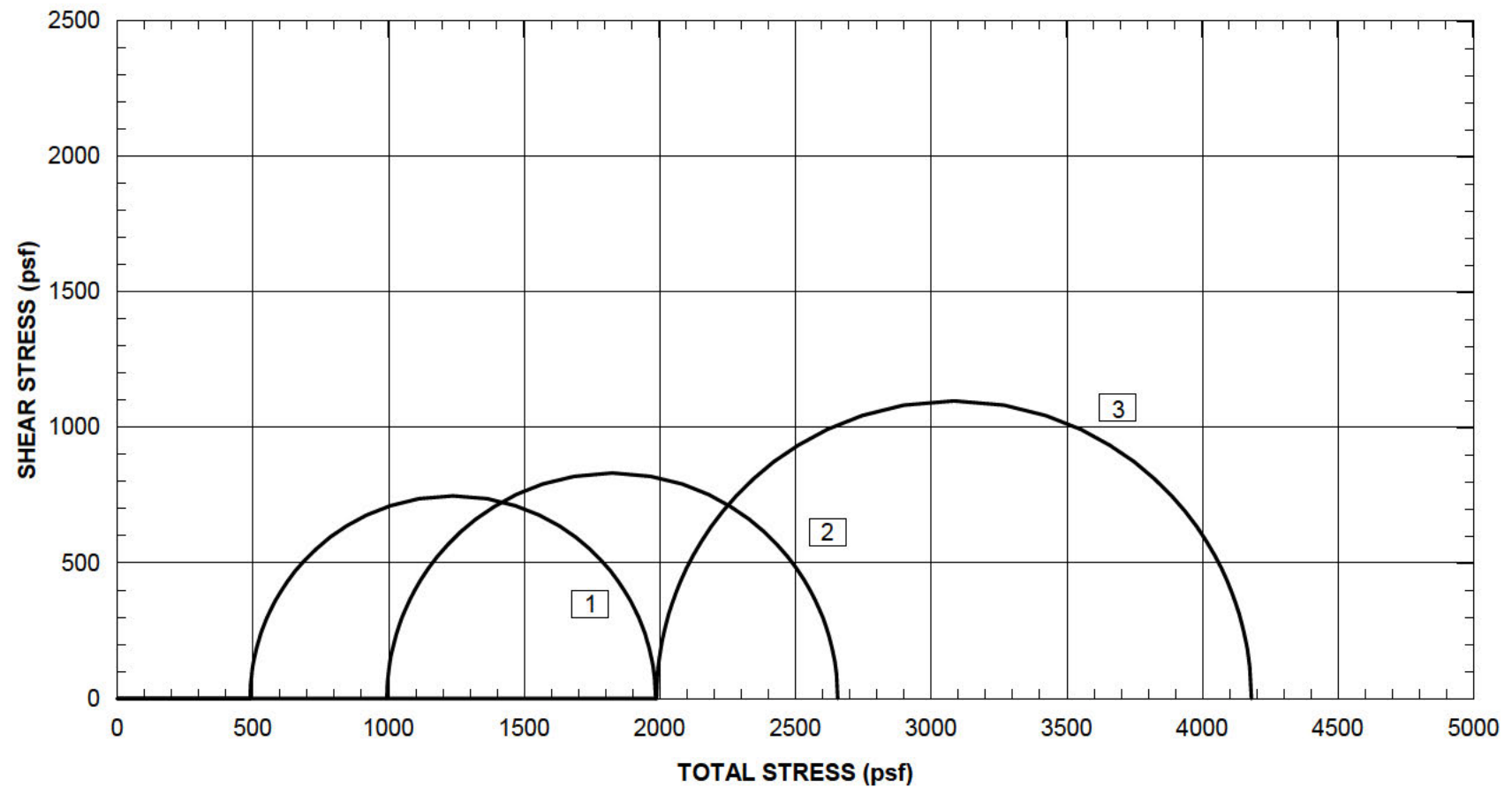
RESULTS OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: Aug. 2013

Project Name: DHCCP

Fig.:

**Legend**

- 1.) Bulk 2A, Effective Confining Stress = 490 psf
- 2.) Bulk 2A, Effective Confining Stress = 994 psf
- 3.) Bulk 2A, Effective Confining Stress = 1987 psf

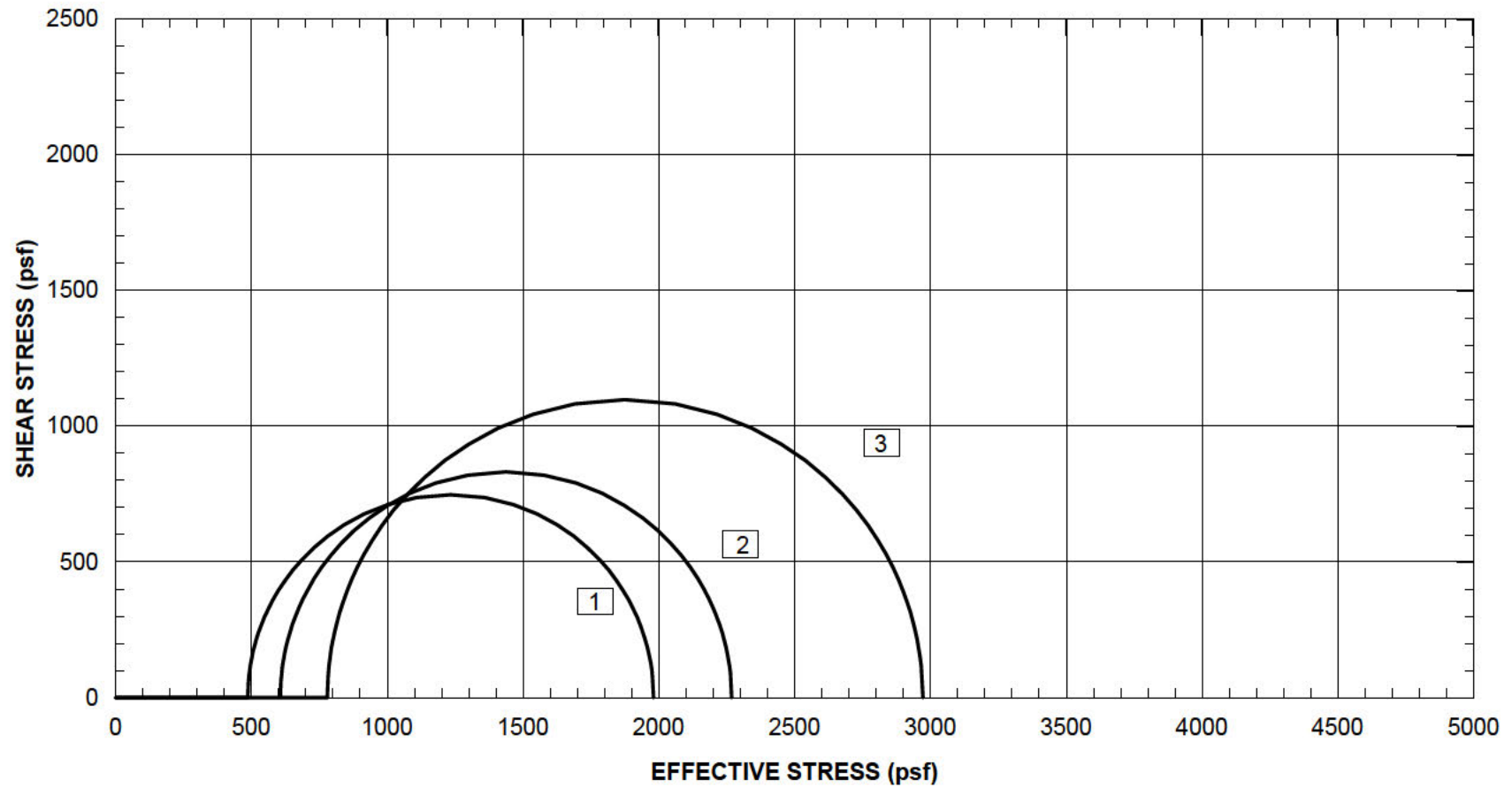
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: September 2013

Project Name: DHCCP

Fig.:

**Legend**

- 1.) Bulk 2A, Effective Confining Stress = 490 psf
- 2.) Bulk 2A, Effective Confining Stress = 944 psf
- 3.) Bulk 2A, Effective Confining Stress = 1987 psf

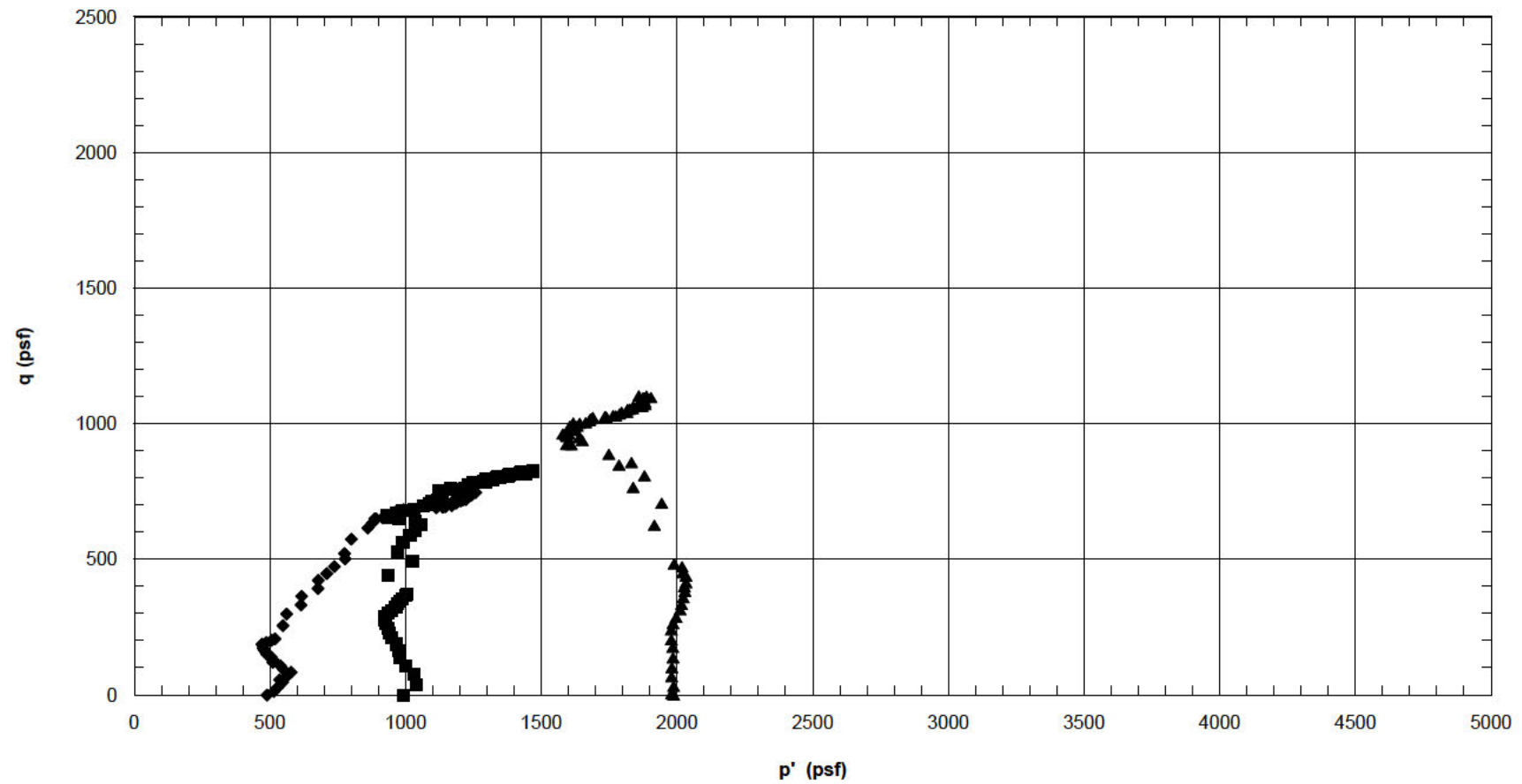
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: September 2013

Project Name: DHCCP

Fig.:



p' - q PLOT OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS

Project No.: 17326261

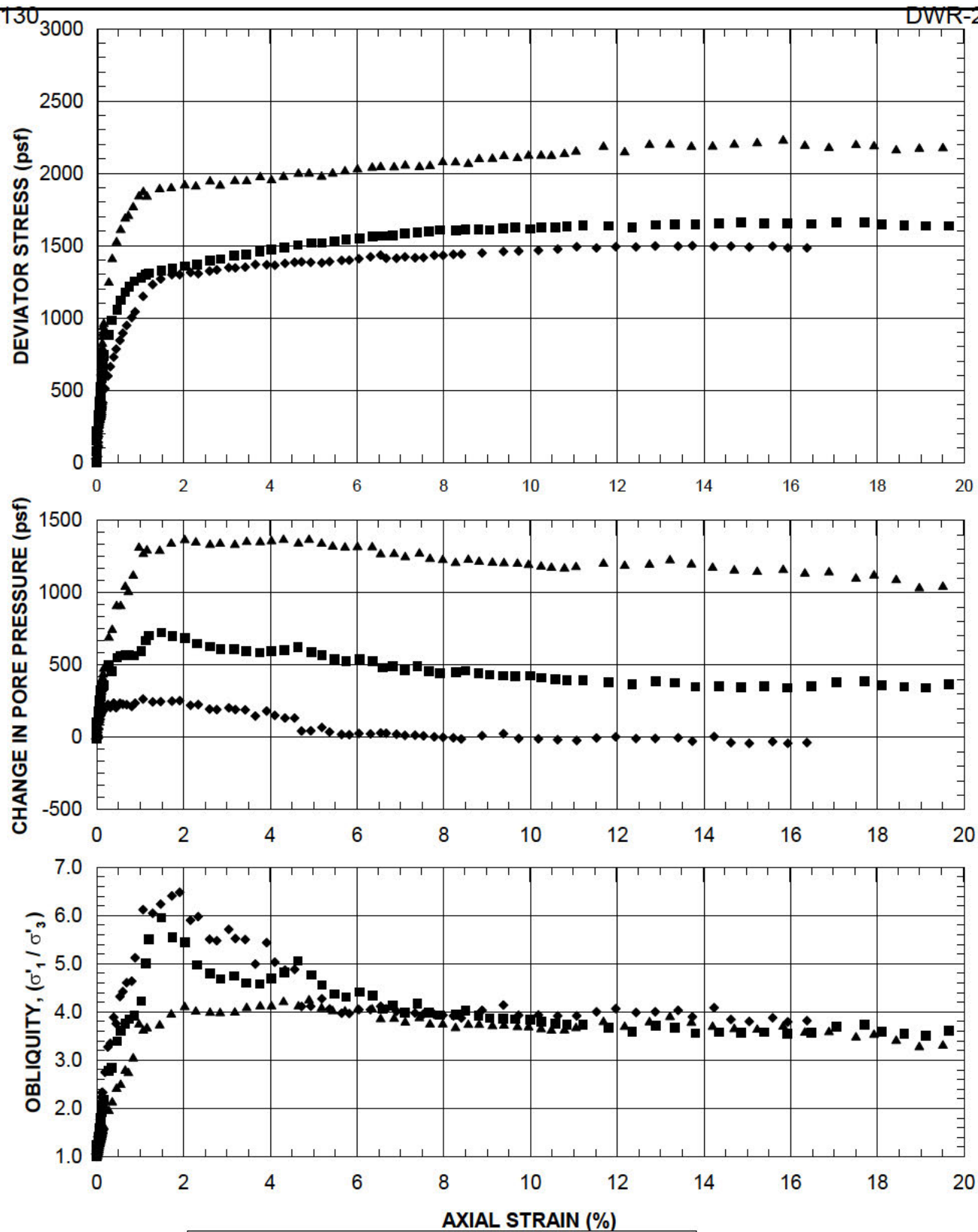
Date: September 2013

Project Name: DHCCP

Fig.:

pq_DHCCP Bulk 2A.grf

URS



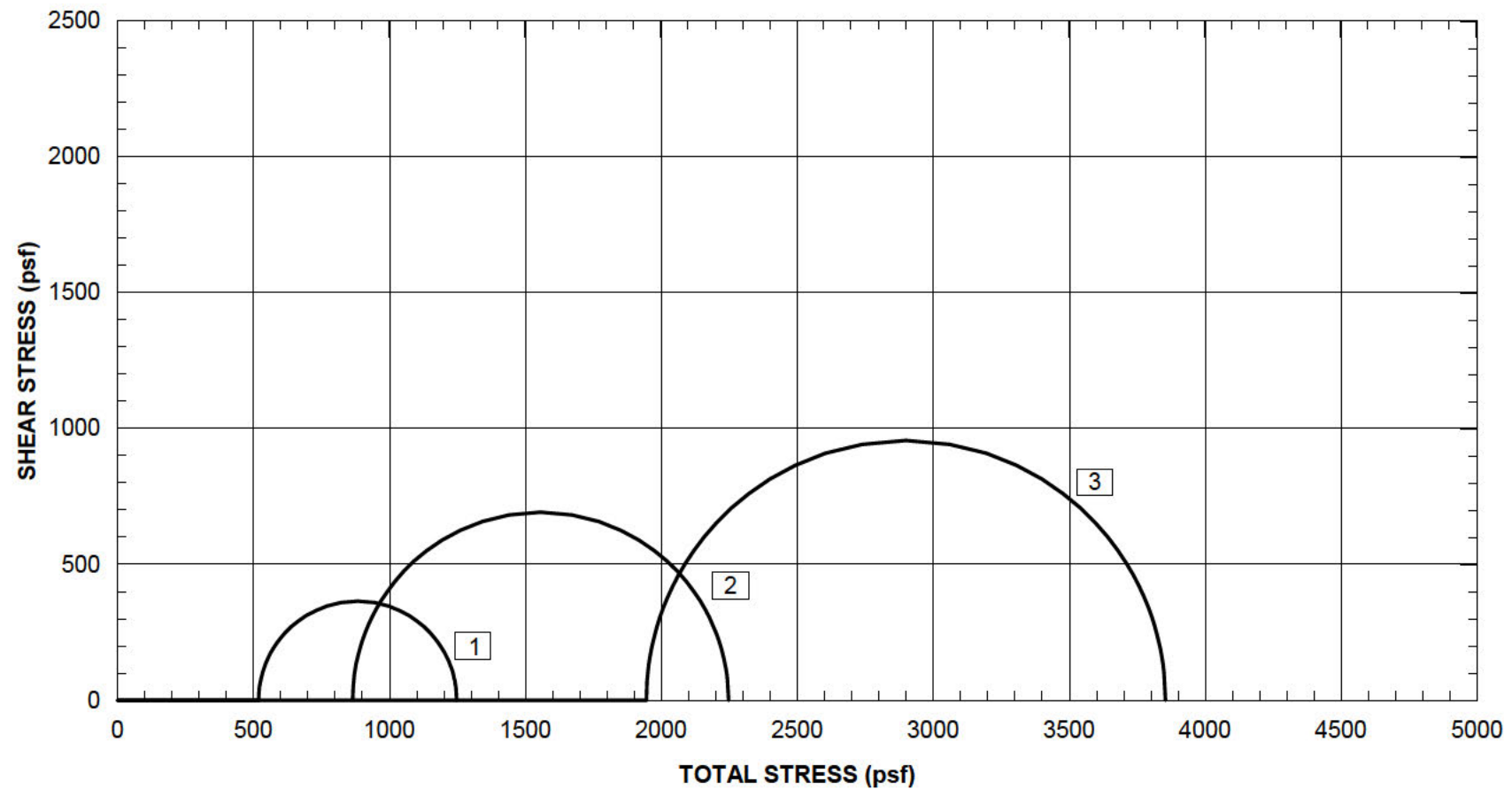
RESULTS OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: Sept. 2013

Project Name: DHCCP

Fig.:



Legend

- 1.) Bulk 3A, Effective Confining Stress = 518 psf
- 2.) Bulk 3A, Effective Confining Stress = 864 psf
- 3.) Bulk 3A, Effective Confining Stress = 1944 psf

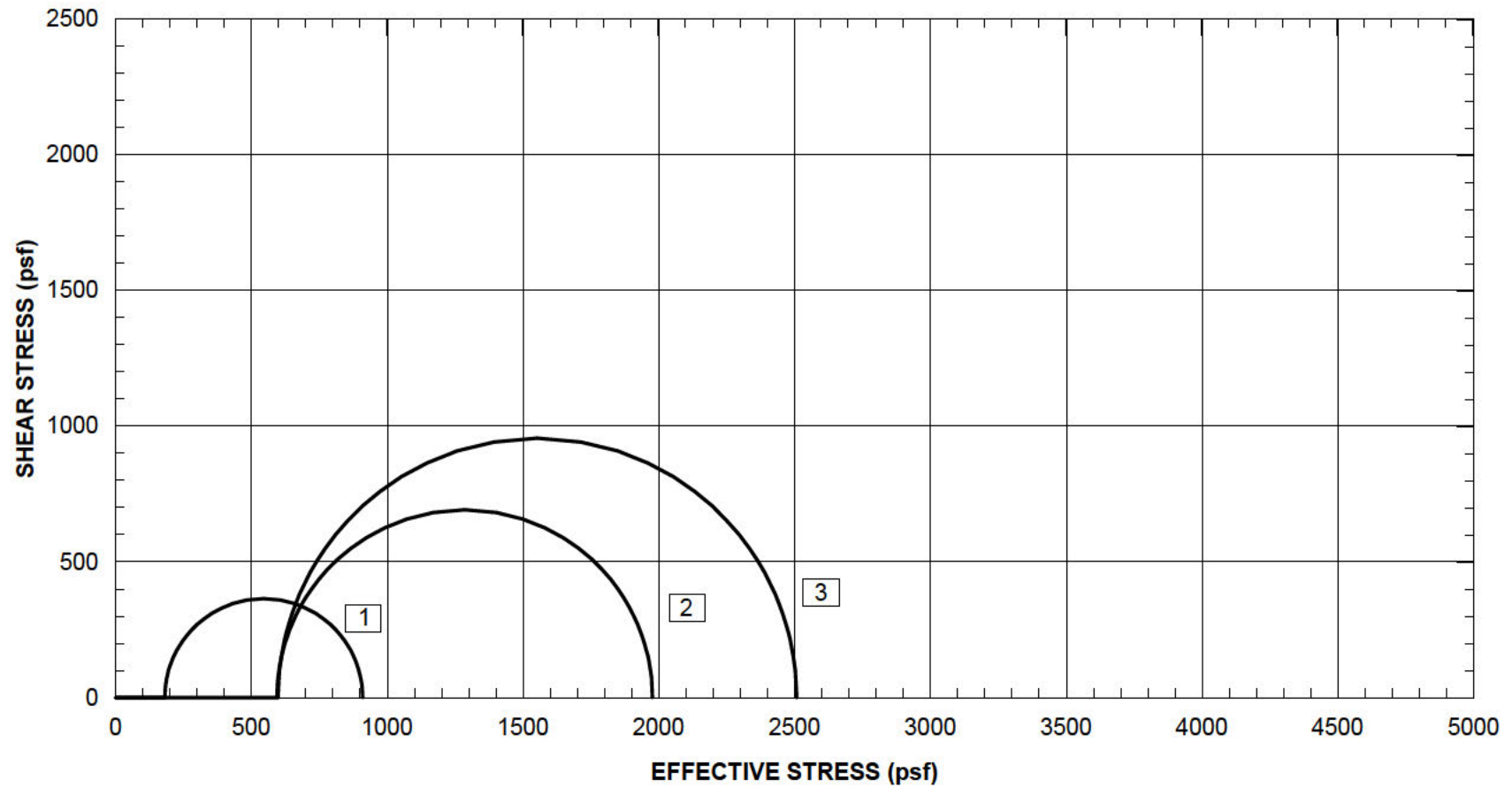
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: October 2013

Project Name: DHCCP

Fig.:



Legend

- 1.) Bulk 3A, Effective Confining Stress = 518 psf
- 2.) Bulk 3A, Effective Confining Stress = 864 psf
- 3.) Bulk 3A, Effective Confining Stress = 1944 psf

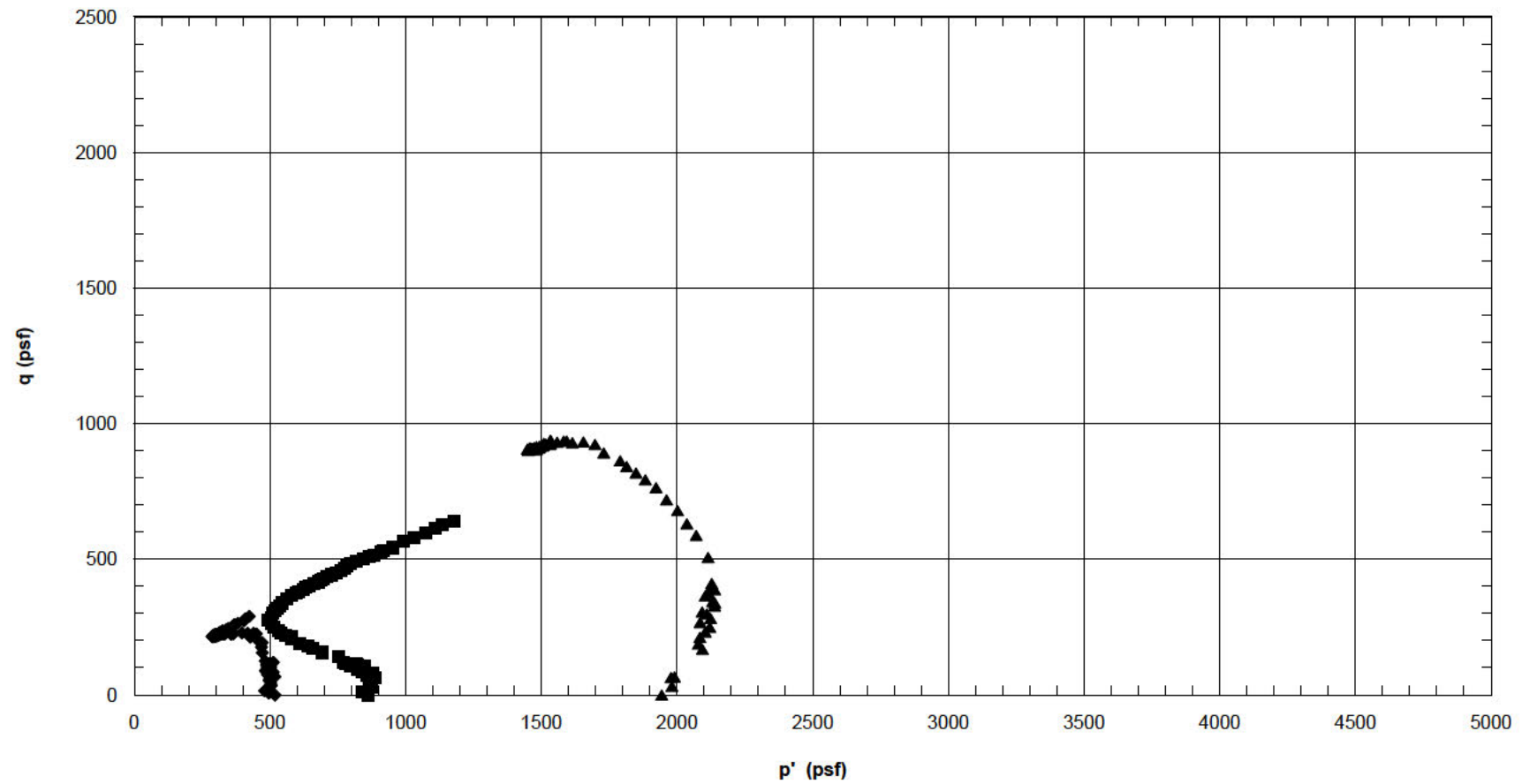
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: October 2013

Project Name: DHCCP

Fig.:



- Legend**
- ◆ Bulk 3A, Effective Confining Stress = 518 psf
 - Bulk 3A, Effective Confining Stress = 864 psf
 - ▲ Bulk 3A, Effective Confining Stress = 1944 psf

p' - q PLOT OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS

Project No.: 17326261

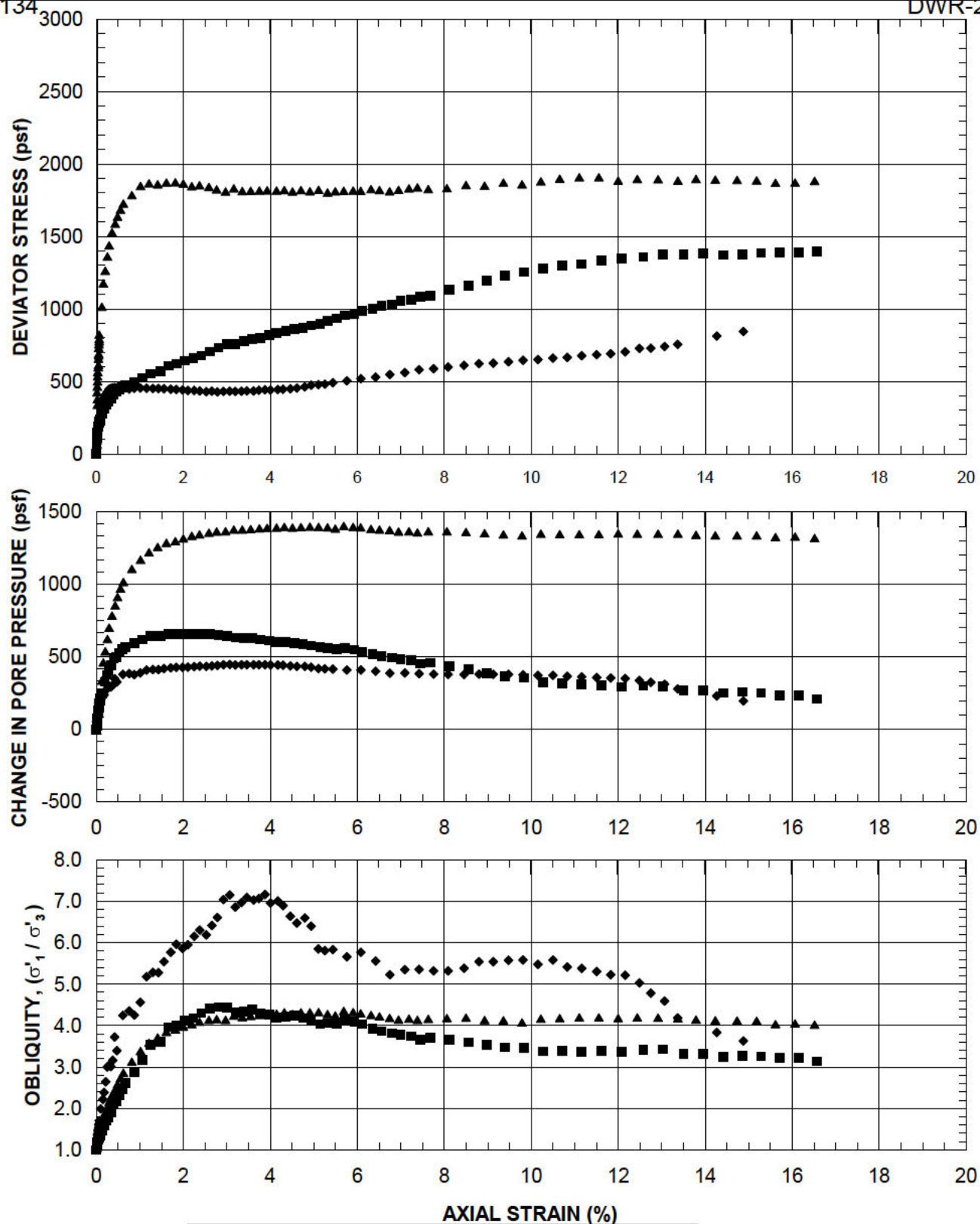
Date: October 2013

Project Name: DHCCP

Fig.:

pq_DHCCP Bulk 3A.grf

URS



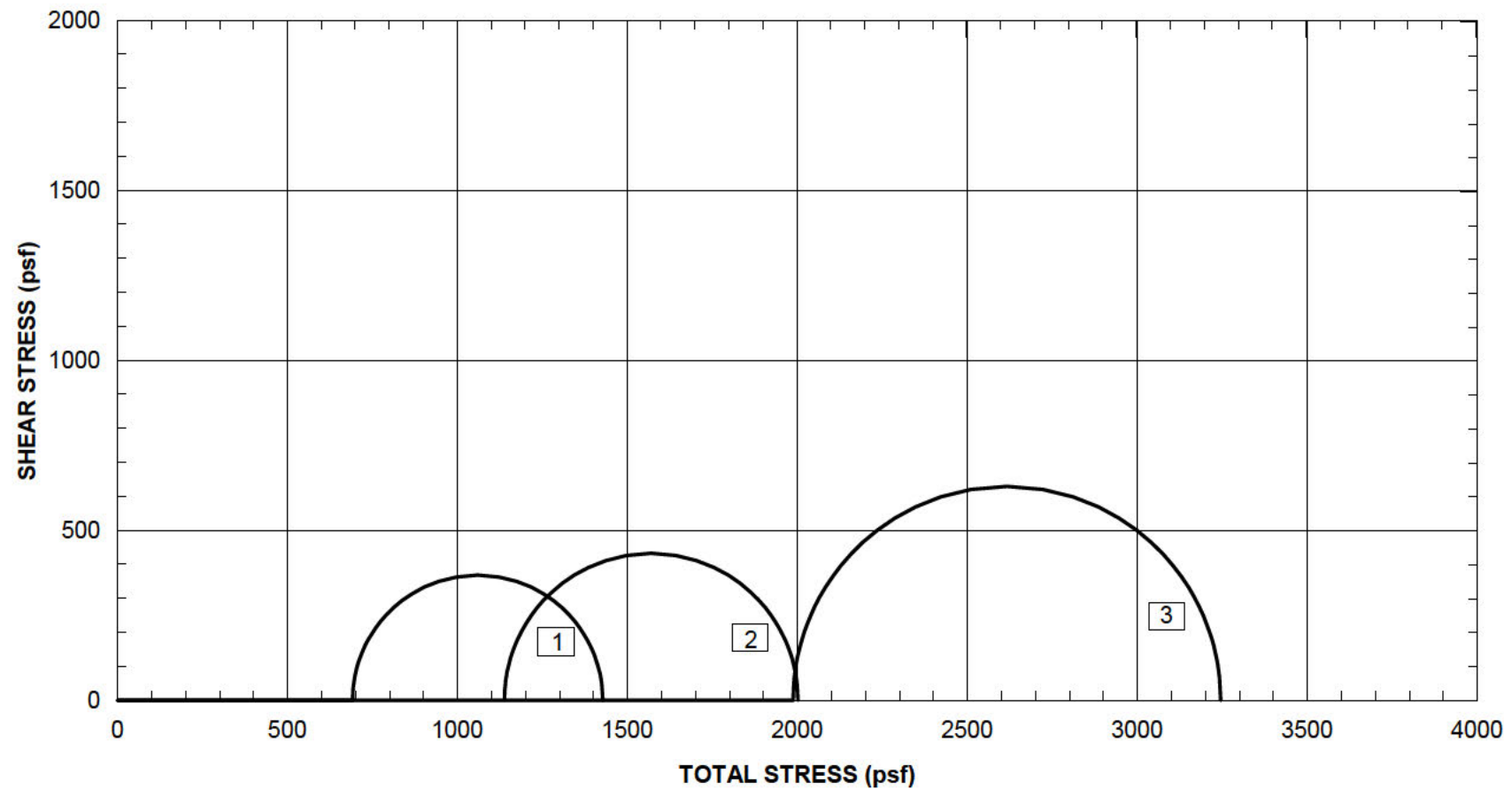
RESULTS OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: Oct. 2013

Project Name: DHCCP

Fig.:

**Legend**

- 1.) Bulk CC, Effective Confining Stress = 691 psf
- 2.) Bulk CC, Effective Confining Stress = 1138 psf
- 3.) Bulk CC, Effective Confining Stress = 1987 psf

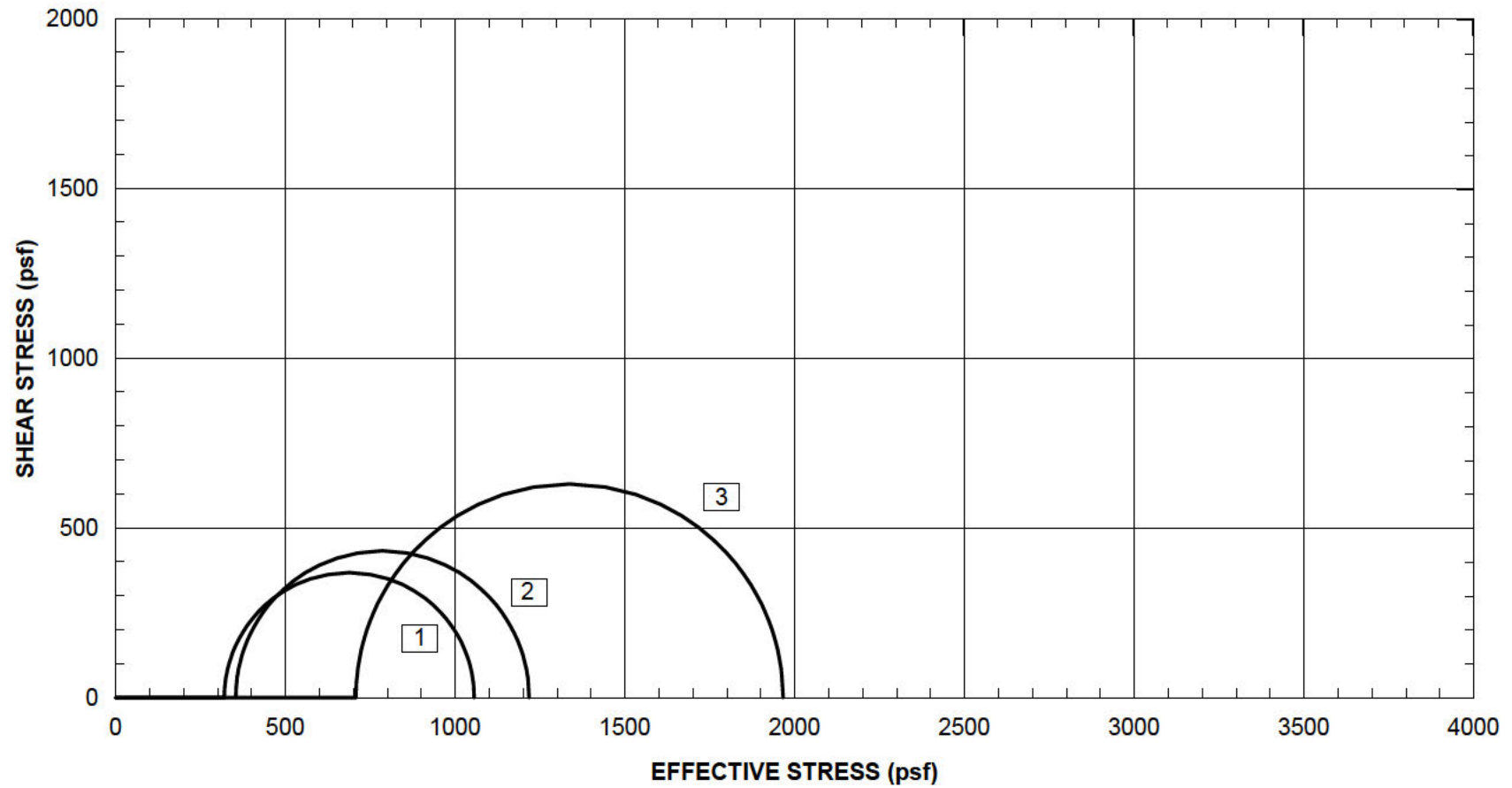
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: December 2013

Project Name: DHCCP

Fig.:



Legend

- 1.) Bulk CC, Effective Confining Stress = 691 psf
- 2.) Bulk CC, Effective Confining Stress = 1138 psf
- 3.) Bulk CC, Effective Confining Stress = 1987 psf

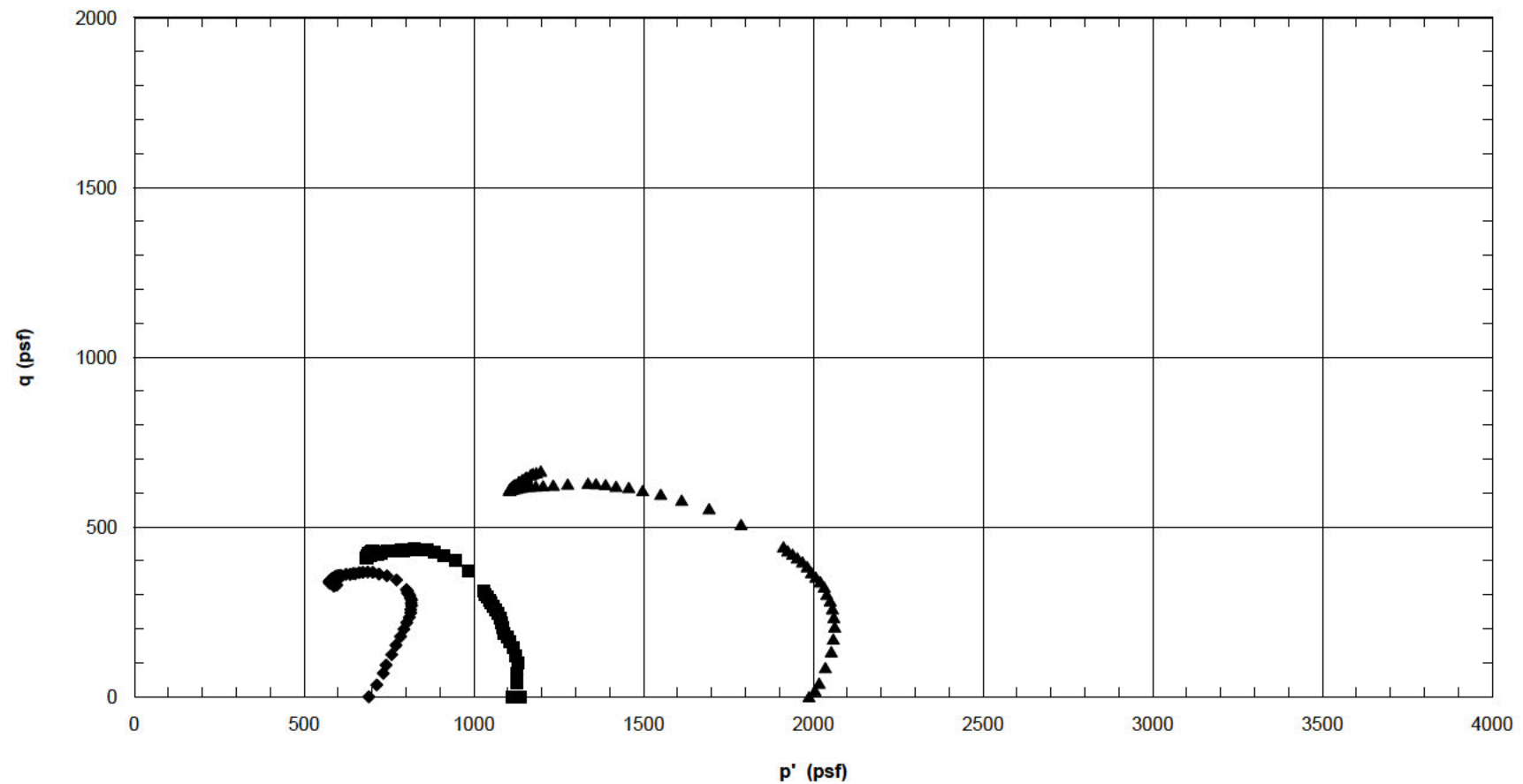
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: December 2013

Project Name: DHCCP

Fig.:



p' - q PLOT OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS

Project No.: 17326261

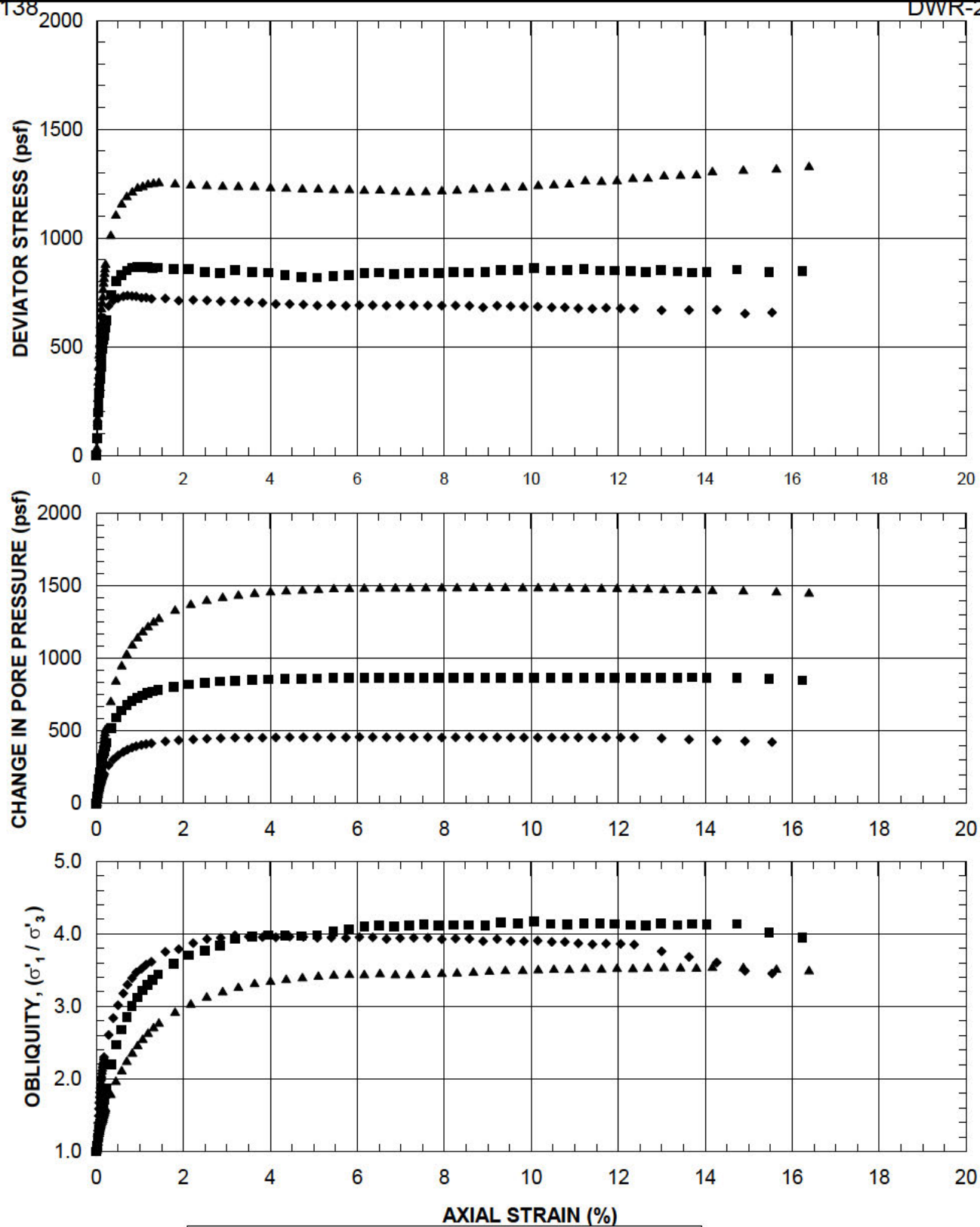
Date: December 2013

Project Name: DHCCP

Fig.:

pq_DHCCP Bulk CC.grf

URS



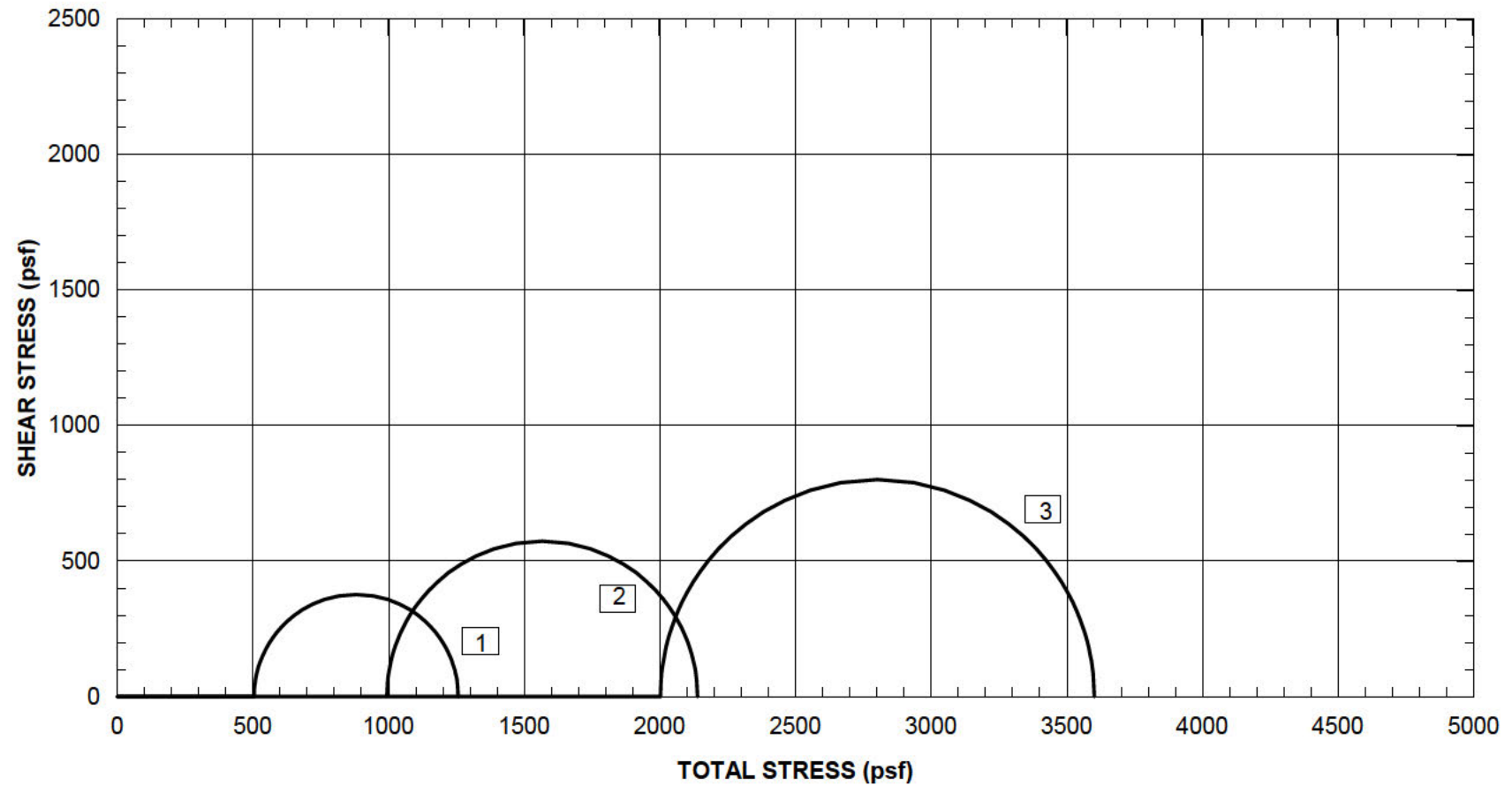
RESULTS OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: Dec. 2013

Project Name: DHCCP

Fig.:



Legend

- 1.) Bulk 1C, Effective Confining Stress = 504 psf
- 2.) Bulk 1C, Effective Confining Stress = 994 psf
- 3.) Bulk 1C, Effective Confining Stress = 2002 psf

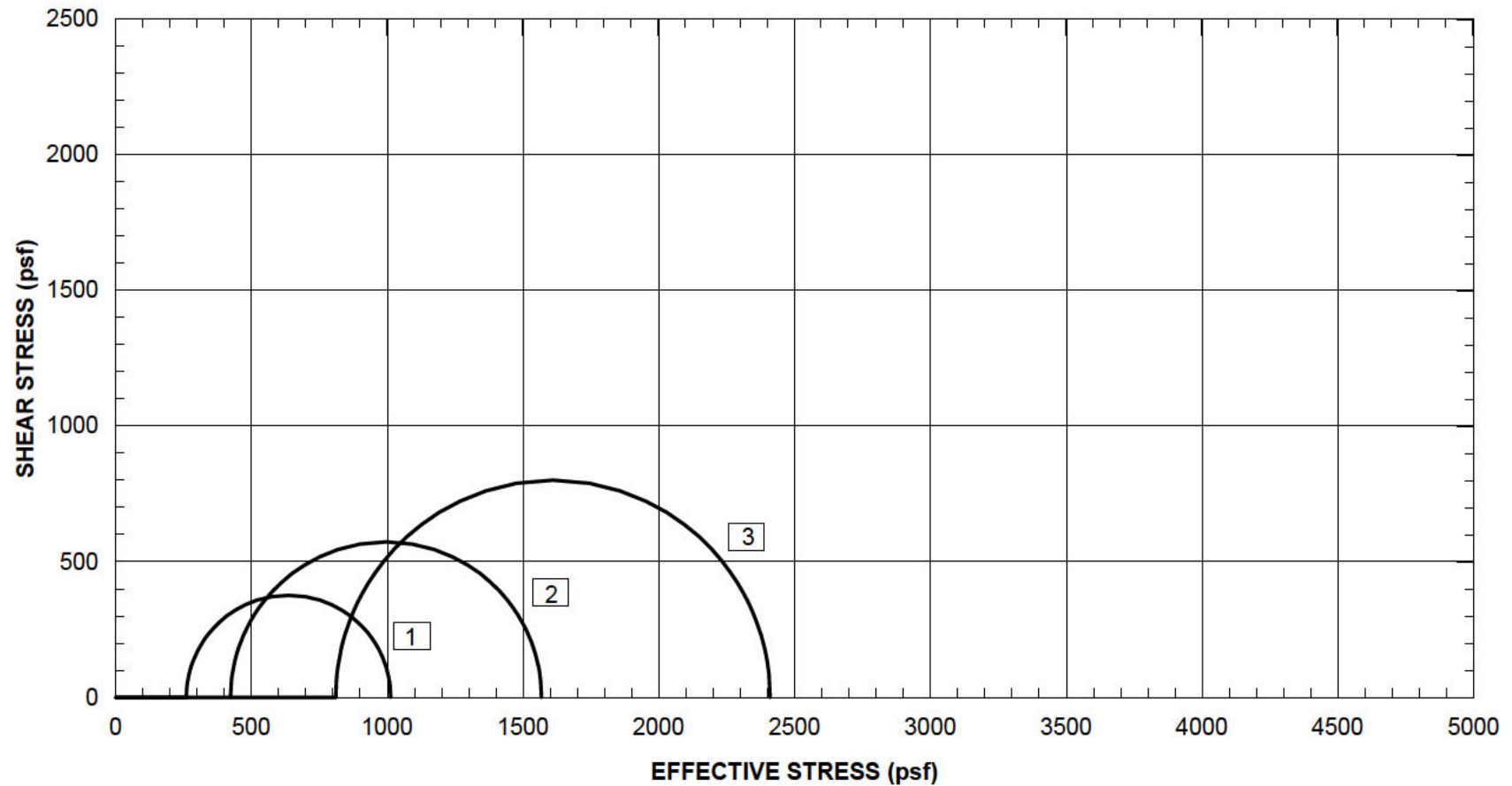
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: October 2013

Project Name: DHCCP

Fig.:



Legend

- 1.) Bulk 1C, Effective Confining Stress = 504 psf
- 2.) Bulk 1C, Effective Confining Stress = 994 psf
- 3.) Bulk 1C, Effective Confining Stress = 2002 psf

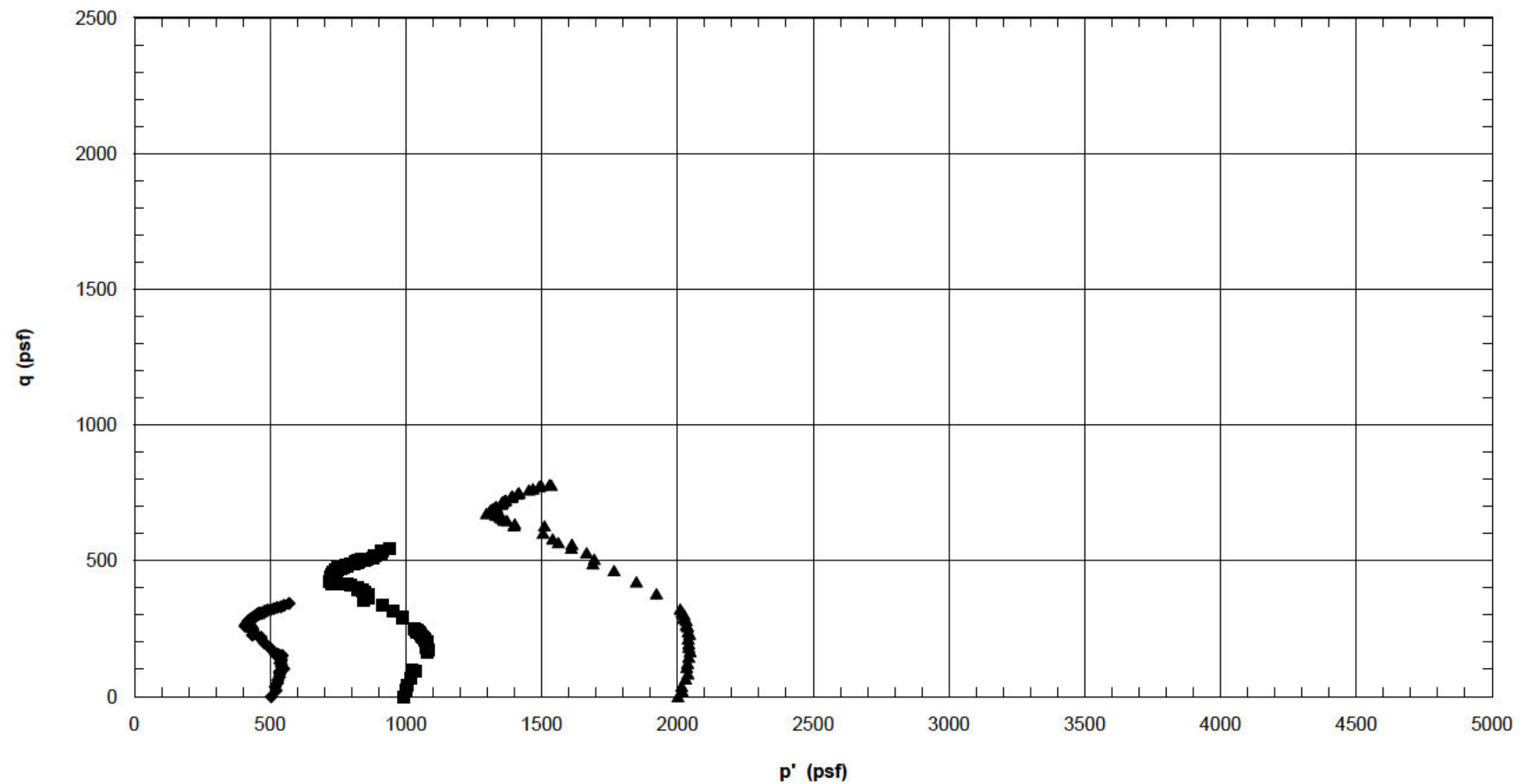
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: October 2013

Project Name: DHCCP

Fig.:



- Legend**
- ◆ Bulk 1C, Effective Confining Stress = 504 psf
 - Bulk 1C, Effective Confining Stress = 994 psf
 - ▲ Bulk 1C, Effective Confining Stress = 2002 psf

p' - q PLOT OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS

Project No.: 17326261

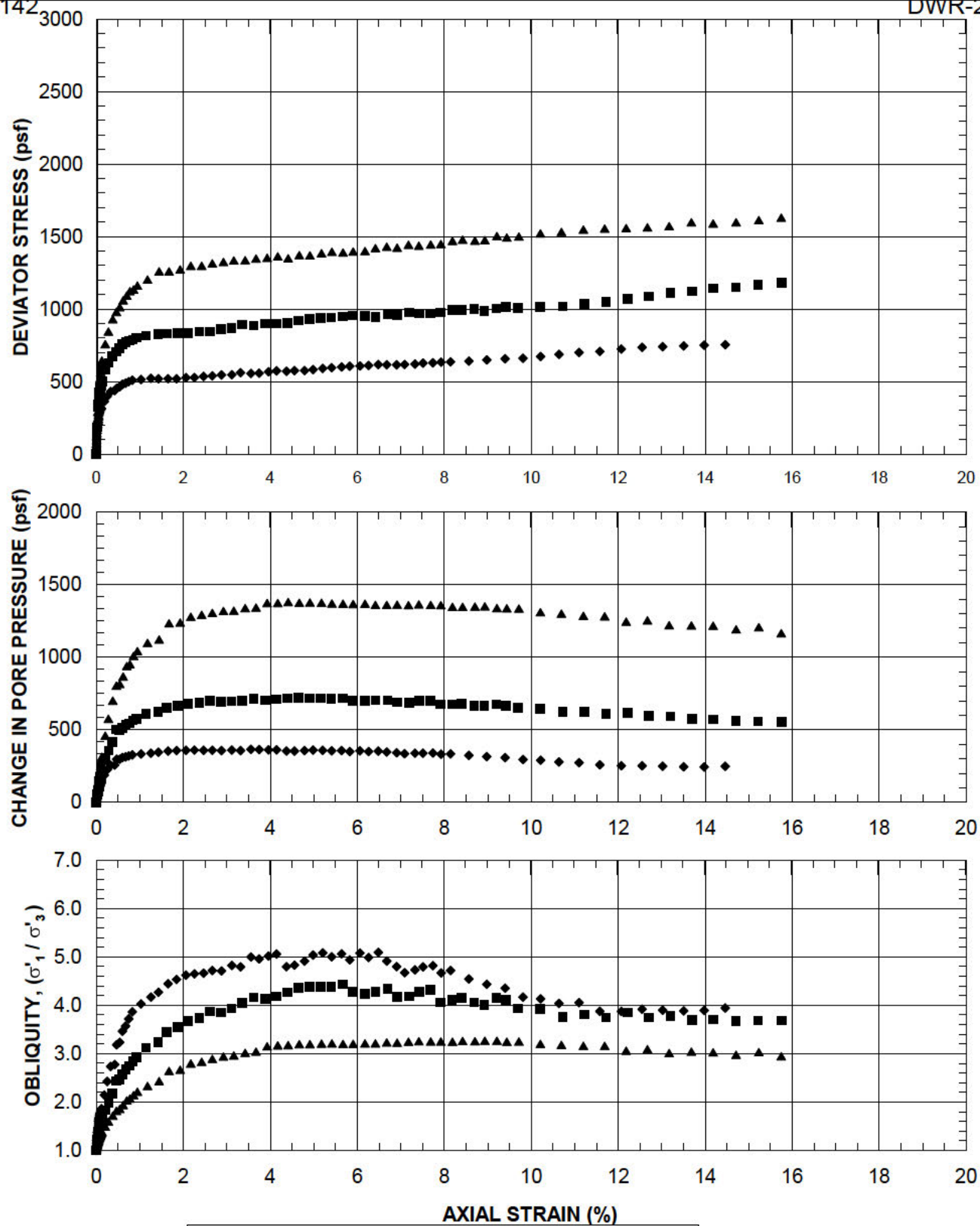
Date: October 2013

Project Name: DHCCP

Fig.:

pq_DHCCP Bulk 1C.grf

URS



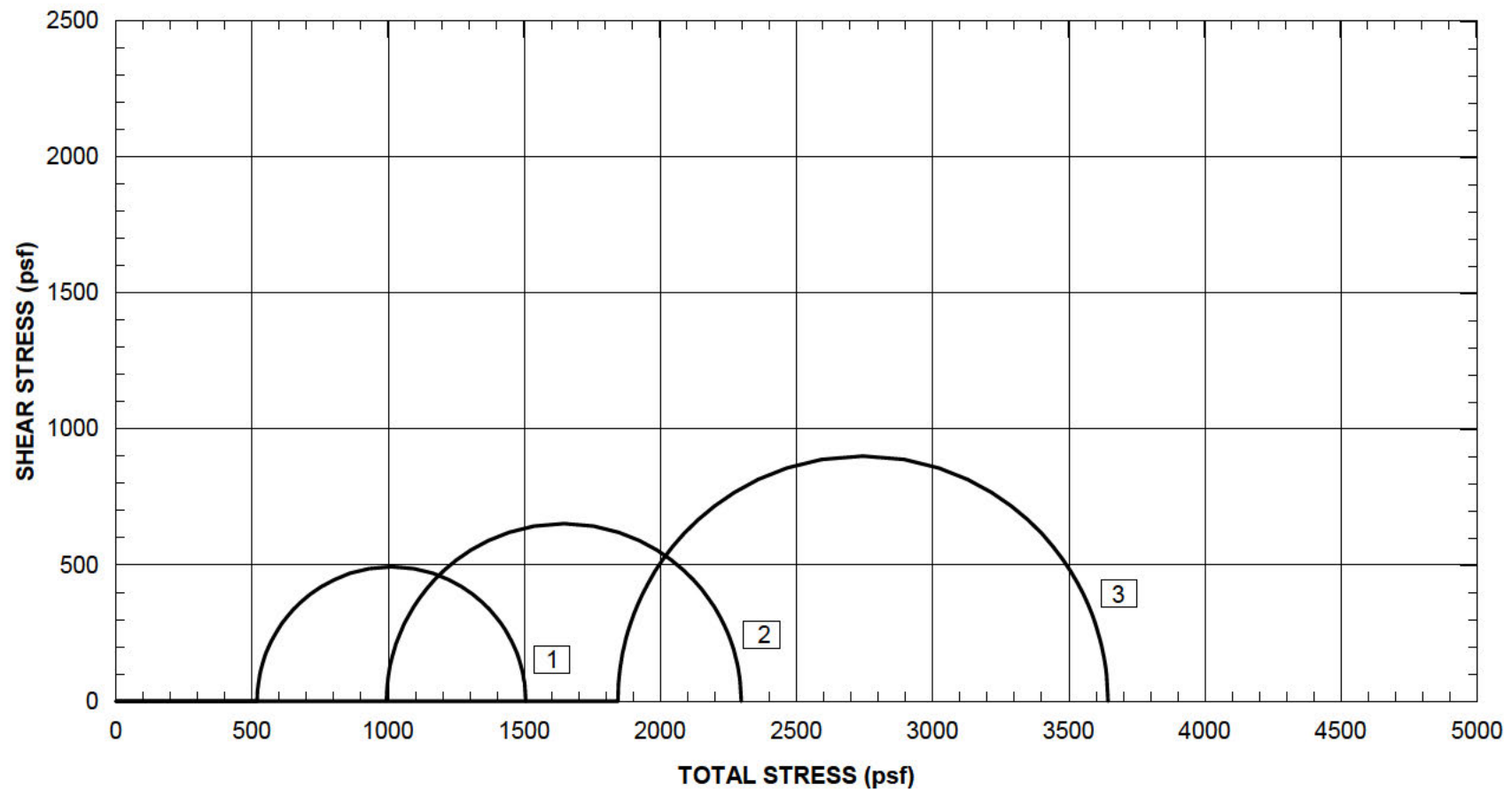
RESULTS OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: Oct. 2013

Project Name: DHCCP

Fig.:



Legend

- 1.) Bulk 2B, Effective Confining Stress = 518 psf
- 2.) Bulk 2B, Effective Confining Stress = 994 psf
- 3.) Bulk 2B, Effective Confining Stress = 1843 psf

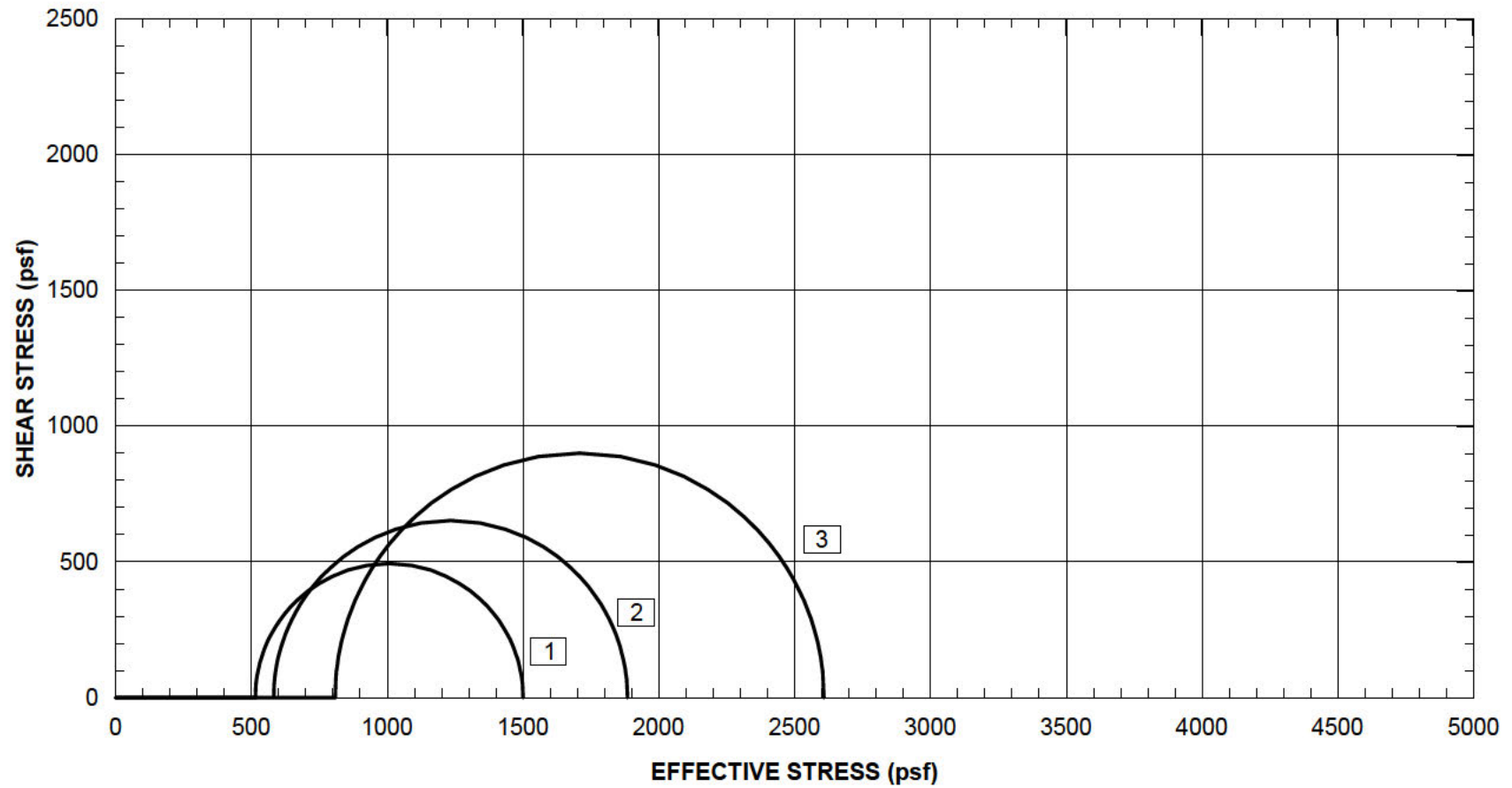
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: October 2013

Project Name: DHCCP

Fig.:

**Legend**

- 1.) Bulk 2B, Effective Confining Stress = 518 psf
- 2.) Bulk 2B, Effective Confining Stress = 944 psf
- 3.) Bulk 2B, Effective Confining Stress = 1843 psf

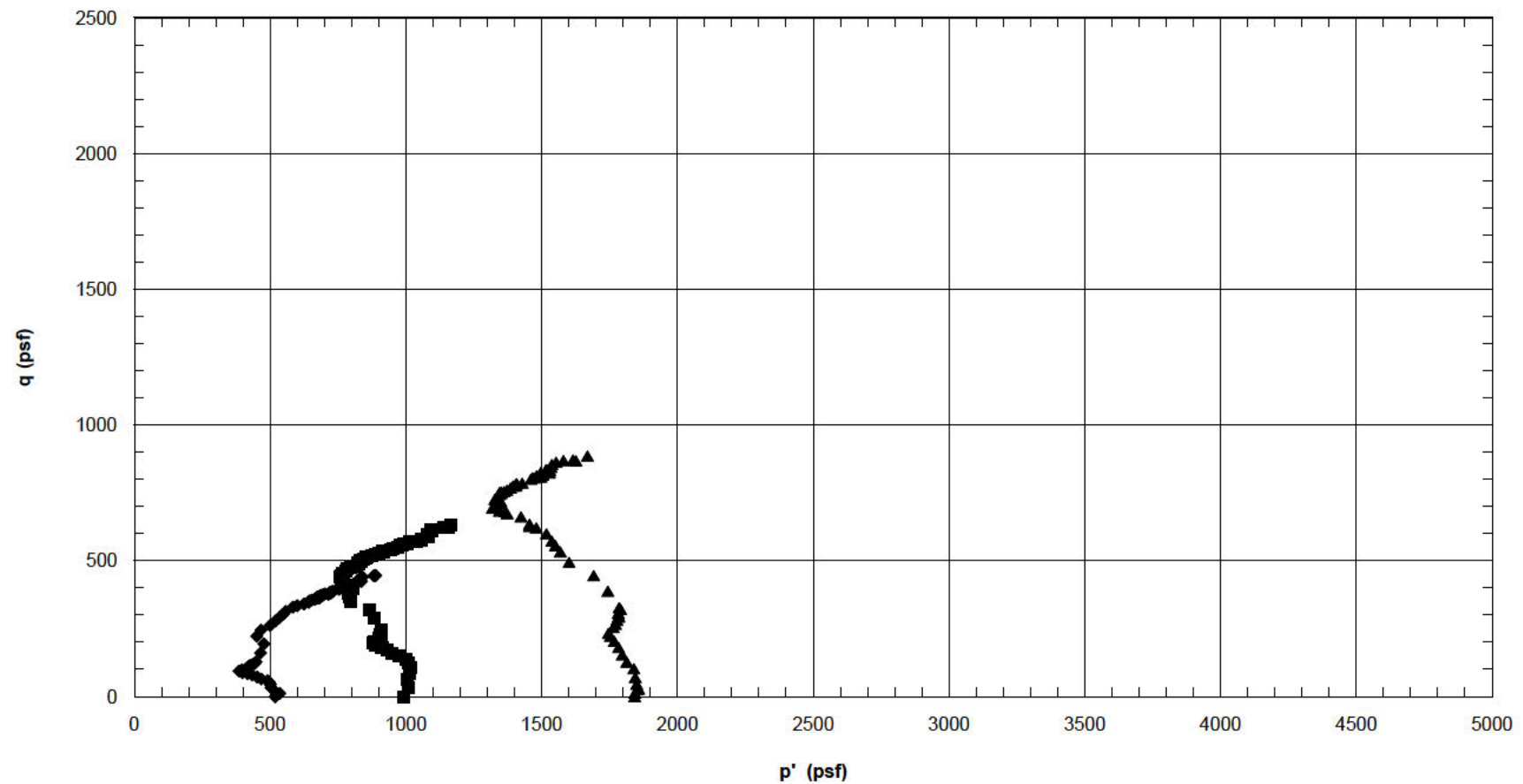
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: October 2013

Project Name: DHCCP

Fig.:



- Legend**
- ◆ Bulk 2B, Effective Confining Stress = 518 psf
 - Bulk 2B, Effective Confining Stress = 994 psf
 - ▲ Bulk 2B, Effective Confining Stress = 1843 psf

p' - q PLOT OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS

Project No.: 17326261

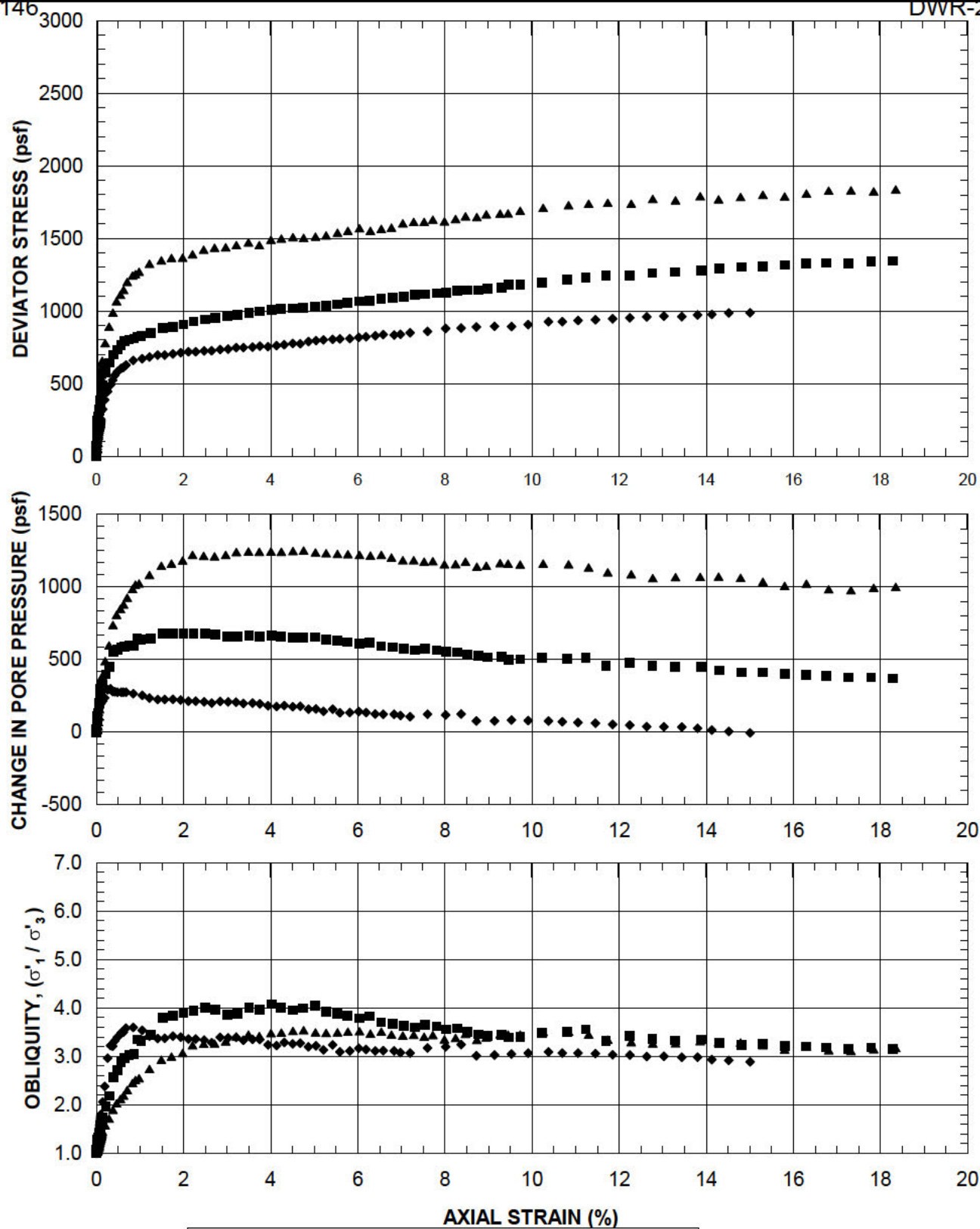
Date: October 2013

Project Name: DHCCP

Fig.:

pq_DHCCP Bulk 2B.grf

URS



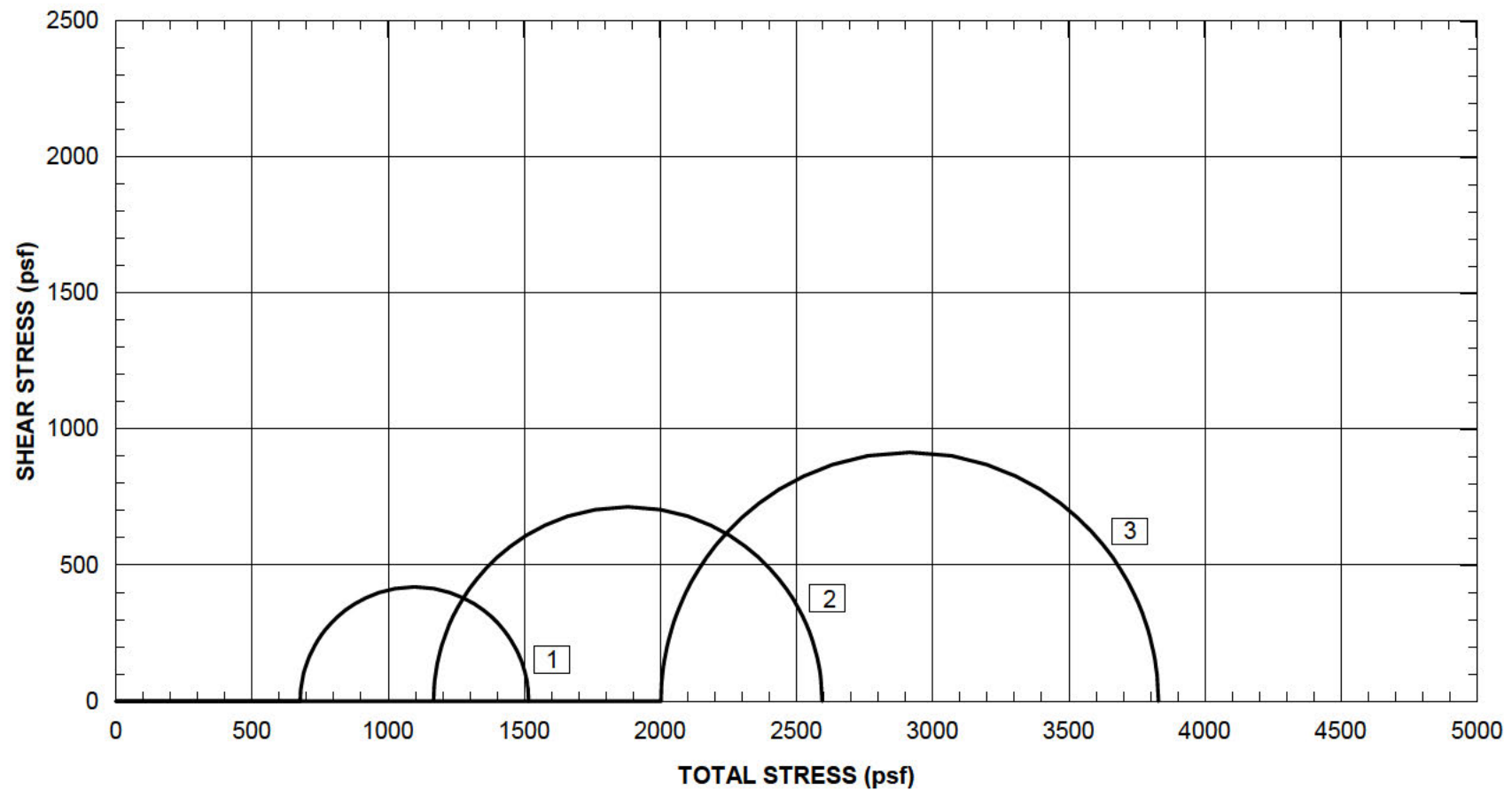
RESULTS OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: Oct. 2013

Project Name: DHCCP

Fig.:



Legend

- 1.) Bulk 3D, Effective Confining Stress = 677 psf
- 2.) Bulk 3D, Effective Confining Stress = 1166 psf
- 3.) Bulk 3D, Effective Confining Stress = 2002 psf

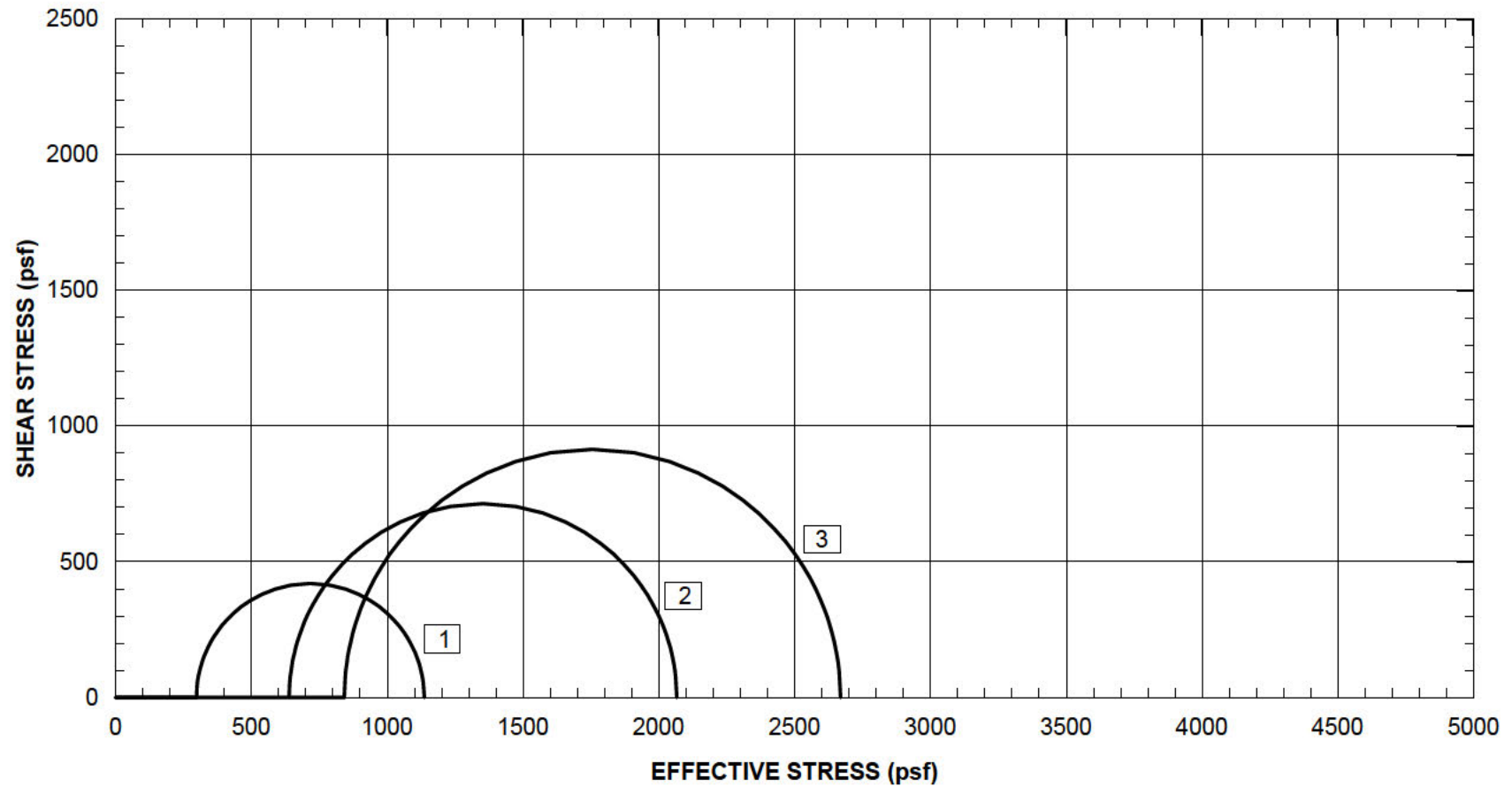
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: December 2013

Project Name: DHCCP

Fig.:



Legend

- 1.) Bulk 3D, Effective Confining Stress = 677 psf
- 2.) Bulk 3D, Effective Confining Stress = 1166 psf
- 3.) Bulk 3D, Effective Confining Stress = 2002 psf

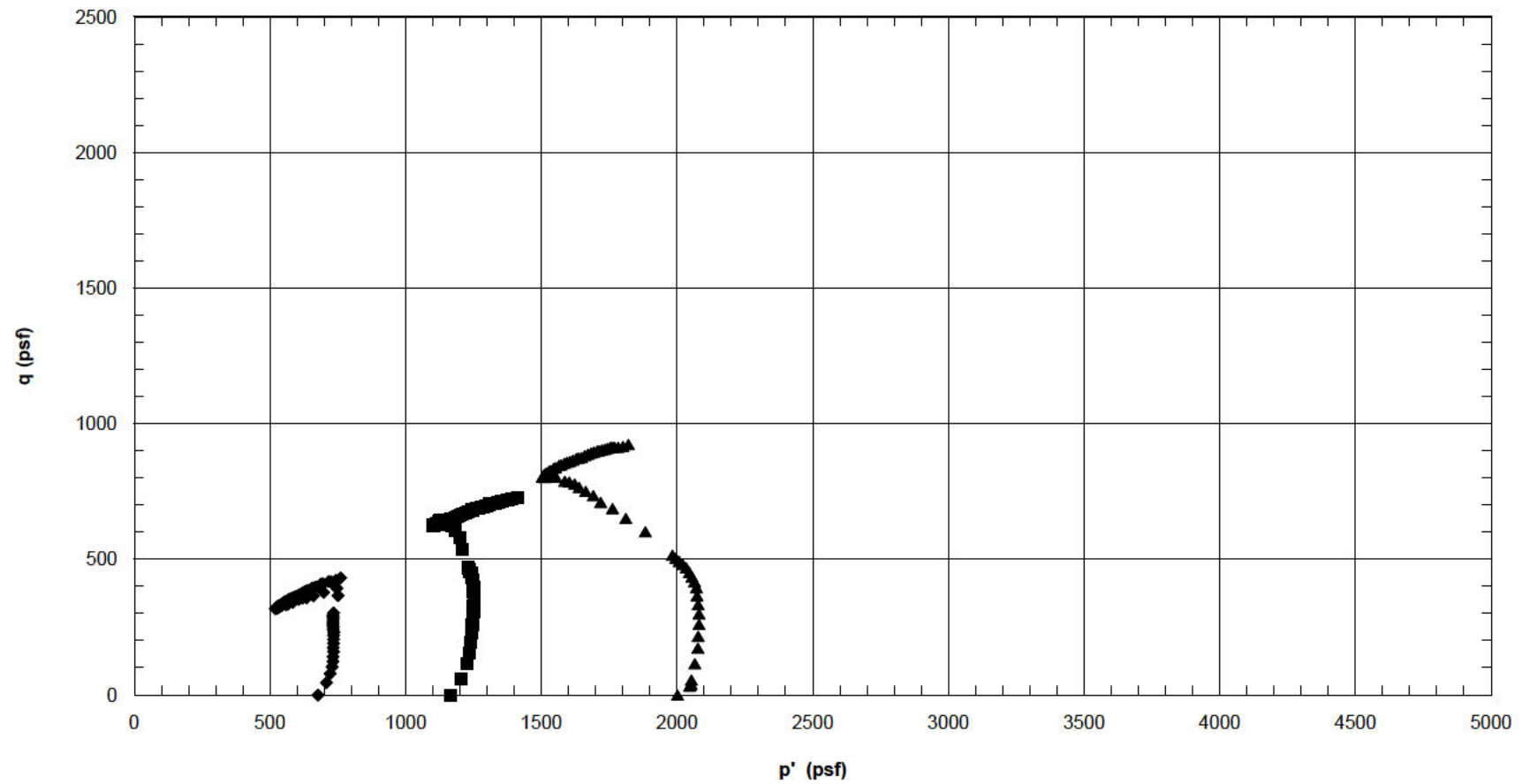
MOHR CIRCLES AT PEAK DEVIATOR STRESS FOR ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: December 2013

Project Name: DHCCP

Fig.:



p' - q PLOT OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS

Project No.: 17326261

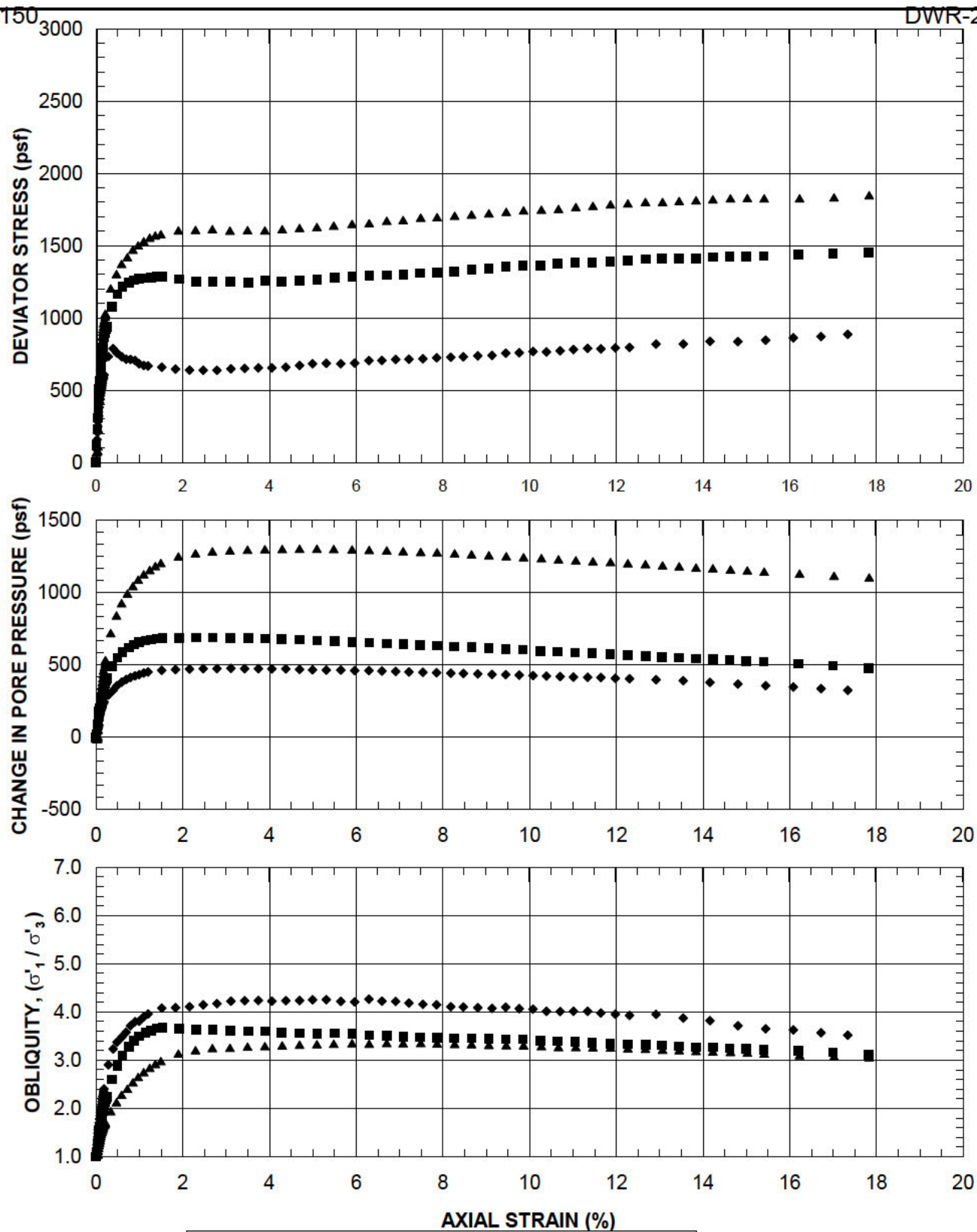
Date: December 2013

Project Name: DHCCP

Fig.:

pq_DHCCP Bulk 3D.grf

URS



RESULTS OF ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Project No.: 17326261

Date: Dec. 2013

Project Name: DHCCP

Fig.:

APPENDIX D

Environmental Properties Testing Data

TABLE OF CONTENTS

CLIENT: **URS**

PROJECT: **DHCCP**

SDG: **13H125**

SECTION	PAGE
Cover Letter, COC/Sample Receipt Form	1000 – 1007
GC/MS-VOA **	2000 –
GC/MS-SVOA METHOD 3550B/8270C	3000 – 3009
METHOD 3550B/8270C SIM	3010 – 3019
GC-VOA METHOD 5030B/8015B	4000 – 4009
GC-SVOA METHOD 3550B/8015B	5000 – 5009
METHOD 3550B/8081A	5010 – 5019
METHOD 3550B/8082	5020 – 5029
METHOD 8151A	5030 – 5039
HPLC **	6000 –
METALS METHOD 6020A	7000 – 7009
METHOD DI WET/6020A	7010 – 7020
METHOD 7471A	7021 – 7024
METHOD DI WET/7470A	7025 – 7029
WET METHOD SM4500NH3F	8000 – 8005
METHOD SM4500NO3E	8006 – 8010
METHOD 7196A	8011 – 8016
METHOD WALKLEY-BLACK	8017 – 8020
OTHERS BUTYL TINS	
METHYL MERCURY	

** - Not Requested

**LABORATORIES, INC.**

1835 W. 205th Street
 Torrance, CA 90501
 Tel: (310) 618-8889
 Fax: (310) 618-0818

Date: 09-17-2013
 EMAX Batch No.: 13H125

ATTN: Rob Nixon

URS
 2870 Gateway Oak #300
 Sacramento, CA 95833

Subject: Laboratory Report
 Project: DHCCP

.....
 Enclosed is the Laboratory report for samples received on 08/14/13.
 The data reported relate only to samples listed below :

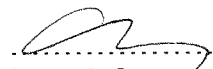
Sample ID	Control #	Col Date	Matrix	Analysis
1A-2	H125-01	07/18/13	SOIL	MOISTURE CONTENT DETERMINATION TPH-GASOLINE TPH DIESEL METALS DI-WET METALS CAM MERCURY NITRATE/NITRITE AS N PAH BY 8270C SIM PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS BY GCMS AMMONIA-N BY SM4500-NH3 F CHROMIUM HEXAVALENT CHLORINATED HERBICIDES TRIBUTYL TIN(MONO-, DI-, AND TRIB MERCURY BY DI WET METHYL MERCURY BY 1630M TOTAL ORGANIC CARBON
2A-2	H125-02	07/18/13	SOIL	MOISTURE CONTENT DETERMINATION

Sample ID	Control #	Col Date	Matrix	Analysis
3A-2	H125-03	07/18/13	SOIL	TPH-GASOLINE TPH DIESEL METALS DI-WET METALS CAM MERCURY NITRATE/NITRITE AS N PAH BY 8270C SIM PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS BY GCMS AMMONIA-N BY SM4500-NH3 F CHROMIUM HEXAVALENT CHLORINATED HERBICIDES TRIBUTYL TIN(MONO-, DI-, AND TRIB MERCURY BY DI WET METHYL MERCURY BY 1630M TOTAL ORGANIC CARBON MOISTURE CONTENT DETERMINATION TPH-GASOLINE TPH DIESEL METALS DI-WET METALS CAM MERCURY NITRATE/NITRITE AS N PAH BY 8270C SIM PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS BY GCMS AMMONIA-N BY SM4500-NH3 F CHROMIUM HEXAVALENT CHLORINATED HERBICIDES TRIBUTYL TIN(MONO-, DI-, AND TRIB MERCURY BY DI WET METHYL MERCURY BY 1630M TOTAL ORGANIC CARBON

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all NELAC & DOD requirements unless noted in the Case Narrative.

NELAC Accredited Certificate Number 02116CA
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

SDG#: 13H125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

A total of three (3) soil samples were received on 08/14/13 for Semivolatile Organics by GCMS analysis, Method 3550B/8270C in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were received out of prescribed holding time and without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Instrument mass ratios as well as DDT breakdown were evaluated. Results were within acceptance criteria. Tailing factor for Benzidine and Pentachlorophenol were also verified and results were within the method limits. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for SVH029SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
SEMI VOLATILE ORGANICS BY GC/MS

Client : URS SDG NO. : 13H125
Project : DHCCP Instrument ID : E4

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	SVH029SB	1	NA	08/15/1320:27	08/15/1312:30	RHJ221	RGJ400	SVH029S	Method Blank
LCS1S	SVH029SL	1	NA	08/15/1320:47	08/15/1312:30	RHJ222	RGJ400	SVH029S	Lab Control Sample (LCS)
LCD1S	SVH029SC	1	NA	08/15/1321:06	08/15/1312:30	RHJ223	RGJ400	SVH029S	LCS Duplicate
1A-2	H125-01	1	14.0	08/16/1320:50	08/15/1312:30	RHJ251	RGJ400	SVH029S	Field Sample
2A-2	H125-02	1	13.8	08/16/1321:10	08/15/1312:30	RHJ252	RGJ400	SVH029S	Field Sample
3A-2	H125-03	1	14.0	08/16/1321:29	08/15/1312:30	RHJ253	RGJ400	SVH029S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

```

=====
Client       : URS
Project      : DHCCP
Batch No.    : 13H125
Sample ID    : 1A-2
Lab Samp ID  : H125-01
Lab File ID  : RHJ251
Ext Btch ID  : SVH029S
Calib. Ref.  : RGJ400

Date Collected: 07/18/13
Date Received: 08/14/13
Date Extracted: 08/15/13 12:30
Date Analyzed: 08/16/13 20:50
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : 14.0
Instrument ID : T-OE4
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
1,2,4-TRICHLOROBENZENE	ND	390	190	
1,2-DICHLOROBENZENE	ND	390	190	
1,3-DICHLOROBENZENE	ND	390	190	
1,4-DICHLOROBENZENE	ND	390	190	
2,4,5-TRICHLOROPHENOL	ND	390	190	
2,4,6-TRICHLOROPHENOL	ND	390	190	
2,4-DICHLOROPHENOL	ND	390	190	
2,4-DIMETHYLPHENOL	ND	390	190	
2,4-DINITROPHENOL	ND	780	190	
2,4-DINITROTOLUENE	ND	390	190	
2,6-DINITROTOLUENE	ND	390	190	
2-CHLORONAPHTHALENE	ND	390	190	
2-CHLOROPHENOL	ND	390	190	
2-METHYLNAPHTHALENE	ND	390	190	
2-METHYLPHENOL	ND	390	190	
2-NITROANILINE	ND	390	190	
2-NITROPHENOL	ND	390	190	
3,3'-DICHLOROBENZIDINE	ND	390	190	
3-NITROANILINE	ND	390	190	
4,6-DINITRO-2-METHYLPHENOL	ND	780	190	
4-BROMOPHENYL-PHENYL ETHER	ND	390	190	
4-CHLORO-3-METHYLPHENOL	ND	390	190	
4-CHLOROANILINE	ND	390	190	
4-CHLOROPHENYL-PHENYL ETHER	ND	390	190	
4-METHYLPHENOL (1)	ND	390	190	
4-NITROANILINE	ND	390	190	
4-NITROPHENOL	ND	780	190	
ACENAPHTHENE	ND	390	190	
ACENAPHTHYLENE	ND	390	190	
ANTHRACENE	ND	390	190	
BENZO(A)ANTHRACENE	ND	390	190	
BENZO(A)PYRENE	ND	390	190	
BENZO(B)FLUORANTHENE	ND	390	190	
BENZO(K)FLUORANTHENE	ND	390	190	
BENZO(G,H,I)PERYLENE	ND	390	190	
BIS(2-CHLOROETHOXY)METHANE	ND	390	190	
BIS(2-CHLOROETHYL)ETHER	ND	390	190	
BIS(2-CHLOROISOPROPYL)ETHER	ND	390	190	
BIS(2-ETHYLHEXYL)PHTHALATE	ND	390	190	
BUTYLBENZYLPHthalate	ND	390	190	
CHRYSENE	ND	390	190	
DI-N-BUTYLPHthalate	ND	390	190	
DI-N-OCTYLPHthalate	ND	390	190	
DIBENZO(A,H)ANTHRACENE	ND	390	190	
DIBENZOFURAN	ND	390	190	
DIETHYLPHthalate	ND	390	190	
DIMETHYLPHthalate	ND	390	190	
FLUORANTHENE	ND	390	190	
FLUORENE	ND	390	190	
HEXACHLOROBENZENE	ND	390	190	
HEXACHLOROBUTADIENE	ND	390	190	
HEXACHLOROCYCLOPENTADIENE	ND	390	190	
HEXACHLOROETHANE	ND	390	190	
INDENO(1,2,3-CD)PYRENE	ND	390	190	
ISOPHORONE	ND	390	190	
N-NITROSO-DI-N-PROPYLAMINE	ND	390	190	
N-NITROSODIPHENYLAMINE (2)	ND	390	190	
NAPHTHALENE	ND	390	190	
NITROBENZENE	ND	390	190	
PENTACHLOROPHENOL	ND	780	190	
PHENANTHRENE	ND	390	190	
PHENOL	ND	390	190	
PYRENE	ND	390	190	
SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	2480	2326	107	40-130
2-FLUOROBIPHENYL	567	775.2	73.1	40-130
2-FLUOROPHENOL	1810	2326	77.6	30-130
NITROBENZENE-D5	534	775.2	68.9	30-130
PHENOL-D5	1940	2326	83.6	40-130
TERPHENYL-D14	809	775.2	104	60-130

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

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Client       : URS
Project      : DHCCP
Batch No.    : 13H125
Sample ID    : 2A-2
Lab Samp ID  : H125-02
Lab File ID  : RHJ252
Ext Btch ID  : SVH029S
Calib. Ref.  : RGJ400
Date Collected: 07/18/13
Date Received: 08/14/13
Date Extracted: 08/15/13 12:30
Date Analyzed: 08/16/13 21:10
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : 13.8
Instrument ID : T-OE4
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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	390	190
1,2-DICHLOROBENZENE	ND	390	190
1,3-DICHLOROBENZENE	ND	390	190
1,4-DICHLOROBENZENE	ND	390	190
2,4,5-TRICHLOROPHENOL	ND	390	190
2,4,6-TRICHLOROPHENOL	ND	390	190
2,4-DICHLOROPHENOL	ND	390	190
2,4-DIMETHYLPHENOL	ND	390	190
2,4-DINITROPHENOL	ND	770	190
2,4-DINITROTOLUENE	ND	390	190
2,6-DINITROTOLUENE	ND	390	190
2-CHLORONAPHTHALENE	ND	390	190
2-CHLOROPHENOL	ND	390	190
2-METHYLNAPHTHALENE	ND	390	190
2-METHYLPHENOL	ND	390	190
2-NITROANILINE	ND	390	190
2-NITROPHENOL	ND	390	190
3,3'-DICHLOROBENZIDINE	ND	390	190
3-NITROANILINE	ND	390	190
4,6-DINITRO-2-METHYLPHENOL	ND	770	190
4-BROMOPHENYL-PHENYL ETHER	ND	390	190
4-CHLORO-3-METHYLPHENOL	ND	390	190
4-CHLOROANILINE	ND	390	190
4-CHLOROPHENYL-PHENYL ETHER	ND	390	190
4-METHYLPHENOL (1)	ND	390	190
4-NITROANILINE	ND	390	190
4-NITROPHENOL	ND	770	190
ACENAPHTHENE	ND	390	190
ACENAPHTHYLENE	ND	390	190
ANTHRACENE	ND	390	190
BENZO(A)ANTHRACENE	ND	390	190
BENZO(A)PYRENE	ND	390	190
BENZO(B)FLUORANTHENE	ND	390	190
BENZO(K)FLUORANTHENE	ND	390	190
BENZO(G,H,I)PERYLENE	ND	390	190
BIS(2-CHLOROETHOXY)METHANE	ND	390	190
BIS(2-CHLOROETHYL)ETHER	ND	390	190
BIS(2-CHLOROISOPROPYL)ETHER	ND	390	190
BIS(2-ETHYLHEXYL)PHTHALATE	ND	390	190
BUTYLBENZYLPHTHALATE	ND	390	190
CHRYSENE	ND	390	190
DI-N-BUTYLPHTHALATE	ND	390	190
DI-N-OCTYLPHTHALATE	ND	390	190
DIBENZO(A,H)ANTHRACENE	ND	390	190
DIBENZOFURAN	ND	390	190
DIETHYLPHTHALATE	ND	390	190
DIMETHYLPHTHALATE	ND	390	190
FLUORANTHENE	ND	390	190
FLUORENE	ND	390	190
HEXACHLOROBENZENE	ND	390	190
HEXACHLOROBUTADIENE	ND	390	190
HEXACHLOROCYCLOPENTADIENE	ND	390	190
HEXACHLOROETHANE	ND	390	190
INDENO(1,2,3-CD)PYRENE	ND	390	190
ISOPHORONE	ND	390	190
N-NITROSO-DI-N-PROPYLAMINE	ND	390	190
N-NITROSODIPHENYLAMINE (2)	ND	390	190
NAPHTHALENE	ND	390	190
NITROBENZENE	ND	390	190
PENTACHLOROPHENOL	ND	770	190
PHENANTHRENE	ND	390	190
PHENOL	ND	390	190
PYRENE	ND	390	190

SURROGATE PARAMETERS	RESULTS	SPK AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	2240	2320	96.5	40-130
2-FLUOROBIPHENYL	476	773.4	61.6	40-130
2-FLUOROPHENOL	1650	2320	71.1	30-130
NITROBENZENE-D5	455	773.4	58.9	30-130
PHENOL-D5	1790	2320	77.3	40-130
TERPHENYL-D14	743	773.4	96.1	60-130

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : URS
Project      : DHCCP
Batch No.    : 13H125
Sample ID    : 3A-2
Lab Samp ID  : H125-03
Lab File ID  : RHJ253
Ext Btch ID  : SVH029S
Calib. Ref.  : RGJ400
Date Collected: 07/18/13
Date Received: 08/14/13
Date Extracted: 08/15/13 12:30
Date Analyzed: 08/16/13 21:29
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : 14.0
Instrument ID : T-OE4
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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	390	190
1,2-DICHLOROBENZENE	ND	390	190
1,3-DICHLOROBENZENE	ND	390	190
1,4-DICHLOROBENZENE	ND	390	190
2,4,5-TRICHLOROPHENOL	ND	390	190
2,4,6-TRICHLOROPHENOL	ND	390	190
2,4-DICHLOROPHENOL	ND	390	190
2,4-DIMETHYLPHENOL	ND	390	190
2,4-DINITROPHENOL	ND	780	190
2,4-DINITROTOLUENE	ND	390	190
2,6-DINITROTOLUENE	ND	390	190
2-CHLORONAPHTHALENE	ND	390	190
2-CHLOROPHENOL	ND	390	190
2-METHYLNAPHTHALENE	ND	390	190
2-METHYLPHENOL	ND	390	190
2-NITROANILINE	ND	390	190
2-NITROPHENOL	ND	390	190
3,3'-DICHLOROBENZIDINE	ND	390	190
3-NITROANILINE	ND	390	190
4,6-DINITRO-2-METHYLPHENOL	ND	780	190
4-BROMOPHENYL-PHENYL ETHER	ND	390	190
4-CHLORO-3-METHYLPHENOL	ND	390	190
4-CHLOROANILINE	ND	390	190
4-CHLOROPHENYL-PHENYL ETHER	ND	390	190
4-METHYLPHENOL (1)	ND	390	190
4-NITROANILINE	ND	390	190
4-NITROPHENOL	ND	780	190
ACENAPHTHENE	ND	390	190
ACENAPHTHYLENE	ND	390	190
ANTHRACENE	ND	390	190
BENZO(A)ANTHRACENE	ND	390	190
BENZO(A)PYRENE	ND	390	190
BENZO(B)FLUORANTHENE	ND	390	190
BENZO(K)FLUORANTHENE	ND	390	190
BENZO(G,H,I)PERYLENE	ND	390	190
BIS(2-CHLOROETHOXY)METHANE	ND	390	190
BIS(2-CHLOROETHYL)ETHER	ND	390	190
BIS(2-CHLOROISOPROPYL)ETHER	ND	390	190
BIS(2-ETHYLHEXYL)PHTHALATE	ND	390	190
BUTYLBENZYLPHTHALATE	ND	390	190
CHRYSENE	ND	390	190
DI-N-BUTYLPHTHALATE	ND	390	190
DI-N-OCTYLPHTHALATE	ND	390	190
DIBENZO(A,H)ANTHRACENE	ND	390	190
DIBENZOFURAN	ND	390	190
DIETHYLPHTHALATE	ND	390	190
DIMETHYLPHTHALATE	ND	390	190
FLUORANTHENE	ND	390	190
FLUORENE	ND	390	190
HEXACHLOROBENZENE	ND	390	190
HEXACHLOROBUTADIENE	ND	390	190
HEXACHLOROCYCLOPENTADIENE	ND	390	190
HEXACHLOROETHANE	ND	390	190
INDENO(1,2,3-CD)PYRENE	ND	390	190
ISOPHORONE	ND	390	190
N-NITROSO-DI-N-PROPYLAMINE	ND	390	190
N-NITROSODIPHENYLAMINE (2)	ND	390	190
NAPHTHALENE	ND	390	190
NITROBENZENE	ND	390	190
PENTACHLOROPHENOL	ND	780	190
PHENANTHRENE	ND	390	190
PHENOL	ND	390	190
PYRENE	ND	390	190

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	2260	2326	97.1	40-130
2-FLUOROBIPHENYL	514	775.2	66.3	40-130
2-FLUOROPHENOL	1680	2326	72.2	30-130
NITROBENZENE-D5	481	775.2	62.0	30-130
PHENOL-D5	1820	2326	78.4	40-130
TERPHENYL-D14	775	775.2	99.9	60-130

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

QC SUMMARIES

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : URS
Project      : DHCCP
Batch No.    : 13H125
Sample ID    : MBLK1S
Lab Samp ID  : SVH029SB
Lab File ID  : RHJ221
Ext Btch ID  : SVH029S
Calib. Ref.  : RGJ400
Date Collected: NA
Date Received: 08/15/13
Date Extracted: 08/15/13 12:30
Date Analyzed: 08/15/13 20:27
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : NA
Instrument ID : T-OE4
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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	330	170
1,2-DICHLOROBENZENE	ND	330	170
1,3-DICHLOROBENZENE	ND	330	170
1,4-DICHLOROBENZENE	ND	330	170
2,4,5-TRICHLOROPHENOL	ND	330	170
2,4,6-TRICHLOROPHENOL	ND	330	170
2,4-DICHLOROPHENOL	ND	330	170
2,4-DIMETHYLPHENOL	ND	330	170
2,4-DINITROPHENOL	ND	670	170
2,4-DINITROTOLUENE	ND	330	170
2,6-DINITROTOLUENE	ND	330	170
2-CHLORONAPHTHALENE	ND	330	170
2-CHLOROPHENOL	ND	330	170
2-METHYLNAPHTHALENE	ND	330	170
2-METHYLPHENOL	ND	330	170
2-NITROANILINE	ND	330	170
2-NITROPHENOL	ND	330	170
3,3'-DICHLOROBENZIDINE	ND	330	170
3-NITROANILINE	ND	330	170
4,6-DINITRO-2-METHYLPHENOL	ND	670	170
4-BROMOPHENYL-PHENYL ETHER	ND	330	170
4-CHLORO-3-METHYLPHENOL	ND	330	170
4-CHLOROANILINE	ND	330	170
4-CHLOROPHENYL-PHENYL ETHER	ND	330	170
4-METHYLPHENOL (1)	ND	330	170
4-NITROANILINE	ND	330	170
4-NITROPHENOL	ND	670	170
ACENAPHTHENE	ND	330	170
ACENAPHTHYLENE	ND	330	170
ANTHRACENE	ND	330	170
BENZO(A)ANTHRACENE	ND	330	170
BENZO(A)PYRENE	ND	330	170
BENZO(B)FLUORANTHENE	ND	330	170
BENZO(K)FLUORANTHENE	ND	330	170
BENZO(G,H,I)PERYLENE	ND	330	170
BIS(2-CHLOROETHOXY)METHANE	ND	330	170
BIS(2-CHLOROETHYL)ETHER	ND	330	170
BIS(2-CHLOROISOPROPYL)ETHER	ND	330	170
BIS(2-ETHYLHEXYL)PHTHALATE	ND	330	170
BUTYLBENZYLPHTHALATE	ND	330	170
CHRYSENE	ND	330	170
DI-N-BUTYLPHTHALATE	ND	330	170
DI-N-OCTYLPHTHALATE	ND	330	170
DIBENZO(A,H)ANTHRACENE	ND	330	170
DIBENZOFURAN	ND	330	170
DIETHYLPHTHALATE	ND	330	170
DIMETHYLPHTHALATE	ND	330	170
FLUORANTHENE	ND	330	170
FLUORENE	ND	330	170
HEXACHLOROBENZENE	ND	330	170
HEXACHLOROBUTADIENE	ND	330	170
HEXACHLOROCYCLOPENTADIENE	ND	330	170
HEXACHLOROETHANE	ND	330	170
INDENO(1,2,3-CD)PYRENE	ND	330	170
ISOPHORONE	ND	330	170
N-NITROSO-DI-N-PROPYLAMINE	ND	330	170
N-NITROSODIPHENYLAMINE (2)	ND	330	170
NAPHTHALENE	ND	330	170
NITROBENZENE	ND	330	170
PENTACHLOROPHENOL	ND	670	170
PHENANTHRENE	ND	330	170
PHENOL	ND	330	170
PYRENE	ND	330	170

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	1650	2000	82.5	30-140
2-FLUOROBIPHENYL	485	666.7	72.7	30-130
2-FLUOROPHENOL	1410	2000	70.5	40-130
NITROBENZENE-D5	429	666.7	64.4	40-130
PHENOL-D5	1410	2000	70.6	40-130
TERPHENYL-D14	573	666.7	85.9	40-140

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13H125
METHOD: METHOD 3550B/8270C

MATRIX: SOIL
DILUTION FACTOR: 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: SVH029SB SVH029SL SVH029SC
LAB FILE ID: RHJ222 RHJ223
DATE EXTRACTED: 08/15/1312:30 08/15/1312:30 08/15/1312:30
DATE ANALYZED: 08/15/1320:27 08/15/1320:47 08/15/1321:06
PREP. BATCH: SVH029S SVH029S SVH029S
CALIB. REF: RGJ400 RGJ400 RGJ400

% MOISTURE: NA

DATE COLLECTED: NA
DATE RECEIVED: 08/15/13

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,2,4-Trichlorobenzene	ND	1330	952	71	1330	988	74	4	40-130	50
1,2-Dichlorobenzene	ND	1330	885	66	1330	890	67	1	50-130	50
1,3-Dichlorobenzene	ND	1330	893	67	1330	901	68	1	50-130	50
1,4-Dichlorobenzene	ND	1330	895	67	1330	910	68	2	40-130	50
2,4,5-Trichlorophenol	ND	1330	1130	85	1330	1120	84	0	40-130	50
2,4,6-Trichlorophenol	ND	1330	1110	83	1330	1140	86	3	40-130	50
2,4-Dichlorophenol	ND	1330	1010	76	1330	1060	79	4	50-130	50
2,4-Dimethylphenol	ND	1330	1090	81	1330	1030	77	5	50-130	50
2,4-Dinitrophenol	ND	1330	1090	82	1330	1130	84	3	20-130	50
2,4-Dinitrotoluene	ND	1330	1250	94	1330	1240	93	1	50-140	50
2,6-Dinitrotoluene	ND	1330	1150	86	1330	1150	86	0	40-130	50
2-Chloronaphthalene	ND	1330	903	68	1330	1040	78	14	50-130	50
2-Chlorophenol	ND	1330	986	74	1330	1010	76	2	40-130	50
2-Methylnaphthalene	ND	1330	921	69	1330	964	72	4	50-130	50
2-Methylphenol	ND	1330	855	64	1330	897	67	5	40-130	50
2-Nitroaniline	ND	1330	1020	76	1330	1020	76	0	40-130	50
2-Nitrophenol	ND	1330	1120	84	1330	1150	86	3	50-130	50
3,3'-Dichlorobenzidine	ND	1330	1110	84	1330	1130	85	1	40-130	50
3-Nitroaniline	ND	1330	994	75	1330	1000	75	1	40-130	50
4,6-Dinitro-2-Methylphenol	ND	1330	1400	105	1330	1410	105	0	30-130	50
4-Bromophenyl-phenyl ether	ND	1330	1080	81	1330	1100	83	2	40-130	50
4-Chloro-3-Methylphenol	ND	1330	1140	85	1330	1160	87	2	50-130	50
4-Chloroaniline	ND	1330	826	62	1330	873	65	5	40-130	50
4-Chlorophenyl-phenyl ether	ND	1330	1100	83	1330	1110	84	1	50-130	50
4-Methylphenol	ND	1330	920	69	1330	963	72	5	50-130	50
4-Nitroaniline	ND	1330	1050	79	1330	1010	76	2	50-130	50
4-Nitrophenol	ND	1330	1310	98	1330	1280	96	2	30-130	50
Acenaphthene	ND	1330	1020	76	1330	1040	78	2	50-130	50
Acenaphthylene	ND	1330	954	72	1330	1060	79	10	40-130	50
Anthracene	ND	1330	1020	76	1330	1010	76	1	40-130	50
Benzo(a)anthracene	ND	1330	1140	85	1330	1110	83	3	50-130	50
Benzo(a)pyrene	ND	1330	1090	82	1330	1080	81	2	50-130	50
Benzo(b)fluoranthene	ND	1330	1160	87	1330	1110	84	4	50-130	50
Benzo(k)fluoranthene	ND	1330	1120	84	1330	1130	85	1	50-130	50
Benzo(g,h,i)perylene	ND	1330	1130	85	1330	1110	84	2	50-130	50
bis(2-Chloroethoxy)methane	ND	1330	884	66	1330	921	69	4	50-130	50
bis(2-Chloroethyl)ether	ND	1330	815	61	1330	836	63	3	50-130	50
bis(2-Chloroisopropyl)ether	ND	1330	618	46	1330	630	47	2	40-130	50
bis(2-Ethylhexyl)phthalate	ND	1330	1160	87	1330	1120	84	5	50-130	50
Butylbenzylphthalate	ND	1330	1170	87	1330	1120	84	4	50-130	50
Chrysene	ND	1330	1100	82	1330	1080	81	1	50-130	50
Di-n-butylphthalate	ND	1330	1080	81	1330	1080	81	1	50-130	50
Di-n-octylphthalate	ND	1330	1220	91	1330	1160	87	5	40-140	50
Dibenzo(a,h)anthracene	ND	1330	1160	87	1330	1150	86	1	50-130	50
Dibenzofuran	ND	1330	1020	76	1330	1040	78	2	40-130	50
Diethylphthalate	ND	1330	1110	84	1330	1090	82	2	50-130	50
Dimethylphthalate	ND	1330	1160	87	1330	1190	89	3	50-130	50
Fluoranthene	ND	1330	1100	83	1330	1080	81	2	50-130	50
Fluorene	ND	1330	1080	81	1330	1080	81	0	50-130	50
Hexachlorobenzene	ND	1330	1110	83	1330	1110	84	0	40-130	50
Hexachlorobutadiene	ND	1330	986	74	1330	1020	77	4	40-130	50
Hexachlorocyclopentadiene	ND	1330	770	58	1330	825	62	7	20-130	50
Hexachloroethane	ND	1330	895	67	1330	917	69	2	50-130	50
Indeno(1,2,3-cd)pyrene	ND	1330	1160	87	1330	1150	86	1	50-130	50
Isophorone	ND	1330	984	74	1330	1020	77	4	50-130	50
n-Nitroso-di-n-propylamine	ND	1330	894	67	1330	925	69	3	40-130	50
n-Nitrosodiphenylamine	ND	1330	926	69	1330	917	69	1	30-130	50
Naphthalene	ND	1330	927	70	1330	963	72	4	50-130	50
Nitrobenzene	ND	1330	937	70	1330	984	74	5	50-130	50
Pentachlorophenol	ND	1330	1210	91	1330	1240	93	2	40-130	50
Phenanthrene	ND	1330	1060	79	1330	1050	79	0	50-130	50
Phenol	ND	1330	915	69	1330	932	70	2	50-130	50
Pyrene	ND	1330	1080	81	1330	1090	81	0	50-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2,4,6-Tribromophenol	2000	1760	88	2000	1800	90	30-140
2-Fluorobiphenyl	667	437	66	667	476	71	30-130
2-Fluorophenol	2000	1230	61	2000	1280	64	40-130
Nitrobenzene-d5	667	382	57	667	397	60	40-130
Phenol-d5	2000	1290	65	2000	1340	67	40-130
Terphenyl-d14	667	570	86	667	557	84	40-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8270C SIM
PAH BY GC/MS

SDG#: 13H125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 3550B/8270C SIM
PAHS BY GC/MS

A total of three (3) soil samples were received on 08/14/13 for PAH BY 8270C SIM analysis, Method 3550B/8270C SIM in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were received out of prescribed holding time and without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Instrument mass ratios were evaluated and results were within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for SVH029SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
PAHS BY GC/MS

```
=====
Client      : URS                                     SDG NO.       : 13H125
Project     : DHCCP                                   Instrument ID  : E4
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	SVH029SB	1	NA	08/15/1320:27	08/15/1312:30	RHJ221	RGJ400	SVH029S	Method Blank
LCS1S	SVH029SL	1	NA	08/15/1320:47	08/15/1312:30	RHJ222	RGJ400	SVH029S	Lab Control Sample (LCS)
LCD1S	SVH029SC	1	NA	08/15/1321:06	08/15/1312:30	RHJ223	RGJ400	SVH029S	LCS Duplicate
1A-2	H125-01	1	14.0	08/16/1320:50	08/15/1312:30	RHJ251	RGJ400	SVH029S	Field Sample
2A-2	H125-02	1	13.8	08/16/1321:10	08/15/1312:30	RHJ252	RGJ400	SVH029S	Field Sample
3A-2	H125-03	1	14.0	08/16/1321:29	08/15/1312:30	RHJ253	RGJ400	SVH029S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8270C SIM
PAHS BY GC/MS

```

=====
Client       : URS                      Date Collected: 07/18/13
Project      : DHCCP                   Date Received: 08/14/13
Batch No.    : 13H125                 Date Extracted: 08/15/13 12:30
Sample ID:   1A-2                     Date Analyzed: 08/16/13 20:50
Lab Samp ID: H125-01                 Dilution Factor: 1
Lab File ID: RHJ251                  Matrix       : SOIL
Ext Btch ID: SVH029S                 % Moisture    : 14.0
Calib. Ref.: RGJ400                  Instrument ID  : T-OE4
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	12	2.9
ACENAPHTHYLENE	ND	12	2.9
ANTHRACENE	ND	12	2.9
BENZO(A)ANTHRACENE	ND	12	2.9
BENZO(A)PYRENE	ND	12	2.9
BENZO(B)FLUORANTHENE	ND	12	2.9
BENZO(K)FLUORANTHENE	ND	12	2.9
BENZO(G,H,I)PERYLENE	ND	12	2.9
CHRYSENE	ND	12	2.9
DIBENZO(A,H)ANTHRACENE	ND	12	2.9
FLUORANTHENE	ND	12	2.9
FLUORENE	ND	12	2.9
INDENO(1,2,3-CD)PYRENE	ND	12	2.9
NAPHTHALENE	ND	12	2.9
PHENANTHRENE	ND	12	2.9
PYRENE	ND	12	2.9

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	493	775.2	63.6	30-160
NITROBENZENE-D5	536	775.2	69.2	30-160
TERPHENYL-D14	802	775.2	103	40-150

METHOD 3550B/8270C SIM
PAHS BY GC/MS

```

=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                  Date Extracted: 08/15/13 12:30
Sample ID: 2A-2                       Date Analyzed: 08/16/13 21:10
Lab Samp ID: H125-02                  Dilution Factor: 1
Lab File ID: RHJ252                   Matrix      : SOIL
Ext Btch ID: SVH029S                  % Moisture   : 13.8
Calib. Ref.: RGJ400                   Instrument ID : T-OE4
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	12	2.9
ACENAPHTHYLENE	ND	12	2.9
ANTHRACENE	ND	12	2.9
BENZO(A)ANTHRACENE	ND	12	2.9
BENZO(A)PYRENE	ND	12	2.9
BENZO(B)FLUORANTHENE	ND	12	2.9
BENZO(K)FLUORANTHENE	ND	12	2.9
BENZO(G,H,I)PERYLENE	ND	12	2.9
CHRYSENE	ND	12	2.9
DIBENZO(A,H)ANTHRACENE	ND	12	2.9
FLUORANTHENE	ND	12	2.9
FLUORENE	ND	12	2.9
INDENO(1,2,3-CD)PYRENE	ND	12	2.9
NAPHTHALENE	ND	12	2.9
PHENANTHRENE	ND	12	2.9
PYRENE	ND	12	2.9

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	418	773.4	54.0	30-160
NITROBENZENE-D5	482	773.4	62.3	30-160
TERPHENYL-D14	678	773.4	87.6	40-150

METHOD 3550B/8270C SIM
PAHS BY GC/MS

```

=====
Client       : URS                      Date Collected: 07/18/13
Project      : DHCCP                   Date Received: 08/14/13
Batch No.    : 13H125                  Date Extracted: 08/15/13 12:30
Sample ID:   3A-2                      Date Analyzed: 08/16/13 21:29
Lab Samp ID: H125-03                   Dilution Factor: 1
Lab File ID: RHJ253                    Matrix       : SOIL
Ext Btch ID: SVH029S                   % Moisture    : 14.0
Calib. Ref.: RGJ400                    Instrument ID : T-OE4
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	12	2.9
ACENAPHTHYLENE	ND	12	2.9
ANTHRACENE	ND	12	2.9
BENZO(A)ANTHRACENE	ND	12	2.9
BENZO(A)PYRENE	ND	12	2.9
BENZO(B)FLUORANTHENE	ND	12	2.9
BENZO(K)FLUORANTHENE	ND	12	2.9
BENZO(G,H,I)PERYLENE	ND	12	2.9
CHRYSENE	ND	12	2.9
DIBENZO(A,H)ANTHRACENE	ND	12	2.9
FLUORANTHENE	ND	12	2.9
FLUORENE	ND	12	2.9
INDENO(1,2,3-CD)PYRENE	ND	12	2.9
NAPHTHALENE	3.2J	12	2.9
PHENANTHRENE	ND	12	2.9
PYRENE	ND	12	2.9

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	455	775.2	58.7	30-160
NITROBENZENE-D5	492	775.2	63.5	30-160
TERPHENYL-D14	706	775.2	91.1	40-150

QC SUMMARIES

METHOD 3550B/8270C SIM
PAHS BY GC/MS

```

=====
Client       : URS                      Date Collected: NA
Project      : DHCCP                   Date Received: 08/15/13
Batch No.    : 13H125                  Date Extracted: 08/15/13 12:30
Sample ID    : MBLK1S                  Date Analyzed: 08/15/13 20:27
Lab Samp ID  : SVH029SB                Dilution Factor: 1
Lab File ID  : RHJ221                  Matrix       : SOIL
Ext Btch ID  : SVH029S                 % Moisture    : NA
Calib. Ref.  : RGJ400                  Instrument ID : T-OE4
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	10	2.5
ACENAPHTHYLENE	ND	10	2.5
ANTHRACENE	ND	10	2.5
BENZO(A)ANTHRACENE	ND	10	2.5
BENZO(A)PYRENE	ND	10	2.5
BENZO(B)FLUORANTHENE	ND	10	2.5
BENZO(K)FLUORANTHENE	ND	10	2.5
BENZO(G,H,I)PERYLENE	ND	10	2.5
CHRYSENE	ND	10	2.5
DIBENZO(A,H)ANTHRACENE	ND	10	2.5
FLUORANTHENE	ND	10	2.5
FLUORENE	ND	10	2.5
INDENO(1,2,3-CD)PYRENE	ND	10	2.5
NAPHTHALENE	ND	10	2.5
PHENANTHRENE	ND	10	2.5
PYRENE	ND	10	2.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	421	666.7	63.1	30-130
NITROBENZENE-D5	446	666.7	66.9	40-130
TERPHENYL-D14	597	666.7	89.6	40-140

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13H125
METHOD: METHOD 3550B/8270C SIM

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: SVH029SB SVH029SL SVH029SC
LAB FILE ID: RHJ221 RHJ222 RHJ223
DATE EXTRACTED: 08/15/1312:30 08/15/1312:30 08/15/1312:30 DATE COLLECTED: NA
DATE ANALYZED: 08/15/1320:27 08/15/1320:47 08/15/1321:06 DATE RECEIVED: 08/15/13
PREP. BATCH: SVH029S SVH029S SVH029S
CALIB. REF: RGJ400 RGJ400 RGJ400

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Acenaphthene	ND	1330	1030	77	1330	1030	78	1	50-130	50
Acenaphthylene	ND	1330	1090	82	1330	1090	82	0	40-130	50
Anthracene	ND	1330	1000	75	1330	995	75	1	40-130	50
Benzo(a)anthracene	ND	1330	1090	81	1330	1110	83	2	50-130	50
Benzo(a)pyrene	ND	1330	1190	89	1330	1170	88	2	50-130	50
Benzo(b)fluoranthene	ND	1330	1220	92	1330	1160	87	5	50-130	50
Benzo(k)fluoranthene	ND	1330	1120	84	1330	1120	84	0	50-130	50
Benzo(g,h,i)perylene	ND	1330	1150	86	1330	1130	85	1	50-130	50
Chrysene	ND	1330	1020	77	1330	1030	78	1	50-130	50
Dibenzo(a,h)anthracene	ND	1330	1170	88	1330	1160	87	1	50-130	50
Fluoranthene	ND	1330	1090	82	1330	1080	81	1	50-130	50
Fluorene	ND	1330	1100	83	1330	1080	81	2	50-130	50
Indeno(1,2,3-cd)pyrene	ND	1330	1190	89	1330	1170	88	1	50-130	50
Naphthalene	ND	1330	890	67	1330	919	69	3	50-130	50
Phenanthrene	ND	1330	996	75	1330	994	75	0	50-130	50
Pyrene	ND	1330	1060	80	1330	1060	79	1	50-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2-Fluorobiphenyl	667	396	59	667	415	62	30-130
Nitrobenzene-d5	667	391	59	667	413	62	40-130
Terphenyl-d14	667	541	81	667	546	82	40-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

SDG#: 13H125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

A total of three (3) soil samples were received on 08/14/13 for TPH-Gasoline analysis, Method 5030B/8015B in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were received out of prescribed holding time and without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for GMH004SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogate was added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      SDG NO.       : 13H125
Project     : DHCCP                  Instrument ID  : GCT039
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	GMH004SB	1	NA	08/21/1301:45	08/21/1301:45	EH19059A	EH19055A	GMH004S	Method Blank
LCS1S	GMH004SL	1	NA	08/20/1323:47	08/20/1323:47	EH19056A	EH19055A	GMH004S	Lab Control Sample (LCS)
LCD1S	GMH004SC	1	NA	08/21/1300:27	08/21/1300:27	EH19057A	EH19055A	GMH004S	LCS Duplicate
1A-2	H125-01	0.99	14.0	08/21/1303:42	08/21/1303:42	EH19062A	EH19055A	GMH004S	Field Sample
2A-2	H125-02	0.99	13.8	08/21/1304:21	08/21/1304:21	EH19063A	EH19055A	GMH004S	Field Sample
3A-2	H125-03	0.97	14.0	08/21/1305:01	08/21/1305:01	EH19064A	EH19055A	GMH004S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/21/13 03:42
Sample ID   : 1A-2                   Date Analyzed: 08/21/13 03:42
Lab Samp ID : H125-01                 Dilution Factor: 0.99
Lab File ID : EH19062A               Matrix          : SOIL
Ext Btch ID : GMH004S                % Moisture       : 14.0
Calib. Ref. : EH19055A               Instrument ID    : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
GASOLINE	ND	1.2	0.58

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
BROMOFLUOROBENZENE	1.94	2.302	84.1	10-160

Parameter	H-C Range
Gasoline	C6-C10

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/21/13 04:21
Sample ID   : 2A-2                   Date Analyzed: 08/21/13 04:21
Lab Samp ID : H125-02                Dilution Factor: 0.99
Lab File ID : EH19063A               Matrix       : SOIL
Ext Btch ID : GMH004S                % Moisture    : 13.8
Calib. Ref. : EH19055A               Instrument ID : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
GASOLINE	ND	1.1	0.57

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
BROMOFLUOROBENZENE	1.98	2.297	86.2	10-160

Parameter	H-C Range
Gasoline	C6-C10

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/21/13 05:01
Sample ID   : 3A-2                   Date Analyzed: 08/21/13 05:01
Lab Samp ID : H125-03                Dilution Factor: 0.97
Lab File ID : EH19064A               Matrix          : SOIL
Ext Btch ID : GMH004S                % Moisture       : 14.0
Calib. Ref. : EH19055A               Instrument ID    : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
GASOLINE	ND	1.1	0.56

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
BROMOFLUOROBENZENE	1.90	2.256	84.4	10-160

Parameter	H-C Range
Gasoline	C6-C10

QC SUMMARIES

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 08/21/13
Batch No.   : 13H125                 Date Extracted: 08/21/13 01:45
Sample ID   : MBLK1S                 Date Analyzed: 08/21/13 01:45
Lab Samp ID : GMH004SB               Dilution Factor: 1
Lab File ID : EH19059A              Matrix       : SOIL
Ext Btch ID : GMH004S              % Moisture    : NA
Calib. Ref. : EH19055A             Instrument ID : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
GASOLINE	ND	1.0	0.50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
BROMOFLUOROBENZENE	1.76	2.000	87.8	70-140

Parameter	H-C Range
Gasoline	C6-C10

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13H125
METHOD: METHOD 5030B/8015B

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: GMH004SB GMH004SL GMH004SC
LAB FILE ID: EH19059A EH19056A EH19057A
DATE EXTRACTED: 08/21/1301:45 08/20/1323:47 08/21/1300:27 DATE COLLECTED: NA
DATE ANALYZED: 08/21/1301:45 08/20/1323:47 08/21/1300:27 DATE RECEIVED: 08/20/13
PREP. BATCH: GMH004S GMH004S GMH004S
CALIB. REF: EH19055A EH19055A EH19055A

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Gasoline	ND	25.0	24.4	97	25.0	22.9	92	6	60-130	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Bromofluorobenzene	2.00	2.13	107	2.00	2.06	103	70-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 13H125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

A total of three (3) soil samples were received on 08/14/13 for TPH Diesel analysis, Method 3550B/8015B in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were received out of prescribed holding time and without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for DSH023SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      SDG NO.       : 13H125
Project     : DHCCP                   Instrument ID  : GCT105
=====
```

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	SOIL	Extraction DateTime	Sample Data FN	Calibration Prep.		Notes
				Analysis DateTime			Data FN	Batch	
MBLK1S	DSH023SB	1	NA	08/15/1318:11	08/15/1315:12	LH15005A	LH15003A	DSH023S	Method Blank
LCS1S	DSH023SL	1	NA	08/15/1318:28	08/15/1315:12	LH15006A	LH15003A	DSH023S	Lab Control Sample (LCS)
LCD1S	DSH023SC	1	NA	08/15/1318:45	08/15/1315:12	LH15007A	LH15003A	DSH023S	LCS Duplicate
1A-2	H125-01	1	14.0	08/15/1320:10	08/15/1315:12	LH15012A	LH15003A	DSH023S	Field Sample
2A-2	H125-02	1	13.8	08/15/1320:27	08/15/1315:12	LH15013A	LH15003A	DSH023S	Field Sample
3A-2	H125-03	1	14.0	08/15/1320:44	08/15/1315:12	LH15014A	LH15003A	DSH023S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                  Date Extracted: 08/15/13 15:12
Sample ID   : 1A-2                    Date Analyzed: 08/15/13 20:10
Lab Samp ID : H125-01                 Dilution Factor: 1
Lab File ID : LH15012A                Matrix          : SOIL
Ext Btch ID : DSH023S                 % Moisture       : 14.0
Calib. Ref. : LH15003A                Instrument ID    : GCT105
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.8

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	96.3	116.3	82.9	50-130
HEXACOSANE	32.6	29.07	112	40-160

RL : Reporting Limit
 Parameter H-C Range
 Diesel C10-C24

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/15/13 15:12
Sample ID   : 2A-2                   Date Analyzed: 08/15/13 20:27
Lab Samp ID : H125-02                 Dilution Factor: 1
Lab File ID : LH15013A                Matrix          : SOIL
Ext Btch ID : DSH023S                 % Moisture       : 13.8
Calib. Ref. : LH15003A                Instrument ID    : GCT105
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.8

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	91.9	116.0	79.2	50-130
HEXACOSANE	32.3	29.00	111	40-160

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/15/13 15:12
Sample ID   : 3A-2                   Date Analyzed: 08/15/13 20:44
Lab Samp ID : H125-03                Dilution Factor: 1
Lab File ID : LH15014A               Matrix          : SOIL
Ext Btch ID : DSH023S                % Moisture       : 14.0
Calib. Ref. : LH15003A               Instrument ID    : GCT105
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	5.8

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	61.4	116.3	52.8	50-130
HEXACOSANE	31.7	29.07	109	40-160

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

QC SUMMARIES

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 08/15/13
Batch No.   : 13H125                 Date Extracted: 08/15/13 15:12
Sample ID   : MBLK1S                 Date Analyzed: 08/15/13 18:11
Lab Samp ID : DSH023SB               Dilution Factor: 1
Lab File ID : LH15005A               Matrix          : SOIL
Ext Btch ID : DSH023S                % Moisture       : NA
Calib. Ref. : LH15003A               Instrument ID    : GCT105
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	92.1	100.0	92.1	50-130
HEXACOSANE	28.0	25.00	112	60-130

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13H125
METHOD: METHOD 3550B/8015B

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: DSH023SB DSH023SL DSH023SC
LAB FILE ID: LH15005A LH15006A LH15007A
DATE EXTRACTED: 08/15/1315:12 08/15/1315:12 08/15/1315:12 DATE COLLECTED: NA
DATE ANALYZED: 08/15/1318:11 08/15/1318:28 08/15/1318:45 DATE RECEIVED: 08/15/13
PREP. BATCH: DSH023S DSH023S DSH023S
CALIB. REF: LH15003A LH15003A LH15003A

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	500	412	82	500	420	84	2	60-130	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Bromobenzene	100	92.2	92	100	91.9	92	50-130
Hexacosane	25.0	27.2	109	25.0	27.1	109	60-130

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8081A
PESTICIDES

SDG#: 13H125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 3550B/8081A
PESTICIDES

A total of three (3) soil samples were received on 08/14/13 for Pesticides Organochlorine analysis, Method 3550B/8081A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were received out of prescribed holding time and without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Instrument Performance and Calibration

Instrument performance was checked prior to calibration. DDT and Endrin breakdown were within specification. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for CPH019SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter. Positive sample results were confirmed by a second column. Relative percentage difference (RPD) between the two results was evaluated. If RPD is less than 40% and peaks are well defined the higher result is reported. Where RPD is greater than 40% the chromatogram is checked for anomalies and results are selected based on processed knowledge. If there is no evidence of any chromatographic ambiguity, the higher result is reported.

LAB CHRONICLE
PESTICIDES

```
=====
Client      : URS                                     SDG NO.       : 13H125
Project     : DHCCP                                   Instrument ID  : E8
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	CPH019SB	1	NA	08/17/1303:10	08/16/1315:47	MH16028A	MH16024A	CPH019S	Method Blank
LCS1S	CPH019SL	1	NA	08/17/1303:30	08/16/1315:47	MH16029A	MH16024A	CPH019S	Lab Control Sample (LCS)
LCD1S	CPH019SC	1	NA	08/17/1303:50	08/16/1315:47	MH16030A	MH16024A	CPH019S	LCS Duplicate
1A-2	H125-01	1	14.0	08/17/1304:11	08/16/1315:47	MH16031A	MH16024A	CPH019S	Field Sample
2A-2	H125-02	1	13.8	08/17/1304:31	08/16/1315:47	MH16032A	MH16024A	CPH019S	Field Sample
3A-2	H125-03	1	14.0	08/17/1304:51	08/16/1315:47	MH16033A	MH16024A	CPH019S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8081A
PESTICIDES

```

=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/16/13 15:47
Sample ID: 1A-2                     Date Analyzed: 08/17/13 04:11
Lab Samp ID: H125-01                Dilution Factor: 1
Lab File ID: MH16031A               Matrix      : SOIL
Ext Btch ID: CPH019S                % Moisture   : 14.0
Calib. Ref.: MH16024A               Instrument ID : GCE8
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.3	0.47 0.47
GAMMA-BHC (LINDANE)	(ND) ND	2.3	0.47 0.47
BETA-BHC	(ND) ND	2.3	0.47 0.47
HEPTACHLOR	(ND) ND	2.3	0.47 0.47
DELTA-BHC	(ND) ND	2.3	0.47 0.47
ALDRIN	(ND) 0.88J	2.3	0.47 0.47
HEPTACHLOR EPOXIDE	(ND) ND	2.3	0.47 0.47
GAMMA-CHLORDANE	(ND) ND	2.3	0.47 0.47
ALPHA-CHLORDANE	(ND) ND	2.3	0.47 0.47
ENDOSULFAN I	(ND) ND	2.3	0.47 0.47
4,4'-DDE	(ND) ND	2.3	0.47 0.47
DELDRIN	(ND) ND	2.3	0.47 0.47
ENDRIN	(ND) ND	2.3	0.47 0.47
4,4'-DDD	(ND) ND	2.3	0.47 0.47
ENDOSULFAN II	(ND) ND	2.3	0.47 0.47
4,4'-DDT	(ND) ND	2.3	0.47 0.47
ENDRIN ALDEHYDE	(ND) ND	2.3	0.47 0.47
ENDOSULFAN SULFATE	(ND) ND	2.3	0.47 0.47
ENDRIN KETONE	(ND) ND	2.3	0.47 0.47
METHOXYCHLOR	(ND) 6.4J	12	4.7 4.7
TOXAPHENE	(ND) ND	58	12 12

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(14.67) 14.65	15.50	(94.6) 94.5	50-140
DECACHLOROBIPHENYL	(14.56) 14.11	15.50	(94.0) 91.0	10-160

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

```

=====
Client       : URS                      Date Collected: 07/18/13
Project      : DHCCP                   Date Received: 08/14/13
Batch No.    : 13H125                  Date Extracted: 08/16/13 15:47
Sample ID    : 2A-2                    Date Analyzed: 08/17/13 04:31
Lab Samp ID  : H125-02                 Dilution Factor: 1
Lab File ID  : MH16032A                Matrix       : SOIL
Ext Btch ID  : CPH019S                 % Moisture    : 13.8
Calib. Ref.  : MH16024A                Instrument ID : GCE8
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.3	0.46 0.46
GAMMA-BHC (LINDANE)	(ND) ND	2.3	0.46 0.46
BETA-BHC	(ND) ND	2.3	0.46 0.46
HEPTACHLOR	(ND) ND	2.3	0.46 0.46
DELTA-BHC	(ND) ND	2.3	0.46 0.46
ALDRIN	(ND) 1.0J	2.3	0.46 0.46
HEPTACHLOR EPOXIDE	(ND) ND	2.3	0.46 0.46
GAMMA-CHLORDANE	(ND) ND	2.3	0.46 0.46
ALPHA-CHLORDANE	(ND) ND	2.3	0.46 0.46
ENDOSULFAN I	(ND) ND	2.3	0.46 0.46
4,4'-DDE	(ND) ND	2.3	0.46 0.46
DIELDRIN	(ND) ND	2.3	0.46 0.46
ENDRIN	(ND) ND	2.3	0.46 0.46
4,4'-DDD	(ND) ND	2.3	0.46 0.46
ENDOSULFAN II	(ND) ND	2.3	0.46 0.46
4,4'-DDT	(ND) ND	2.3	0.46 0.46
ENDRIN ALDEHYDE	(ND) ND	2.3	0.46 0.46
ENDOSULFAN SULFATE	(ND) ND	2.3	0.46 0.46
ENDRIN KETONE	(ND) ND	2.3	0.46 0.46
METHOXYCHLOR	(ND) 5.4J	12	4.6 4.6
TOXAPHENE	(ND) ND	58	12 12

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(15.10) 15.03	15.46	(97.6) 97.2	50-140
DECACHLOROBIPHENYL	(14.92) 14.17	15.46	(96.5) 91.6	10-160

RL: Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

```

=====
Client       : URS                      Date Collected: 07/18/13
Project      : DHCCP                   Date Received: 08/14/13
Batch No.    : 13H125                  Date Extracted: 08/16/13 15:47
Sample ID:   3A-2                      Date Analyzed: 08/17/13 04:51
Lab Samp ID: H125-03                  Dilution Factor: 1
Lab File ID: MH16033A                 Matrix       : SOIL
Ext Btch ID: CPH019S                  % Moisture    : 14.0
Calib. Ref.: MH16024A                 Instrument ID : GCE8
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
ALPHA-BHC	(ND) ND	2.3	0.47	0.47
GAMMA-BHC (LINDANE)	(ND) ND	2.3	0.47	0.47
BETA-BHC	(ND) ND	2.3	0.47	0.47
HEPTACHLOR	(ND) ND	2.3	0.47	0.47
DELTA-BHC	(ND) ND	2.3	0.47	0.47
ALDRIN	(ND) 0.81J	2.3	0.47	0.47
HEPTACHLOR EPOXIDE	(ND) ND	2.3	0.47	0.47
GAMMA-CHLORDANE	(ND) ND	2.3	0.47	0.47
ALPHA-CHLORDANE	(ND) ND	2.3	0.47	0.47
ENDOSULFAN I	(ND) ND	2.3	0.47	0.47
4,4'-DDE	(ND) ND	2.3	0.47	0.47
DIELDRIN	(ND) ND	2.3	0.47	0.47
ENDRIN	(ND) ND	2.3	0.47	0.47
4,4'-DDD	(ND) ND	2.3	0.47	0.47
ENDOSULFAN II	(ND) ND	2.3	0.47	0.47
4,4'-DDT	(ND) ND	2.3	0.47	0.47
ENDRIN ALDEHYDE	(ND) ND	2.3	0.47	0.47
ENDOSULFAN SULFATE	(ND) ND	2.3	0.47	0.47
ENDRIN KETONE	(ND) ND	2.3	0.47	0.47
METHOXYCHLOR	(ND) 6.3J	12	4.7	4.7
TOXAPHENE	(ND) ND	58	12	12
SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(14.94) 14.33	15.50	(96.4) 92.4	50-140
DECACHLOROBIPHENYL	(15.03) 14.51	15.50	(97.0) 93.6	10-160

RL: Reporting limit

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

QC SUMMARIES

METHOD 3550B/8081A
PESTICIDES

```

=====
Client       : URS                               Date Collected: NA
Project      : DHCCP                             Date Received: 08/16/13
Batch No.    : 13H125                           Date Extracted: 08/16/13 15:47
Sample ID    : MBLK1S                            Date Analyzed: 08/17/13 03:10
Lab Samp ID  : CPH019SB                         Dilution Factor: 1
Lab File ID  : MH16028A                         Matrix          : SOIL
Ext Btch ID  : CPH019S                          % Moisture       : NA
Calib. Ref.  : MH16024A                         Instrument ID    : GCE8
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
ALPHA-BHC	(ND) ND	2.0	0.40	0.40
GAMMA-BHC (LINDANE)	(ND) ND	2.0	0.40	0.40
BETA-BHC	(ND) ND	2.0	0.40	0.40
HEPTACHLOR	(ND) ND	2.0	0.40	0.40
DELTA-BHC	(ND) ND	2.0	0.40	0.40
ALDRIN	(ND) ND	2.0	0.40	0.40
HEPTACHLOR EPOXIDE	(ND) ND	2.0	0.40	0.40
GAMMA-CHLORDANE	(ND) ND	2.0	0.40	0.40
ALPHA-CHLORDANE	(ND) ND	2.0	0.40	0.40
ENDOSULFAN I	(ND) ND	2.0	0.40	0.40
4,4'-DDE	(ND) ND	2.0	0.40	0.40
DIELDRIN	(ND) ND	2.0	0.40	0.40
ENDRIN	(ND) ND	2.0	0.40	0.40
4,4'-DDD	(ND) ND	2.0	0.40	0.40
ENDOSULFAN II	(ND) ND	2.0	0.40	0.40
4,4'-DDT	(ND) ND	2.0	0.40	0.40
ENDRIN ALDEHYDE	(ND) ND	2.0	0.40	0.40
ENDOSULFAN SULFATE	(ND) ND	2.0	0.40	0.40
ENDRIN KETONE	(ND) ND	2.0	0.40	0.40
METHOXYCHLOR	(ND) ND	10	4.0	4.0
TOXAPHENE	(ND) ND	50	10	10
ALP				
SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	12.75 (12.77)	13.33	95.7 (95.8)	60-130
DECAHCHLOROBIPHENYL	(13.14) 12.88	13.33	(98.5) 96.7	60-140

RL: Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13H125
METHOD: SW3550B/8081A

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MATRIX: SOIL
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: CPH019SB CPH019SL CPH019SC
LAB FILE ID: MH16028A MH16029A MH16030A
DATE EXTRACTED: 08/16/1315:47 08/16/1315:47 08/16/1315:47 DATE COLLECTED: NA
DATE ANALYZED: 08/17/1303:10 08/17/1303:30 08/17/1303:50 DATE RECEIVED: 08/16/13
PREP. BATCH: CPH019S CPH019S CPH019S
CALIB. REF: MH16024A MH16024A MH16024A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
alpha-BHC	(ND) ND	6.67	6.53 (6.75)	98 (101)	6.67	6.66 (6.89)	100 (103)	2 (2)	50-140	50
gamma-BHC (Lindane)	(ND) ND	6.67	6.54 (6.60)	98 (99)	6.67	6.68 (6.74)	100 (101)	2 (2)	60-130	50
beta-BHC	(ND) ND	6.67	(7.79) 7.30	(117) 109	6.67	(7.90) 7.64	(118) 115	(1) 5	50-130	50
Heptachlor	(ND) ND	6.67	(6.77) 6.66	(101) 100	6.67	(6.81) 6.77	(102) 101	(1) 2	50-140	50
delta-BHC	(ND) ND	6.67	7.44 (7.53)	112 (113)	6.67	7.67 (7.70)	115 (115)	3 (2)	50-150	50
Aldrin	(ND) ND	6.67	6.39 (6.49)	96 (97)	6.67	6.51 (6.55)	98 (98)	2 (1)	60-140	50
Heptachlor Epoxide	(ND) ND	6.67	6.72 (6.85)	101 (103)	6.67	6.96 (7.01)	104 (105)	4 (2)	70-130	50
gamma-Chlordane	(ND) ND	6.67	6.76 (7.08)	101 (106)	6.67	6.94 (7.22)	104 (108)	3 (2)	70-130	50
alpha-Chlordane	(ND) ND	6.67	6.70 (6.83)	100 (102)	6.67	6.86 (6.96)	103 (104)	2 (2)	70-130	50
Endosulfan I	(ND) ND	6.67	6.43 (6.88)	96 (103)	6.67	6.59 (7.02)	99 (105)	2 (2)	60-130	50
4,4'-DDE	(ND) ND	6.67	6.52 (7.05)	98 (106)	6.67	6.70 (7.19)	100 (108)	3 (2)	70-140	50
Dieldrin	(ND) ND	6.67	6.76 (7.33)	101 (110)	6.67	6.95 (7.53)	104 (113)	3 (3)	70-140	50
Endrin	(ND) ND	6.67	6.87 (7.33)	103 (110)	6.67	7.06 (7.48)	106 (112)	3 (2)	70-150	50
4,4'-DDD	(ND) ND	6.67	6.80 (7.64)	102 (115)	6.67	7.00 (7.83)	105 (117)	3 (2)	70-140	50
Endosulfan II	(ND) ND	6.67	6.79 (7.16)	102 (107)	6.67	7.03 (7.23)	105 (108)	3 (1)	70-130	50
4,4'-DDT	(ND) ND	6.67	(7.74) 7.49	(116) 112	6.67	(7.97) 7.72	(119) 116	(3) 3	70-150	50
Endrin aldehyde	(ND) ND	6.67	7.11 (7.58)	107 (114)	6.67	7.25 (7.75)	109 (116)	2 (2)	70-130	50
Endosulfan Sulfate	(ND) ND	6.67	7.17 (7.42)	107 (111)	6.67	7.28 (7.73)	109 (116)	2 (4)	70-150	50
Endrin Ketone	(ND) ND	6.67	6.83 (7.29)	102 (109)	6.67	7.03 (7.51)	105 (113)	3 (3)	70-140	50
Methoxychlor	(ND) ND	66.7	71.2 (76.2)	107 (114)	66.7	73.1 (78.0)	110 (117)	3 (2)	70-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	13.33	(12.28) 12.23	(92.1) 91.7	13.33	(12.00) 11.83	(90.1) 88.8	60-130
Decachlorobiphenyl	13.33	(12.71) 12.15	(95.4) 91.1	13.33	(12.59) 12.06	(94.5) 90.5	60-140

5019

DWR-207

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8082
PCBS

SDG#: 13H125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 3550B/8082
PCBS

A total of three (3) soil samples were received on 08/14/13 for Polychlorinated Biphenyls (PCBs) analysis, Method 3550B/8082 in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were received out of prescribed holding time and without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for 60H019SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter. Sample extracts subjected to appropriate cleanup technique to reduce matrix interference are recorded in extraction log.

LAB CHRONICLE
PCBs

Client : URS SDG NO. : 13H125
Project : DHCCP Instrument ID : 08

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	60H019SB	1	NA	08/19/1311:32	08/16/1315:47	SH19007A	SH19003A	CPH019S	Method Blank
LCS1S	60H019SL	1	NA	08/19/1311:50	08/16/1315:47	SH19008A	SH19003A	CPH019S	Lab Control Sample (LCS)
LCD1S	60H019SC	1	NA	08/19/1312:08	08/16/1315:47	SH19009A	SH19003A	CPH019S	LCS Duplicate
1A-2	H125-01	1	14.0	08/19/1312:27	08/16/1315:47	SH19010A	SH19003A	CPH019S	Field Sample
2A-2	H125-02	1	13.8	08/19/1312:45	08/16/1315:47	SH19011A	SH19003A	CPH019S	Field Sample
3A-2	H125-03	1	14.0	08/19/1313:03	08/16/1315:47	SH19012A	SH19003A	CPH019S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8082
PCBs

```

=====
Client       : URS                      Date Collected: 07/18/13
Project      : DHCCP                   Date Received: 08/14/13
Batch No.    : 13H125                 Date Extracted: 08/16/13 15:47
Sample ID:   1A-2                     Date Analyzed: 08/19/13 12:27
Lab Samp ID: H125-01                 Dilution Factor: 1
Lab File ID: SH19010A                Matrix       : SOIL
Ext Btch ID: CPH019S                 % Moisture    : 14.0
Calib. Ref.: SH19003A                 Instrument ID : 08
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	58	19 19
PCB-1221	(ND) ND	58	19 19
PCB-1232	(ND) ND	58	19 19
PCB-1242	(ND) ND	58	19 19
PCB-1248	(ND) ND	58	19 19
PCB-1254	(ND) ND	58	19 19
PCB-1260	(ND) ND	58	19 19

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	14.99 (15.14)	15.50	96.7 (97.7)	50-130
DECACHLOROBIPHENYL	(16.77) 14.97	15.50	(108) 96.6	50-150

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

METHOD 3550B/8082
PCBs

```

=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/16/13 15:47
Sample ID   : 2A-2                   Date Analyzed: 08/19/13 12:45
Lab Samp ID : H125-02                Dilution Factor: 1
Lab File ID : SH19011A               Matrix      : SOIL
Ext Btch ID : CPH019S                % Moisture   : 13.8
Calib. Ref. : SH19003A               Instrument ID : 08
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	58	19 19
PCB-1221	(ND) ND	58	19 19
PCB-1232	(ND) ND	58	19 19
PCB-1242	(ND) ND	58	19 19
PCB-1248	(ND) ND	58	19 19
PCB-1254	(ND) ND	58	19 19
PCB-1260	(ND) ND	58	19 19

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	16.04 (16.17)	15.46	104 (105)	50-130
DECACHLOROBIPHENYL	(17.48) 15.57	15.46	(113) 101	50-150

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

METHOD 3550B/8082
PCBs

```

=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/16/13 15:47
Sample ID   : 3A-2                   Date Analyzed: 08/19/13 13:03
Lab Samp ID : H125-03                Dilution Factor: 1
Lab File ID : SH19012A               Matrix      : SOIL
Ext Btch ID : CPH019S                % Moisture   : 14.0
Calib. Ref.: SH19003A                Instrument ID : 08
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
PCB-1016	(ND) ND	58	19 19	
PCB-1221	(ND) ND	58	19 19	
PCB-1232	(ND) ND	58	19 19	
PCB-1242	(ND) ND	58	19 19	
PCB-1248	(ND) ND	58	19 19	
PCB-1254	(ND) ND	58	19 19	
PCB-1260	(ND) ND	58	19 19	

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	15.07 (15.26)	15.50	97.2 (98.5)	50-130
DECACHLOROBIPHENYL	(16.73) 15.49	15.50	(108) 100	50-150

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

QC SUMMARIES

METHOD 3550B/8082
PCBs

```

=====
Client       : URS                      Date Collected: NA
Project      : DHCCP                   Date Received: 08/16/13
Batch No.    : 13H125                  Date Extracted: 08/16/13 15:47
Sample ID:   MBLK1S                    Date Analyzed: 08/19/13 11:32
Lab Samp ID: 60H019SB                 Dilution Factor: 1
Lab File ID: SH19007A                 Matrix       : SOIL
Ext Btch ID: CPH019S                  % Moisture    : NA
Calib. Ref.: SH19003A                 Instrument ID : 08
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	50	17 17
PCB-1221	(ND) ND	50	17 17
PCB-1232	(ND) ND	50	17 17
PCB-1242	(ND) ND	50	17 17
PCB-1248	(ND) ND	50	17 17
PCB-1254	(ND) ND	50	17 17
PCB-1260	(ND) ND	50	17 17

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	12.67 (13.41)	13.33	95.0 (101)	60-130
DECACHLOROBIPHENYL	(14.29) 13.60	13.33	(107) 102	70-140

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13H125
METHOD: METHOD 3550B/8082

MATRIX: SOIL
DILUTION FACTOR: 1 1 1 % MOISTURE: NA
SAMPLE ID: MBLK1S
LAB SAMP ID: 60H019SB 60H019SL 60H019SC
LAB FILE ID: SH19007A SH19008A SH19009A
DATE EXTRACTED: 08/16/1315:47 08/16/1315:47 08/16/1315:47 DATE COLLECTED: NA
DATE ANALYZED: 08/19/1311:32 08/19/1311:50 08/19/1312:08 DATE RECEIVED: 08/16/13
PREP. BATCH: CPH019S CPH019S CPH019S
CALIB. REF: SH19003A SH19003A SH19003A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
PCB-1016	(ND) ND	167	151 (170)	91 (102)	167	149 (170)	89 (102)	1 (0)	70-140	50
PCB-1260	(ND) ND	167	153 (156)	92 (94)	167	149 (153)	89 (92)	3 (2)	70-140	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	13.33	11.99 (12.09)	89.9 (90.7)	13.33	12.52 (12.61)	93.9 (94.6)	60-130
Decachlorobiphenyl	13.33	(13.73) 12.66	(103) 95.0	13.33	(15.10) 12.93	(113) 97.0	70-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 8151A
HERBICIDES

SDG#: 13H125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 8151A
HERBICIDES

A total of three (3) soil samples were received on 08/14/13 for Chlorinated Herbicides analysis, Method 8151A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were received out of prescribed holding time and without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HEH006SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogate was added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
HERBICIDES

Client : URS SDG NO. : 13H125
Project : DHCCP Instrument ID : 16

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	HEH006SB	1	NA	08/19/1311:37	08/16/1315:48	WH19007A	WH19002A	HEH006S	Method Blank
LCS1S	HEH006SL	1	NA	08/19/1312:08	08/16/1315:48	WH19008A	WH19002A	HEH006S	Lab Control Sample (LCS)
LCD1S	HEH006SC	1	NA	08/19/1312:39	08/16/1315:48	WH19009A	WH19002A	HEH006S	LCS Duplicate
1A-2	H125-01	1	14.0	08/19/1313:09	08/16/1315:48	WH19010A	WH19002A	HEH006S	Field Sample
2A-2	H125-02	1	13.8	08/19/1313:40	08/16/1315:48	WH19011A	WH19002A	HEH006S	Field Sample
3A-2	H125-03	1	14.0	08/19/1314:11	08/16/1315:48	WH19012A	WH19002A	HEH006S	Field Sample

FN - Filename
% Moist - Percent Moisture

“

SAMPLE RESULTS

METHOD 8151A
HERBICIDES

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=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/16/13 15:48
Sample ID   : 1A-2                   Date Analyzed: 08/19/13 13:09
Lab Samp ID : H125-01                Dilution Factor: 1
Lab File ID : WH19010A               Matrix       : SOIL
Ext Btch ID : HEH006S                % Moisture    : 14.0
Calib. Ref. : WH19002A               Instrument ID : GCT016
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
2,4-D	(ND) ND	12	5.8 5.8	
2,4-DB	(ND) ND	12	5.8 5.8	
2,4,5-T	(ND) ND	12	5.8 5.8	
2,4,5-TP(SILVEX)	(ND) ND	12	5.8 5.8	
DALAPON	(ND) ND	12	5.8 5.8	
DICAMBA	(ND) ND	12	5.8 5.8	
DICHLOROPROP	(ND) ND	12	5.8 5.8	
DINoseb	(ND) ND	12	5.8 5.8	
MCPA	(ND) ND	2300	1200 1200	
MCP	(ND) ND	2300	1200 1200	
SURROGATE PARAMETERS				
	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	(622.4) 617.2	581.4	(107) 106	20-150

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

METHOD 8151A
HERBICIDES

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=====
Client       : URS                      Date Collected: 07/18/13
Project      : DHCCP                   Date Received: 08/14/13
Batch No.    : 13H125                  Date Extracted: 08/16/13 15:48
Sample ID    : 2A-2                    Date Analyzed: 08/19/13 13:40
Lab Samp ID  : H125-02                 Dilution Factor: 1
Lab File ID  : WH19011A                Matrix       : SOIL
Ext Btch ID  : HEH006S                 % Moisture    : 13.8
Calib. Ref.  : WH19002A                Instrument ID : GCT016
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) ND	12	5.8 5.8
2,4-DB	(ND) ND	12	5.8 5.8
2,4,5-T	(ND) ND	12	5.8 5.8
2,4,5-TP(SILVEX)	(ND) ND	12	5.8 5.8
DALAPON	(ND) ND	12	5.8 5.8
DICAMBA	(ND) ND	12	5.8 5.8
DICHLOROPROP	(ND) ND	12	5.8 5.8
DINOSEB	(ND) ND	12	5.8 5.8
MCPA	(ND) ND	2300	1200 1200
MCPP	(ND) ND	2300	1200 1200

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	(635.6) 629.0	580.0	(110) 108	20-150

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

METHOD 8151A
HERBICIDES

```

=====
Client      : URS                      Date Collected: 07/18/13
Project     : DHCCP                   Date Received: 08/14/13
Batch No.   : 13H125                 Date Extracted: 08/16/13 15:48
Sample ID: 3A-2                     Date Analyzed: 08/19/13 14:11
Lab Samp ID: H125-03                Dilution Factor: 1
Lab File ID: WH19012A               Matrix      : SOIL
Ext Btch ID: HEH006S                % Moisture   : 14.0
Calib. Ref.: WH19002A               Instrument ID : GCT016
=====

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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
2,4-D	(ND) ND	12	5.8 5.8	
2,4-DB	(ND) ND	12	5.8 5.8	
2,4,5-T	(ND) ND	12	5.8 5.8	
2,4,5-TP(SILVEX)	(ND) ND	12	5.8 5.8	
DALAPON	(ND) ND	12	5.8 5.8	
DICAMBA	(ND) ND	12	5.8 5.8	
DICHLOROPROP	(ND) ND	12	5.8 5.8	
DINOSEB	(ND) ND	12	5.8 5.8	
MCPA	(ND) ND	2300	1200 1200	
MCP	(ND) ND	2300	1200 1200	

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	(592.1) 588.3	581.4	(102) 101	20-150

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

QC SUMMARIES

METHOD 8151A
HERBICIDES

```

=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 08/16/13
Batch No.   : 13H125                 Date Extracted: 08/16/13 15:48
Sample ID   : MBLK1S                 Date Analyzed: 08/19/13 11:37
Lab Samp ID : HEH006SB               Dilution Factor: 1
Lab File ID : WH19007A              Matrix       : SOIL
Ext Btch ID : HEH006S                % Moisture    : NA
Calib. Ref. : WH19002A              Instrument ID : GCT016
=====

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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) ND	10	5.0 5.0
2,4-DB	(ND) ND	10	5.0 5.0
2,4,5-T	(ND) ND	10	5.0 5.0
2,4,5-TP(SILVEX)	(ND) ND	10	5.0 5.0
DALAPON	(ND) ND	10	5.0 5.0
DICAMBA	(ND) ND	10	5.0 5.0
DICHLOROPROP	(ND) ND	10	5.0 5.0
DINoseb	(ND) ND	10	5.0 5.0
MCPA	(ND) ND	2000	1000 1000
MCPP	(ND) ND	2000	1000 1000

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	(546.0) 542.3	500.0	(109) 108	60-140

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13H125
METHOD: METHOD 8151A

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MATRIX: SOIL
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: HEH006SB HEH006SL HEH006SC
LAB FILE ID: WH19007A WH19008A WH19009A
DATE EXTRACTED: 08/16/1315:48 08/16/1315:48 08/16/1315:48 DATE COLLECTED: NA
DATE ANALYZED: 08/19/1311:37 08/19/1312:08 08/19/1312:39 DATE RECEIVED: 08/16/13
PREP. BATCH: HEH006S HEH006S HEH006S
CALIB. REF: WH19002A WH19002A WH19002A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
2,4-D	(ND) ND	50.0	(56.0) 53.5	(112) 107	50.0	(58.0) 56.1	(116) 112	(4) 5	60-150	50
2,4-DB	(ND) ND	50.0	(57.0) 52.8	(114) 106	50.0	54.0 (59.2)	108 (118)	5 (11)	60-140	50
2,4,5-T	(ND) ND	50.0	53.8 (56.4)	108 (113)	50.0	54.5 (61.3)	109 (123)	1 (8)	60-140	50
2,4,5-TP(Silvex)	(ND) ND	50.0	55.5 (56.3)	111 (113)	50.0	56.8 (57.5)	114 (115)	2 (2)	50-150	50
Dalapon	(ND) ND	50.0	48.2 (58.4)	96 (117)	50.0	49.3 (66.6)	99 (133)	2 (13)	10-160	50
Dicamba	(ND) ND	50.0	50.8 (52.6)	102 (105)	50.0	53.3 (53.5)	107 (107)	5 (2)	30-130	50
Dichloroprop	(ND) ND	50.0	58.6 (59.4)	117 (119)	50.0	60.4 (60.7)	121 (121)	3 (2)	30-130	50
Dinoseb	(ND) ND	50.0	(50.1) 45.6	(100) 91	50.0	(50.7) 47.4	(101) 95	(1) 4	30-130	50
MCPA	(ND) ND	2500	2380 (2490)	95 (100)	2500	2520 (2570)	101 (103)	6 (3)	30-130	50
MCPP	(ND) ND	2500	(2530) 2250	(101) 90	2500	(2670) 2240	(107) 90	(5) 0	30-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2,4-DCPAA	500.0	510.7 (511.5)	102 (102)	500.0	(558.7) 554.4	(112) 111	60-140

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DWR-207

LABORATORY REPORT FOR

URS

DHCCP

METALS / MERCURY

SDG#: 13H125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 6020A
METALS BY ICP-MS

A total of three (3) soil samples were received on 08/14/13 for Metals CAM analysis, Method 6020A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source. Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for IMH034SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated for this SDG. Analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
METALS BY ICP-MS

Client	: URS	SDG NO.	: 13H125
Project	: DHCCP	Instrument ID	: T-I98

SOIL									
Client	Laboratory	Dilution	%	Analysis	Extraction	Sample	Calibration	Prep.	
Sample ID	Sample ID	Factor	Moist	DateTime	DateTime	Data FN	Data FN	Batch	Notes
MBLK1S	IMH034SB	1	NA	08/28/1319:01	08/20/1317:30	98H13038	98H13036	IMH034S	Method Blank
LCS1S	IMH034SL	1	NA	08/28/1319:05	08/20/1317:30	98H13039	98H13036	IMH034S	Lab Control Sample (LCS)
LCD1S	IMH034SC	1	NA	08/28/1319:10	08/20/1317:30	98H13040	98H13036	IMH034S	LCS Duplicate
1A-2	H125-01	0.995	14.0	08/28/1319:18	08/20/1317:30	98H13042	98H13036	IMH034S	Field Sample
1A-2DL	H125-01J	4.98	14.0	08/28/1319:23	08/20/1317:30	98H13043	98H13036	IMH034S	Diluted Sample
2A-2	H125-02	0.985	13.8	08/28/1319:27	08/20/1317:30	98H13044	98H13036	IMH034S	Field Sample
3A-2	H125-03	0.990	14.0	08/28/1319:31	08/20/1317:30	98H13045	98H13036	IMH034S	Field Sample
1A-2AS	H125-01A	0.995	14.0	08/28/1319:36	08/20/1317:30	98H13046	98H13036	IMH034S	Analytical Spike Sample

FN - Filename
% Moist - Percent Moisture

METHOD 6020A
METALS BY ICP-MS

Client : URS	Date Collected: 07/18/13
Project : DHCCP	Date Received: 08/14/13
SDG NO. : 13H125	Date Extracted: 08/20/13 17:30
Sample ID: 1A-2	Date Analyzed: 08/28/13 19:18 # 08/28/13 20:23
Lab Samp ID: H125-01 #H125-01I	Dilution Factor: 0.995 # 4.98
Lab File ID: 98H13042 #98H13057	Matrix : SOIL
Ext Btch ID: IMH034S	% Moisture : 14.0
Calib. Ref.: 98H13036 #98H13048	Instrument ID : T-I98

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	0.578	0.231
Arsenic	3.47	0.578	0.116
Barium	190	0.578	0.116
Beryllium	0.591	0.578	0.116
Cadmium	0.305J	0.578	0.116
Chromium	59.0	0.578	0.116
Cobalt	16.7	0.578	0.116
Copper	35.0	0.578	0.231
Lead	7.28	0.578	0.116
Molybdenum	0.255J	0.578	0.231
# Nickel	72.5	2.90	0.579
Selenium	0.177J	0.578	0.116
Silver	ND	0.578	0.116
Thallium	0.147J	0.578	0.116
Vanadium	61.9	0.578	0.289
Zinc	62.4	2.31	1.16

Members of the Associated File

METHOD 6020A
METALS BY ICP-MS

Client	: URS	Date Collected:	07/18/13
Project	: DHCCP	Date Received:	08/14/13
SDG NO.	: 13H125	Date Extracted:	08/20/13 17:30
Sample ID:	2A-2	Date Analyzed:	08/28/13 19:27
Lab Samp ID:	H125-02	Dilution Factor:	0.985
Lab File ID:	98H13044	Matrix	: SOIL
Ext Btch ID:	IMH034S	% Moisture	: 13.8
Calib. Ref.:	98H13036	Instrument ID	: T-I98

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	0.571	0.229
Arsenic	3.52	0.571	0.114
Barium	207	0.571	0.114
Beryllium	0.518J	0.571	0.114
Cadmium	0.415J	0.571	0.114
Chromium	57.7	0.571	0.114
Cobalt	15.4	0.571	0.114
Copper	31.9	0.571	0.229
Lead	7.11	0.571	0.114
Molybdenum	0.325J	0.571	0.229
Nickel	68.6	0.571	0.114
Selenium	0.156J	0.571	0.114
Silver	ND	0.571	0.114
Thallium	0.140J	0.571	0.114
Vanadium	63.7	0.571	0.286
Zinc	61.4	2.29	1.14

METHOD 6020A
METALS BY ICP-MS

Client : URS	Date Collected: 07/18/13
Project : DHCCP	Date Received: 08/14/13
SDG NO. : 13H125	Date Extracted: 08/20/13 17:30
Sample ID: 3A-2	Date Analyzed: 08/28/13 19:31
Lab Samp ID: H125-03	Dilution Factor: 0.990
Lab File ID: 98H13045	Matrix : SOIL
Ext Btch ID: IMH034S	% Moisture : 14.0
Calib. Ref.: 98H13036	Instrument ID : T-I98

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	0.576	0.230
Arsenic	3.77	0.576	0.115
Barium	188	0.576	0.115
Beryllium	0.540J	0.576	0.115
Cadmium	0.325J	0.576	0.115
Chromium	58.3	0.576	0.115
Cobalt	15.7	0.576	0.115
Copper	32.6	0.576	0.230
Lead	7.19	0.576	0.115
Molybdenum	0.296J	0.576	0.230
Nickel	70.1	0.576	0.115
Selenium	0.166J	0.576	0.115
Silver	ND	0.576	0.115
Thallium	0.150J	0.576	0.115
Vanadium	61.4	0.576	0.288
Zinc	67.6	2.30	1.15

METHOD 6020A
METALS BY ICP-MS

Client	: URS	Date Collected:	NA
Project	: DHCCP	Date Received:	08/20/13
SDG NO.	: 13H125	Date Extracted:	08/20/13 17:30
Sample ID:	MBLK1S	Date Analyzed:	08/28/13 19:01
Lab Samp ID:	IMH034SB	Dilution Factor:	1
Lab File ID:	98H13038	Matrix	: SOIL
Ext Btch ID:	IMH034S	% Moisture	: NA
Calib. Ref.:	98H13036	Instrument ID	: T-I98

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	0.500	0.200
Arsenic	ND	0.500	0.100
Barium	ND	0.500	0.100
Beryllium	ND	0.500	0.100
Cadmium	ND	0.500	0.100
Chromium	ND	0.500	0.100
Cobalt	ND	0.500	0.100
Copper	ND	0.500	0.200
Lead	ND	0.500	0.100
Molybdenum	ND	0.500	0.200
Nickel	ND	0.500	0.100
Selenium	ND	0.500	0.100
Silver	ND	0.500	0.100
Thallium	ND	0.500	0.100
Vanadium	ND	0.500	0.250
Zinc	ND	2.00	1.00

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13H125
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: NA
DILT N FACTR: 1 1 1
SAMPLE ID: MBLK1S
CONTROL NO.: IMH034SB IMH034SL IMH034SC
LAB FILE ID: 98H13038 98H13039 98H13040
DATE TIME EXTRCTD: 08/20/1317:30 08/20/1317:30 08/20/1317:30 DATE COLLECTED: NA
DATE TIME ANALYZD: 08/28/1319:01 08/28/1319:05 08/28/1319:10 DATE RECEIVED: 08/20/13
PREP. BATCH: IMH034S IMH034S IMH034S
CALIB. REF: 98H13036 98H13036 98H13036

ACCESSION:

PARAMETER	BLNK RSLT mg/kg	SPIKE AMT mg/kg	BS RSLT mg/kg	BS % REC	SPIKE AMT mg/kg	BSD RSLT mg/kg	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	25.0	25.5	102	25.0	25.1	100	1	80-120	20
Arsenic	ND	25.0	25.4	102	25.0	25.2	101	1	80-120	20
Barium	ND	25.0	26.7	107	25.0	26.3	105	2	80-120	20
Beryllium	ND	25.0	26.4	106	25.0	25.9	104	2	80-120	20
Cadmium	ND	25.0	25.6	102	25.0	25.3	101	1	80-120	20
Chromium	ND	25.0	26.0	104	25.0	25.9	104	1	80-120	20
Cobalt	ND	25.0	26.1	104	25.0	25.9	104	1	80-120	20
Copper	ND	25.0	25.4	102	25.0	25.5	102	0	80-120	20
Lead	ND	25.0	26.3	105	25.0	26.4	106	0	80-120	20
Molybdenum	ND	25.0	25.3	101	25.0	25.2	101	0	80-120	20
Nickel	ND	25.0	25.6	102	25.0	25.6	102	0	80-120	20
Selenium	ND	25.0	25.8	103	25.0	25.7	103	0	80-120	20
Silver	ND	25.0	26.2	105	25.0	25.9	104	1	80-120	20
Thallium	ND	25.0	25.5	102	25.0	25.6	102	0	80-120	20
Vanadium	ND	25.0	25.4	102	25.0	25.5	102	0	80-120	20
Zinc	ND	50.0	49.9	100	50.0	50.2	100	1	80-120	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13H125
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: 14.0
DILUTION FACTOR: 0.995 4.98
SAMPLE ID: 1A-2 1A-2DL
EMAX SAMP ID: H125-01 H125-01J
LAB FILE ID: 98H13042 98H13043
DATE EXTRACTED: 08/20/1317:30 08/20/1317:30 DATE COLLECTED: 07/18/13
DATE ANALYZED: 08/28/1319:18 08/28/1319:23 DATE RECEIVED: 08/14/13
PREP. BATCH: IMH034S IMH034S
CALIB. REF: 98H13036 98H13036

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SERIAL DIL RSLT (mg/kg)	DIF RSLT %	QC LIMIT (%)
Antimony	ND	ND	0	10
Arsenic	3.47	3.64	5	10
Barium	190	183	4	10
Beryllium	0.591	ND	NA	10
Cadmium	0.305J	ND	NA	10
Chromium	59.0	63.7	8	10
Cobalt	16.7	18.4	10	10
Copper	35.0	39.2	12*	10
Lead	7.28	7.39	2	10
Molybdenum	0.255J	ND	NA	10
# Nickel	72.5	79.3	9	10
Selenium	0.177J	ND	NA	10
Silver	ND	ND	0	10
Thallium	0.147J	ND	NA	10
Vanadium	61.9	66.3	7	10
Zinc	62.4	66.8	7	10

H125-01J : Analyzed at DF 24.9 on 08/28/13 20:19 | File ID 98H13056

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13H125
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: 14.0
DILTN FACTR: 0.995 0.995
SAMPLE ID: 1A-2
CONTROL NO.: H125-01 H125-01A
LAB FILE ID: 98H13042 98H13046
DATE EXTRACTED: 08/20/13 17:30 08/20/13 17:30 DATE COLLECTED: 07/18/13
DATE ANALYZED: 08/28/13 19:18 08/28/13 19:36 DATE RECEIVED: 08/14/13
PREP. BATCH: IMH034S IMH034S
CALIB. REF: 98H13036 98H13036

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	AS RSLT (mg/kg)	AS % REC	QC LIMIT (%)
Antimony	ND	28.9	29.4	102	80-120
Arsenic	3.47	28.9	32.0	99	80-120
Barium	190	28.9	219	100	80-120
Beryllium	0.591	28.9	30.4	103	80-120
Cadmium	0.305J	28.9	29.2	100	80-120
Chromium	59.0	28.9	80.5	74*	80-120
Cobalt	16.7	28.9	41.7	86	80-120
Copper	35.0	28.9	58.1	80	80-120
Lead	7.28	28.9	35.8	99	80-120
Molybdenum	0.255J	28.9	29.2	100	80-120
# Nickel	72.5	145	212	96	80-120
Selenium	0.177J	28.9	29.3	101	80-120
Silver	ND	28.9	28.9	100	80-120
Thallium	0.147J	28.9	28.8	99	80-120
Vanadium	61.9	28.9	86.0	83	80-120
Zinc	62.4	57.8	122	103	80-120

H125-01A : Analyzed at DF 4.98 on 08/28/13 20:38 | File ID 98H13058

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

A total of three (3) soil samples were received on 08/14/13 for Metals DI-WET analysis, Method DI WET/6020A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source. Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for IMH039WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries were within project QC limits except for results qualified with [*] in H125-01M/H125-01S summary form, most likely due to matrix interference. Check QC summary form for details. In addition Analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
DI WET METALS BY ICP-MS

Client : URS
Project : DHCCP

SDG NO. : 13H125
Instrument ID : T-I98

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	LEACHATE		Sample Data FN	Calibration Data FN	Prep. Batch	Notes
				Analysis DateTime	Extraction DateTime				
MBLK1W	IMH039WB	1	NA	08/28/1317:27	08/26/1310:15	98H13019	98H13016	IMH039W	Method Blank
LCS1W	IMH039WL	1	NA	08/28/1317:31	08/26/1310:15	98H13020	98H13016	IMH039W	Lab Control Sample (LCS)
LCD1W	IMH039WC	1	NA	08/28/1317:35	08/26/1310:15	98H13021	98H13016	IMH039W	LCS Duplicate
MBLK2W	WTH005SB	1	NA	08/28/1317:40	08/26/1310:15	98H13022	98H13016	IMH039W	Method Blank
1A-2MS	H125-01M	1	NA	08/28/1317:44	08/26/1310:15	98H13023	98H13016	IMH039W	Matrix Spike Sample (MS)
1A-2MSD	H125-01S	1	NA	08/28/1317:48	08/26/1310:15	98H13024	98H13016	IMH039W	MS Duplicate (MSD)
1A-2AS	H125-01A	1	NA	08/28/1318:06	08/26/1310:15	98H13028	98H13026	IMH039W	Analytical Spike Sample
1A-2	H125-01	1	NA	08/28/1318:10	08/26/1310:15	98H13029	98H13026	IMH039W	Field Sample
1A-2DL	H125-01J	5	NA	08/28/1318:14	08/26/1310:15	98H13030	98H13026	IMH039W	Diluted Sample
2A-2	H125-02	1	NA	08/28/1318:19	08/26/1310:15	98H13031	98H13026	IMH039W	Field Sample
3A-2	H125-03	1	NA	08/28/1318:23	08/26/1310:15	98H13032	98H13026	IMH039W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client : URS	Date Collected: 07/18/13
Project : DHCCP	Date Received: 08/14/13
SDG NO. : 13H125	Date Extracted: 08/26/13 10:15
Sample ID: 1A-2	Date Analyzed: 08/28/13 18:10
Lab Samp ID: H125-01	Dilution Factor: 1
Lab File ID: 98H13029	Matrix : LEACHATE
Ext Btch ID: IMH039W	% Moisture : NA
Calib. Ref.: 98H13026	Instrument ID : T-I98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	1.36	1.00	0.500
Arsenic	17.2	1.00	0.200
Barium	320	1.00	0.500
Beryllium	0.662J	1.00	0.100
Cadmium	0.280J	1.00	0.200
Chromium	39.3	1.00	0.200
Cobalt	9.07	1.00	0.200
Copper	38.3	1.00	0.500
Lead	8.17	1.00	0.100
Molybdenum	4.82	2.00	0.500
Nickel	39.8	1.00	0.200
Selenium	9.67	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	72.1	1.00	0.500
Zinc	87.3	20.0	10.0

EXTRACTION DATE: 08/17/13 11:00

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client	: URS	Date Collected:	07/18/13
Project	: DHCCP	Date Received:	08/14/13
SDG NO.	: 13H125	Date Extracted:	08/26/13 10:15
Sample ID:	2A-2	Date Analyzed:	08/28/13 18:19
Lab Samp ID:	H125-02	Dilution Factor:	1
Lab File ID:	98H13031	Matrix	: LEACHATE
Ext Btch ID:	IMH039W	% Moisture	: NA
Calib. Ref.:	98H13026	Instrument ID	: T-I98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	1.54	1.00	0.500
Arsenic	13.1	1.00	0.200
Barium	103	1.00	0.500
Beryllium	0.186J	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	11.9	1.00	0.200
Cobalt	2.39	1.00	0.200
Copper	11.2	1.00	0.500
Lead	2.93	1.00	0.100
Molybdenum	6.97	2.00	0.500
Nickel	11.5	1.00	0.200
Selenium	8.77	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	38.3	1.00	0.500
Zinc	92.6	20.0	10.0

EXTRACTION DATE: 08/17/13 11:00

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client	: URS	Date Collected:	07/18/13
Project	: DHCCP	Date Received:	08/14/13
SDG NO.	: 13H125	Date Extracted:	08/26/13 10:15
Sample ID:	3A-2	Date Analyzed:	08/28/13 18:23
Lab Samp ID:	H125-03	Dilution Factor:	1
Lab File ID:	98H13032	Matrix	: LEACHATE
Ext Btch ID:	IMH039W	% Moisture	: NA
Calib. Ref.:	98H13026	Instrument ID	: T-I98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	1.44	1.00	0.500
Arsenic	17.4	1.00	0.200
Barium	134	1.00	0.500
Beryllium	0.296J	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	17.4	1.00	0.200
Cobalt	3.38	1.00	0.200
Copper	15.6	1.00	0.500
Lead	4.58	1.00	0.100
Molybdenum	5.68	2.00	0.500
Nickel	14.7	1.00	0.200
Selenium	8.83	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	50.6	1.00	0.500
Zinc	22.4	20.0	10.0

EXTRACTION DATE: 08/17/13 11:00

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client	: URS	Date Collected:	NA
Project	: DHCCP	Date Received:	08/26/13
SDG NO.	: 13H125	Date Extracted:	08/26/13 10:15
Sample ID:	MBLK1W	Date Analyzed:	08/28/13 17:27
Lab Samp ID:	IMH039WB	Dilution Factor:	1
Lab File ID:	98H13019	Matrix	: WATER
Ext Btch ID:	IMH039W	% Moisture	: NA
Calib. Ref.:	98H13016	Instrument ID	: T-I98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	ND	1.00	0.500
Arsenic	ND	1.00	0.200
Barium	ND	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	ND	1.00	0.200
Cobalt	ND	1.00	0.200
Copper	ND	1.00	0.500
Lead	ND	1.00	0.100
Molybdenum	ND	2.00	0.500
Nickel	ND	1.00	0.200
Selenium	ND	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	ND	1.00	0.500
Zinc	ND	20.0	10.0

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client : URS	Date Collected: NA
Project : DHCCP	Date Received: 08/26/13
SDG NO. : 13H125	Date Extracted: 08/26/13 10:15
Sample ID: MBLK2W	Date Analyzed: 08/28/13 17:40
Lab Samp ID: WTH005SB	Dilution Factor: 1
Lab File ID: 98H13022	Matrix : WATER
Ext Btch ID: IMH039W	% Moisture : NA
Calib. Ref.: 98H13016	Instrument ID : T-198

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	ND	1.00	0.500
Arsenic	ND	1.00	0.200
Barium	1.94	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	ND	1.00	0.200
Cobalt	ND	1.00	0.200
Copper	0.632J	1.00	0.500
Lead	0.111J	1.00	0.100
Molybdenum	ND	2.00	0.500
Nickel	ND	1.00	0.200
Selenium	ND	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	ND	1.00	0.500
Zinc	14.4J	20.0	10.0

EXTRACTION DATE: 08/17/13 11:00

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13H125
METHOD: METHOD DI WET/6020A

MATRIX: WATER % MOISTURE: NA
DILT N FACTR: 1 1 1
SAMPLE ID: MBLK1W
CONTROL NO.: IMH039WB IMH039WL IMH039WC
LAB FILE ID: 98H13019 98H13020 98H13021
DATE TIME EXTRACTED: 08/26/1310:15 08/26/1310:15 08/26/1310:15 DATE COLLECTED: NA
DATE TIME ANALYZED: 08/28/1317:27 08/28/1317:31 08/28/1317:35 DATE RECEIVED: 08/26/13
PREP. BATCH: IMH039W IMH039W IMH039W
CALIB. REF: 98H13016 98H13016 98H13016

ACCESSION:

PARAMETER	BLNK RSLT ug/L	SPIKE AMT ug/L	BS RSLT ug/L	BS % REC	SPIKE AMT ug/L	BSD RSLT ug/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	25.0	25.4	102	25.0	25.1	100	1	80-120	20
Arsenic	ND	25.0	25.3	101	25.0	25.5	102	1	80-120	20
Barium	ND	25.0	26.3	105	25.0	26.2	105	0	80-120	20
Beryllium	ND	25.0	26.8	107	25.0	26.8	107	0	80-120	20
Cadmium	ND	25.0	25.5	102	25.0	25.2	101	1	80-120	20
Chromium	ND	25.0	26.3	105	25.0	25.8	103	2	80-120	20
Cobalt	ND	25.0	26.1	104	25.0	25.9	104	1	80-120	20
Copper	ND	25.0	26.7	107	25.0	26.0	104	2	80-120	20
Lead	ND	25.0	27.0	108	25.0	26.7	107	1	80-120	20
Molybdenum	ND	25.0	24.8	99	25.0	24.6	98	1	80-120	20
Nickel	ND	25.0	26.4	106	25.0	25.9	104	2	80-120	20
Selenium	ND	25.0	25.3	101	25.0	25.5	102	1	80-120	20
Silver	ND	25.0	26.6	106	25.0	26.3	105	1	80-120	20
Thallium	ND	25.0	26.1	104	25.0	25.8	103	1	80-120	20
Vanadium	ND	25.0	25.9	104	25.0	25.4	102	2	80-120	20
Zinc	ND	50.0	52.9	106	50.0	52.0	104	2	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13H125
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILT N FACTR: 1 1 1
SAMPLE ID: 1A-2
CONTROL NO.: H125-01 H125-01M H125-01S
LAB FILE ID: 98H13029 98H13023 98H13024
DATE EXTRACTED: 08/26/1310:15 08/26/1310:15 08/26/1310:15 DATE COLLECTED: 07/18/13
DATE ANALYZED: 08/28/1318:10 08/28/1317:44 08/28/1317:48 DATE RECEIVED: 08/14/13
PREP. BATCH: IMH039W IMH039W IMH039W
CALIB. REF: 98H13026 98H13016 98H13016

ACCESSION:

PARAMETER	SMPL RSLT ug/L	SPIKE AMT ug/L	MS RSLT ug/L	MS % REC	SPIKE AMT ug/L	MSD RSLT ug/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	1.36	25.0	12.3	44*	25.0	11.2	39*	10	75-125	20
Arsenic	17.2	25.0	42.4	101	25.0	42.7	102	1	75-125	20
Barium	320	25.0	358	152*	25.0	358	152*	0	75-125	20
Beryllium	0.662J	25.0	27.8	109	25.0	27.7	108	1	75-125	20
Cadmium	0.280J	25.0	25.7	102	25.0	25.7	102	0	75-125	20
Chromium	39.3	25.0	55.5	65*	25.0	54.2	60*	2	75-125	20
Cobalt	9.07	25.0	32.9	95	25.0	32.6	94	1	75-125	20
Copper	38.3	25.0	65.9	110	25.0	65.5	109	0	75-125	20
Lead	8.17	25.0	34.0	103	25.0	34.0	103	0	75-125	20
Molybdenum	4.82	25.0	20.2	62*	25.0	17.8	52*	12	75-125	20
Nickel	39.8	25.0	61.6	87	25.0	61.0	85	1	75-125	20
Selenium	9.67	25.0	34.6	100	25.0	34.9	101	1	75-125	20
Silver	ND	25.0	25.7	103	25.0	25.7	103	0	75-125	20
Thallium	ND	25.0	24.8	99	25.0	24.8	99	0	75-125	20
Vanadium	72.1	25.0	87.0	60*	25.0	84.8	51*	3	75-125	20
Zinc	87.3	50.0	140	105	50.0	139	103	0	75-125	20

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13H125
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILTN FACTR: 1 1
SAMPLE ID: 1A-2
CONTROL NO.: H125-01 H125-01A
LAB FILE ID: 98H13029 98H13028
DATIME EXTRCTD: 08/26/1310:15 08/26/1310:15 DATE COLLECTED: 07/18/13
DATIME ANALYZD: 08/28/1318:10 08/28/1318:06 DATE RECEIVED: 08/14/13
PREP. BATCH: IMH039W IMH039W
CALIB. REF: 98H13026 98H13026

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	AS RSLT (ug/L)	AS % REC	QC LIMIT (%)
Antimony	1.36	25.0	27.7	105	80-120
Arsenic	17.2	25.0	42.7	102	80-120
Barium	320	25.0	355	140*	80-120
Beryllium	0.662J	25.0	28.7	112	80-120
Cadmium	0.280J	25.0	26.4	104	80-120
Chromium	39.3	25.0	64.4	100	80-120
Cobalt	9.07	25.0	33.1	96	80-120
Copper	38.3	25.0	62.5	97	80-120
Lead	8.17	25.0	36.0	111	80-120
Molybdenum	4.82	25.0	30.8	104	80-120
Nickel	39.8	25.0	63.8	96	80-120
Selenium	9.67	25.0	35.5	103	80-120
Silver	ND	25.0	26.3	105	80-120
Thallium	ND	25.0	26.9	108	80-120
Vanadium	72.1	25.0	96.8	99	80-120
Zinc	87.3	50.0	137	99	80-120

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13H125
METHOD: METHOD DI WET/6020A

MATRIX:	LEACHATE	% MOISTURE:	NA
DILUTION FACTOR:	1	5	
SAMPLE ID:	1A-2	1A-2DL	
EMAX SAMP ID:	H125-01	H125-01J	
LAB FILE ID:	98H13029	98H13030	
DATE EXTRACTED:	08/26/1310:15	08/26/1310:15	DATE COLLECTED: 07/18/13
DATE ANALYZED:	08/28/1318:10	08/28/1318:14	DATE RECEIVED: 08/14/13
PREP. BATCH:	IMH039W	IMH039W	
CALIB. REF:	98H13026	98H13026	

PARAMETER	SMPL RSLT (ug/L)	SERIAL DIL RSLT (ug/L)	DIF RSLT %	QC LIMIT (%)
Antimony	1.36	ND	NA	10
Arsenic	17.2	17.7	3	10
Barium	320	321	0	10
Beryllium	0.662J	0.727J	NA	10
Cadmium	0.280J	ND	NA	10
Chromium	39.3	42.2	7	10
Cobalt	9.07	10.3	13*	10
Copper	38.3	42.9	12*	10
Lead	8.17	8.62	6	10
Molybdenum	4.82	4.69J	NA	10
Nickel	39.8	43.5	9	10
Selenium	9.67	9.56	1	10
Silver	ND	ND	0	10
Thallium	ND	ND	0	10
Vanadium	72.1	75.6	5	10
Zinc	87.3	97.6J	NA	10

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 7471A
MERCURY BY COLD VAPOR

A total of three (3) soil samples were received on 08/14/13 for Mercury analysis, Method 7471A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were out of prescribed holding time upon resolution of discrepancies and were received without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HGH023SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP

SDG NO. : 13H125
Instrument ID : 47

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	HGH023SB	1	NA	08/17/1316:26	08/17/1313:00	M47H016051	M47H016	HGH023S	Method Blank
LCS1S	HGH023SL	1	NA	08/17/1316:28	08/17/1313:00	M47H016052	M47H016	HGH023S	Lab Control Sample (LCS)
LCD1S	HGH023SC	1	NA	08/17/1316:30	08/17/1313:00	M47H016053	M47H016	HGH023S	LCS Duplicate
1A-2	H125-01	1	14.0	08/17/1317:23	08/17/1313:00	M47H016079	M47H016	HGH023S	Field Sample
2A-2	H125-02	1	13.8	08/17/1317:25	08/17/1313:00	M47H016080	M47H016	HGH023S	Field Sample
3A-2	H125-03	1	14.0	08/17/1317:31	08/17/1313:00	M47H016083	M47H016	HGH023S	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 7471A
MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP
Batch No. : 13H125

Matrix : SOIL
InstrumentID : 47

250

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DIL'N FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	HGH023SB	ND	1	NA	0.0998	0.0200	08/17/1316:26	08/17/1313:00	M47H016051	M47H016	HGH023S	NA	NA
LCS1S	HGH023SL	0.352	1	NA	0.0995	0.0199	08/17/1316:28	08/17/1313:00	M47H016052	M47H016	HGH023S	NA	NA
LCD1S	HGH023SC	0.357	1	NA	0.100	0.0200	08/17/1316:30	08/17/1313:00	M47H016053	M47H016	HGH023S	NA	NA
1A-2	H125-01	0.0398J	1	14.0	0.115	0.0231	08/17/1317:23	08/17/1313:00	M47H016079	M47H016	HGH023S	07/18/1315:30	08/14/13
2A-2	H125-02	0.0291J	1	13.8	0.115	0.0230	08/17/1317:25	08/17/1313:00	M47H016080	M47H016	HGH023S	07/18/1315:30	08/14/13
3A-2	H125-03	0.0242J	1	14.0	0.116	0.0232	08/17/1317:31	08/17/1313:00	M47H016083	M47H016	HGH023S	07/18/1315:30	08/14/13

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DWR-207

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : 7471A

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MATRIX : SOIL % MOISTURE: N/A
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : HGH023SB HGH023SL HGH023SC
LAB FILE ID : M47H016051 M47H016052 M47H016053
DATE PREPARED : 08/17/1313:00 08/17/1313:00 08/17/1313:00
DATE ANALYZED : 08/17/1316:26 08/17/1316:28 08/17/1316:30
PREP BATCH : HGH023S HGH023S HGH023S
CALIBRATION REF: M47H016 M47H016 M47H016

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	0.331	0.352	106	0.333	0.357	107	1	80-120	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD DI WET/7470A
DI WET MERCURY BY COLD VAPOR

A total of three (3) soil samples were received on 08/14/13 for Mercury by DI WET analysis, Method DI WET/7470A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were out of prescribed holding time upon resolution of discrepancies and were received without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HGH046WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for H125-01M/S are within project QC limits.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
DI WET MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP

SDG NO. : 13H125
Instrument ID : 47

LEACHATE									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	HGH046WB	1	NA	08/28/1320:09	08/28/1315:30	M47H028048	M47H028	HGH046W	Method Blank
LCS1W	HGH046WL	1	NA	08/28/1320:11	08/28/1315:30	M47H028049	M47H028	HGH046W	Lab Control Sample (LCS)
LCD1W	HGH046WC	1	NA	08/28/1320:12	08/28/1315:30	M47H028050	M47H028	HGH046W	LCS Duplicate
MBLK2W	WTH005SB	1	NA	08/28/1320:51	08/28/1315:30	M47H028069	M47H028	HGH046W	Method Blank
1A-2	H125-01	1	NA	08/28/1320:59	08/28/1315:30	M47H028073	M47H028	HGH046W	Field Sample
1A-2MS	H125-01M	1	NA	08/28/1321:03	08/28/1315:30	M47H028075	M47H028	HGH046W	Matrix Spike Sample (MS)
1A-2MSD	H125-01S	1	NA	08/28/1321:05	08/28/1315:30	M47H028076	M47H028	HGH046W	MS Duplicate (MSD)
2A-2	H125-02	1	NA	08/28/1321:07	08/28/1315:30	M47H028077	M47H028	HGH046W	Field Sample
3A-2	H125-03	1	NA	08/28/1321:08	08/28/1315:30	M47H028078	M47H028	HGH046W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD DI WET/7470A
DI WET MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP
Batch No. : 13H125

Matrix : LEACHATE
InstrumentID : 47

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DIL'N FACTOR (%)	MOIST (%)	LOQ (ug/L)	LOD (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HGH046WB	ND	1	NA	0.500	0.100	08/28/1320:09	08/28/1315:30	M47H028048	M47H028	HGH046W	NA	NA
LCS1W	HGH046WL	2.44	1	NA	0.500	0.100	08/28/1320:11	08/28/1315:30	M47H028049	M47H028	HGH046W	NA	NA
LCD1W	HGH046WC	2.40	1	NA	0.500	0.100	08/28/1320:12	08/28/1315:30	M47H028050	M47H028	HGH046W	NA	NA
MBLK2W	WTH005SB	ND	1	NA	0.500	0.100	08/28/1320:51	08/28/1315:30	M47H028069	M47H028	HGH046W	NA	NA
1A-2	H125-01	ND	1	NA	0.500	0.100	08/28/1320:59	08/28/1315:30	M47H028073	M47H028	HGH046W	07/18/1315:30	08/14/13
1A-2MS	H125-01M	2.86	1	NA	0.500	0.100	08/28/1321:03	08/28/1315:30	M47H028075	M47H028	HGH046W	07/18/1315:30	08/14/13
1A-2MSD	H125-01S	2.58	1	NA	0.500	0.100	08/28/1321:05	08/28/1315:30	M47H028076	M47H028	HGH046W	07/18/1315:30	08/14/13
2A-2	H125-02	ND	1	NA	0.500	0.100	08/28/1321:07	08/28/1315:30	M47H028077	M47H028	HGH046W	07/18/1315:30	08/14/13
3A-2	H125-03	ND	1	NA	0.500	0.100	08/28/1321:08	08/28/1315:30	M47H028078	M47H028	HGH046W	07/18/1315:30	08/14/13

DateTime Leached: 08/17/13 11:00

Note: 5 ml leachate was diluted to 50 ml reagent water prior to digestion.

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : DI WET/7470A

MATRIX : LEACHATE % MOISTURE: N/A
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : HGH046WB HGH046WL HGH046WC
LAB FILE ID : M47H028048 M47H028049 M47H028050
DATE PREPARED : 08/28/1315:30 08/28/1315:30 08/28/1315:30
DATE ANALYZED : 08/28/1320:09 08/28/1320:11 08/28/1320:12
PREP BATCH : HGH046W HGH046W HGH046W
CALIBRATION REF: M47H028 M47H028 M47H028

ACCESSION:

PARAMETER	MB RESULT (ug/L)	SPIKE AMT (ug/L)	BS RESULT (ug/L)	BS REC (%)	SPIKE AMT (ug/L)	BSD RESULT (ug/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.44	98	2.50	2.40	96	2	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : DI WET/7470A

MATRIX : LEACHATE % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : 1A-2 1A-2MS 1A-2MSD
LAB SAMPLE ID : H125-01 H125-01M H125-01S
LAB FILE ID : M47H028073 M47H028075 M47H028076
DATE PREPARED : 08/28/1315:30 08/28/1315:30 08/28/1315:30
DATE ANALYZED : 08/28/1320:59 08/28/1321:03 08/28/1321:05
PREP BATCH : HGH046W HGH046W HGH046W
CALIBRATION REF: M47H028 M47H028 M47H028

ACCESSION:

PARAMETER	PARENT RESULT (ug/L)	SPIKE AMT (ug/L)	MS RESULT (ug/L)	MS REC (%)	SPIKE AMT (ug/L)	MSD RESULT (ug/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.86	114	2.50	2.58	103	10	75-125	20

LABORATORY REPORT FOR

URS

DHCCP

WET CHEMICAL ANALYSES

SDG#: 13H125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

SM 4500NH3F
AMMONIA (NH3-N)

A total of three (3) soil samples were received on 08/14/13 for Ammonia-N by SM4500-NH3 F analysis, Method SM 4500NH3F in accordance with Standard Methods for the Examination of Water and Wastewater, 21st Edition.

Holding Time

Samples were out of prescribed holding time upon resolution of discrepancies and were received without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NHH006SL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recovery for H125-01M was within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

SM 4500NH3F
AMMONIA (NH3-N)

Client : URS
Project : DHCCP
Batch No. : 13H125

Matrix : SOIL
InstrumentID : 70

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CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	NHH006SB	ND	1	NA	1	0.6	08/21/1319:13	08/21/1314:04	13NHH00611	13NHH006	NHH006S	NA	NA
LCS1S	NHH006SL	4.45	1	NA	1	0.6	08/21/1319:13	08/21/1314:04	13NHH00612	13NHH006	NHH006S	NA	NA
LCD1S	NHH006SC	4.90	1	NA	1	0.6	08/21/1319:13	08/21/1314:04	13NHH00613	13NHH006	NHH006S	NA	NA
1A-2	H125-01	2.57	1	14.0	1.16	0.698	08/21/1319:13	08/21/1314:04	13NHH00614	13NHH006	NHH006S	07/18/1315:30	08/14/13
1A-2DUP	H125-01D	2.54	0.991	14.0	1.15	0.691	08/21/1319:13	08/21/1314:04	13NHH00615	13NHH006	NHH006S	07/18/1315:30	08/14/13
1A-2MS	H125-01M	6.97	1.01	14.0	1.17	0.705	08/21/1319:14	08/21/1314:04	13NHH00616	13NHH006	NHH006S	07/18/1315:30	08/14/13
2A-2	H125-02	3.29	0.997	13.8	1.16	0.694	08/21/1319:14	08/21/1314:04	13NHH00617	13NHH006	NHH006S	07/18/1315:30	08/14/13
3A-2	H125-03	2.96	0.993	14.0	1.15	0.693	08/21/1319:14	08/21/1314:04	13NHH00618	13NHH006	NHH006S	07/18/1315:30	08/14/13

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DWR-207

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : SM 4500NH3F

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MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : NHH006SB NHH006SL NHH006SC
LAB FILE ID : 13NHH00611 13NHH00612 13NHH00613
DATE PREPARED : 08/21/1314:04 08/21/1314:04 08/21/1314:04
DATE ANALYZED : 08/21/1319:13 08/21/1319:13 08/21/1319:13
PREP BATCH : NHH006S NHH006S NHH006S
CALIBRATION REF: 13NHH006 13NHH006 13NHH006

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ammonia (NH3-N)	ND	5	4.45	89	5	4.90	98	10	80-120	20

EMAX QUALITY CONTROL DATA
MATRIX SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : SM 4500NH3F

=====

MATRIX : SOIL % MOISTURE: 14.0
DILUTION FACTOR: 1 1.01
SAMPLE ID : 1A-2 1A-2MS
LAB SAMPLE ID : H125-01 H125-01M
LAB FILE ID : 13NHH00614 13NHH00616
DATE PREPARED : 08/21/1314:04 08/21/1314:04
DATE ANALYZED : 08/21/1319:13 08/21/1319:14
PREP BATCH : NHH006S NHH006S
CALIBRATION REF: 13NHH006 13NHH006

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Ammonia (NH3-N)	2.57	5	6.97	88	75-125

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : SM 4500NH3F

=====

MATRIX : SOIL
DILUTION FACTOR: 1 0.991
SAMPLE ID : 1A-2 1A-2DUP
LAB SAMPLE ID : H125-01 H125-01D
LAB FILE ID : 13NHH00614 13NHH00615
DATE PREPARED : 08/21/1314:04 08/21/1314:04
DATE ANALYZED : 08/21/1319:13 08/21/1319:13
PREP BATCH : NHH006S NHH006S
CALIBRATION REF: 13NHH006 13NHH006

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
-----	-----	-----	-----	-----
Ammonia (NH3-N)	2.57	2.54	1	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

SM 4500NO3E
NITRATE/NITRITE

A total of three (3) soil samples were received on 08/14/13 for Nitrate/Nitrite as N analysis, Method SM 4500NO3E in accordance with Standard Methods for the Examination of Water and Wastewater, 21st Edition.

Holding Time

Samples were out of prescribed holding time upon resolution of discrepancies and were received without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NAH003SL/C were within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recovery for H125-03M was within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

SM 4500NO3E
NITRATE/NITRITE

Client : URS
Project : DHCCP
Batch No. : 13H125

Matrix : SOIL
InstrumentID : 70

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CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	NAH003SB	ND	1	NA	0.5	0.2	08/19/1318:44	08/19/1311:15	13NAH00310	13NAH003	NAH003S	NA	NA
LCS1S	NAH003SL	5.32	1	NA	0.5	0.2	08/19/1318:44	08/19/1311:15	13NAH00311	13NAH003	NAH003S	NA	NA
LCD1S	NAH003SC	5.37	1	NA	0.5	0.2	08/19/1318:44	08/19/1311:15	13NAH00312	13NAH003	NAH003S	NA	NA
1A-2	H125-01I	12.6	1.99	14.0	1.16	0.463	08/19/1318:55	08/19/1311:15	13NAH00320	13NAH003	NAH003S	07/18/1315:30	08/14/13
2A-2	H125-02I	12.7	1.99	13.8	1.15	0.462	08/19/1318:55	08/19/1311:15	13NAH00321	13NAH003	NAH003S	07/18/1315:30	08/14/13
3A-2	H125-03I	12.5	2	14.0	1.16	0.465	08/19/1318:56	08/19/1311:15	13NAH00322	13NAH003	NAH003S	07/18/1315:30	08/14/13
3A-2DUP	H125-03ID	12.5	2	14.0	1.16	0.465	08/19/1318:56	08/19/1311:15	13NAH00323	13NAH003	NAH003S	07/18/1315:30	08/14/13
3A-2MS	H125-03IM	18.0	2	14.0	1.16	0.465	08/19/1318:56	08/19/1311:15	13NAH00324	13NAH003	NAH003S	07/18/1315:30	08/14/13

6007

DWR-207

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : SM 4500NO3E

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : NAH003SB NAH003SL NAH003SC
LAB FILE ID : 13NAH00310 13NAH00311 13NAH00312
DATE PREPARED : 08/19/1311:15 08/19/1311:15 08/19/1311:15
DATE ANALYZED : 08/19/1318:44 08/19/1318:44 08/19/1318:44
PREP BATCH : NAH003S NAH003S NAH003S
CALIBRATION REF: 13NAH003 13NAH003 13NAH003

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
NITRATE/NITRITE	ND	5	5.32	106	5	5.37	107	1	80-120	20

8003

EMAX QUALITY CONTROL DATA
MATRIX SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : SM 4500NO3E

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MATRIX : SOIL % MOISTURE: 14.0
DILUTION FACTOR: 2 2
SAMPLE ID : 3A-2 3A-2MS
LAB SAMPLE ID : H125-031 H125-031M
LAB FILE ID : 13NAH00322 13NAH00324
DATE PREPARED : 08/19/1311:15 08/19/1311:15
DATE ANALYZED : 08/19/1318:56 08/19/1318:56
PREP BATCH : NAH003S NAH003S
CALIBRATION REF: 13NAH003 13NAH003

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
NITRATE/NITRITE	12.5	5	18.0	110	75-125

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : SM 4500NO3E

MATRIX : SOIL
DILUTION FACTOR: 2
SAMPLE ID : 3A-2
LAB SAMPLE ID : H125-03I
LAB FILE ID : 13NAH00322
DATE PREPARED : 08/19/1311:15
DATE ANALYZED : 08/19/1318:56
PREP BATCH : NAH003S
CALIBRATION REF: 13NAH003

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
NITRATE/NITRITE	12.5	12.5	0	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

METHOD 7196A
HEXAVALENT CHROMIUM

A total of three (3) soil samples were received on 08/14/13 for Chromium Hexavalent analysis, Method 7196A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were out of prescribed holding time upon resolution of discrepancies and were received without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

Percent recovery for CIH009SL was within QC limits.
Percent recovery for CSH009SL was within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for H125-02M/M (insoluble and soluble) were within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit. Analytical spike was analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

METHOD 7196A
HEXAVALENT CHROMIUM

Client : URS
Project : DHCCP
Batch No. : 13H125

Matrix : SOIL
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	CRH009SB	ND	1	NA	1	0.5	08/20/1317:12	08/16/1315:16	13CRH00909	13CRH009	CRH009S	NA	NA
LCS1S	CSH009SL	10.9	1	NA	1	0.5	08/20/1317:13	08/16/1315:16	13CRH00910	13CRH009	CRH009S	NA	NA
LCS2S	CIH009SL	549	50	NA	50	25	08/20/1317:13	08/16/1315:16	13CRH00911	13CRH009	CRH009S	NA	NA
1A-2	H125-01	ND	1.02	14.0	1.19	0.593	08/20/1317:13	08/16/1315:16	13CRH00912	13CRH009	CRH009S	07/18/1315:30	08/14/13
2A-2	H125-02	ND	1	13.8	1.16	0.58	08/20/1317:13	08/16/1315:16	13CRH00913	13CRH009	CRH009S	07/18/1315:30	08/14/13
2A-2DUP	H125-02D	ND	1.02	13.8	1.18	0.592	08/20/1317:14	08/16/1315:16	13CRH00914	13CRH009	CRH009S	07/18/1315:30	08/14/13
2A-2MS	H125-02M	13.0	1.01	13.8	1.17	0.586	08/20/1317:14	08/16/1315:16	13CRH00915	13CRH009	CRH009S	07/18/1315:30	08/14/13
2A-2MS	H125-02M	650	50.4	13.8	58.5	29.2	08/20/1317:14	08/16/1315:16	13CRH00916	13CRH009	CRH009S	07/18/1315:30	08/14/13
2A-2AS	H125-02A	12.7	1	13.8	1.16	0.58	08/20/1317:15	08/16/1315:16	13CRH00917	13CRH009	CRH009S	07/18/1315:30	08/14/13
3A-2	H125-03	ND	0.997	14.0	1.16	0.58	08/20/1317:15	08/16/1315:16	13CRH00918	13CRH009	CRH009S	07/18/1315:30	08/14/13

EMAX QUALITY CONTROL DATA
LCS (SOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : METHOD 7196A

MATRIX : SOIL
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1S LCS1S
LAB SAMPLE ID : CRH009SB CSH009SL
LAB FILE ID : 13CRH00909 13CRH00910
DATE PREPARED : 08/16/1315:16 08/16/1315:16
DATE ANALYZED : 08/20/1317:12 08/20/1317:13
PREP BATCH : CRH009S CRH009S
CALIBRATION REF: 13CRH009 13CRH009

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	QC LIMIT (%)
Hexavalent Chromium	ND	12	10.9	91	75-125

EMAX QUALITY CONTROL DATA
MATRIX SPIKE (SOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : METHOD 7196A

=====

MATRIX : SOIL % MOISTURE: 13.8
DILUTION FACTOR: 1 1.01
SAMPLE ID : 2A-2 2A-2MS
LAB SAMPLE ID : H125-02 H125-02M
LAB FILE ID : 13CRH00913 13CRH00915
DATE PREPARED : 08/16/1315:16 08/16/1315:16
DATE ANALYZED : 08/20/1317:13 08/20/1317:14
PREP BATCH : CRH009S CRH009S
CALIBRATION REF: 13CRH009 13CRH009

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	AS RESULT (mg/kg)	AS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	14.1	13.0	92	75-125

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : METHOD 7196A

MATRIX : SOIL % MOISTURE: 13.8
PREPxDIL FACTOR: 1 1.02
SAMPLE ID : 2A-2 2A-2DUP
LAB SAMPLE ID : H125-02 H125-02D
LAB FILE ID : 13CRH00913 13CRH00914
DATE PREPARED : 08/16/1315:16 08/16/1315:16
DATE ANALYZED : 08/20/1317:13 08/20/1317:14
PREP BATCH : CRH009S CRH009S
CALIBRATION REF: 13CRH009 13CRH009

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
Hexavalent Chromium	ND	ND	0	20

EMAX QUALITY CONTROL DATA
POST SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : METHOD 7196A

MATRIX : SOIL % MOISTURE: 13.8
DILUTION FACTOR: 1 1
SAMPLE ID : 2A-2 2A-2
LAB SAMPLE ID : H125-02 H125-02A
LAB FILE ID : 13CRH00913 13CRH00917
DATE PREPARED : 08/16/1315:16 08/16/1315:16
DATE ANALYZED : 08/20/1317:13 08/20/1317:15
PREP BATCH : CRH009S CRH009S
CALIBRATION REF: 13CRH009 13CRH009

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	AS RESULT (mg/kg)	AS REC (%)	QC LIMIT (%)
Hexavalent Chromium	ND	13.9	12.7	91	75-125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13H125

WALKLEY-BLACK
TOC BY WALKLEY-BLACK METHOD

A total of three (3) soil samples were received on 08/14/13 for Total Organic Carbon analysis, Method WALKLEY-BLACK in accordance with Walkley-Black Procedure (Walkley, 1946; Peech et al., 1947; Greweling & Peech, 1960).

Holding Time

Samples were out of prescribed holding time upon resolution of discrepancies and were received without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for WBH005SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated for this SDG. However, sample duplicate was analyzed with the samples. RPD was within project limit.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

WALKLEY-BLACK
TOC BY WALKLEY-BLACK METHOD

Client : URS
Project : DHCCP
Batch No. : 13H125

Matrix : SOIL
InstrumentID : NA

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CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	PREP. FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	WBH005SB	ND	1	NA	600	600	08/19/1312:44	08/19/1312:44	13WBH00501	13WBH005	WBH005S	NA	NA
LCS1S	WBH005SL	2230	1	NA	600	600	08/19/1312:44	08/19/1312:44	13WBH00502	13WBH005	WBH005S	NA	NA
LCD1S	WBH005SC	2230	1	NA	600	600	08/19/1312:44	08/19/1312:44	13WBH00503	13WBH005	WBH005S	NA	NA
1A-2	H125-01	981	0.966	14.0	674	674	08/19/1312:44	08/19/1312:44	13WBH00504	13WBH005	WBH005S	07/18/1315:30	08/14/13
1A-2DUP	H125-01D	1010	0.999	14.0	674	674	08/19/1312:44	08/19/1312:44	13WBH00505	13WBH005	WBH005S	07/18/1315:30	08/14/13
2A-2	H125-02	1090	0.972	13.8	677	677	08/19/1312:44	08/19/1312:44	13WBH00506	13WBH005	WBH005S	07/18/1315:30	08/14/13
3A-2	H125-03	1220	0.987	14.0	689	689	08/19/1312:44	08/19/1312:44	13WBH00507	13WBH005	WBH005S	07/18/1315:30	08/14/13

8018

DWR-207

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : WALKLEY-BLACK

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : WBH005SB WBH005SL WBH005SC
LAB FILE ID : 13WBH00501 13WBH00502 13WBH00503
DATE EXTRACTED : 08/19/1312:44 08/19/1312:44 08/19/1312:44
DATE ANALYZED : 08/19/1312:44 08/19/1312:44 08/19/1312:44
PREP BATCH : WBH005S WBH005S WBH005S
CALIBRATION REF: 13WBH005 13WBH005 13WBH005

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	2000	2230	112	2000	2230	112	0	80-120	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13H125
METHOD : WALKLEY-BLACK

MATRIX : SOIL MOISTURE: 14.0
DILUTION FACTOR: 1 1
SAMPLE ID : 1A-2 1A-2DUP
LAB SAMPLE ID : H125-01 H125-01D
LAB FILE ID : 13WBH00504 13WBH00505
DATE PREPARED : 08/19/1312:44 08/19/1312:44
DATE ANALYZED : 08/19/1312:44 08/19/1312:44
PREP BATCH : WBH005S WBH005S
CALIBRATION REF: 13WBH005 13WBH005

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
TOC	981	1010	3	20

LABORATORY REPORT FOR

URS

DHCCP

SUBCONTRACTED ANALYSES (ALS-KELSO)

BUTYLTINS
METHYL MERCURY

SDG#: 13H125



September 5, 2013

Analytical Report for Service Request No: K1308384

Caspar Pang
Emax Laboratories, Incorporated
1835 W. 205th St.
Torrance, CA 90501

RE: DHCCP/13H125

Dear Caspar:


Enclosed are the results of the samples submitted to our laboratory on August 19, 2013. For your reference, these analyses have been assigned our service request number K1308384.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3364. You may also contact me via Email at Howard.Holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental


Howard Holmes
Project Manager

HH/ln

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses**

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjllabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

ALS ENVIRONMENTAL

Client: Emax Laboratories, Incorporated
Project: DHCCP/ 13H125
Sample Matrix: Soil

Service Request No.: K1308384
Date Received: 08/19/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Three soil samples were received for analysis at ALS Environmental on 08/19/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Total Metals

No anomalies associated with the analysis of these samples were observed.

Organotin Compounds**Calibration Verification Exceptions:**

The analysis of Butyltins requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Tri-n-propyltin and Tetra-n-butyltin in 0830F014. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Holding Time Exceptions:

These field samples were received past holding time. The analysis was performed as soon as possible after receipt by the laboratory. The data was flagged to indicate the holding time violation.

Matrix Spike Recovery Exceptions:

The matrix spike recovery of n-Butyltin for sample Batch QC was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Approved by _____



K1308384

284

DWR-207

Client / Project: E maxService Request K13

08384

Received: Aug 16, 2013 Opened: Aug 16, 2013 By: SD Unloaded: Aug 16, 2013 By: SD

1. Samples were received via? Mail Fed Ex UPS DHL PDX Courier Hand Delivered
2. Samples were received in: (circle) Cooler Box Envelope Other NA
3. Were custody seals on coolers? NA Y (N) If yes, how many and where? _____
- If present, were custody seals intact? Y (N) If present, were they signed and dated? Y (N)

Raw Cooler Temp	Corrected Cooler Temp	Raw Sample Blank	Corrected Sample Blank	Concentration Factor	Thermometer ID	Cooler/COCAD	Unpacking Number	NA	Initials
4.0	4.1	2.8	2.9	10.1	340		609194175133		
5.2	5.3	1.2	1.3	10.1	276		50510		
1.0	1.1	1.9	2.0	10.1	340		5122		
0.7	0.7	3.4	3.4	0.0	328		5111		
0.5	0.5	1.2	1.2	0.0	308		5100		

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA (Y) N
7. Were all sample labels complete (i.e. analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below (NA) Y N
11. Were VOA vials received without headspace? Indicate in the table below (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by

Sample ID	Bottle Count	Out of	Head	Reagent	Volume	Reagent Lot	Initials	Name
Bottles type	temp	space	Broke	pH	added	Number		

Notes, Discrepancies, & Resolutions:

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
1A-2	K1308384-001	07/18/2013	08/19/2013	08/28/2013	84.3	
2A-2	K1308384-002	07/18/2013	08/19/2013	08/28/2013	73.5	
3A-2	K1308384-003	07/18/2013	08/19/2013	08/28/2013	84.7	

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/2013
Date Received: 08/19/2013
Date Analyzed: 08/28/2013

Duplicate Sample Summary

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
1A-2	K1308384-001	84.3	84.5	84.4	<1	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/13
Date Received: 08/19/13

Methyl Mercury

Prep Method: CAS SOP
Analysis Method: CAS SOP
Test Notes:

Units: ng/g
Basis: Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1A-2	K1308384-001	0.4	0.04	1	08/27/13	08/29/13	ND	
2A-2	K1308384-002	0.4	0.04	1	08/27/13	08/29/13	0.05	J
3A-2	K1308384-003	0.4	0.04	1	08/27/13	08/29/13	ND	
Method Blank 1	K1308384-MB1	0.4	0.04	1	08/27/13	08/29/13	ND	
Method Blank 2	K1308384-MB2	0.4	0.04	1	08/27/13	08/29/13	ND	
Method Blank 3	K1308384-MB3	0.4	0.04	1	08/27/13	08/29/13	ND	

ALS Group USA, Corp.
 dba ALS Environmental
 QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/13
Date Received: 08/19/13
Date Extracted: 08/27/13
Date Analyzed: 08/29/13

Matrix Spike/Duplicate Matrix Spike Summary
 Metals

Sample Name: 1A-2
Lab Code: K1308384-001MS, K1308384-001MSD
Test Notes:

Units: ng/g
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Spike Level		Sample Result	Spike Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
				MS	DMS		MS	DMS	MS	DMS			
Methyl Mercury	CAS SOP	CAS SOP	0.4	115	111	ND	106	98.0	92	88	65-135	8	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
LCS Matrix: Water

Service Request: K1308384
Date Collected: NA
Date Received: NA
Date Extracted: 08/27/13
Date Analyzed: 08/29/13

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: pg
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Methyl Mercury	CAS SOP	CAS SOP	100	90.8	91	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
LCS Matrix: Water

Service Request: K1308384
Date Collected: NA
Date Received: NA
Date Extracted: 08/27/13
Date Analyzed: 08/29/13

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: pg
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Methyl Mercury	CAS SOP	CAS SOP	100	97.2	97	67-133	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
LCS Matrix: Soil

Service Request: K1308384
Date Collected: NA
Date Received: NA
Date Extracted: 08/27/13
Date Analyzed: 08/29/13

Quality Control Sample (QCS) Summary
Total Metals

Sample Name: Quality Control Sample

Units: ng/g
Basis: Dry

Source: ERM - CC580 Estuarine Sediment

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery	Result Notes
						Acceptance Limits	
Methyl Mercury	CAS SOP	CAS SOP	75.0	66.7	89	67-133	

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/2013
Date Received: 08/19/2013

Butyltins (as cation)

Sample Name: 1A-2
Lab Code: K1308384-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.2	0.53	1	08/22/13	08/30/13	KWG1309233	*
Tri-n-butyltin Cation	ND	U	1.2	0.51	1	08/22/13	08/30/13	KWG1309233	*
Di-n-butyltin Cation	ND	U	1.2	0.23	1	08/22/13	08/30/13	KWG1309233	*
n-Butyltin Cation	ND	U	1.2	0.31	1	08/22/13	08/30/13	KWG1309233	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	79	10-120	08/30/13	Acceptable

Comments:

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/2013
Date Received: 08/19/2013

Butyltins (as cation)

Sample Name: 2A-2
Lab Code: K1308384-002
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.4	0.60	1	08/22/13	08/30/13	KWG1309233	*
Tri-n-butyltin Cation	ND	U	1.4	0.59	1	08/22/13	08/30/13	KWG1309233	*
Di-n-butyltin Cation	ND	U	1.4	0.26	1	08/22/13	08/30/13	KWG1309233	*
n-Butyltin Cation	ND	U	1.4	0.36	1	08/22/13	08/30/13	KWG1309233	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	76	10-120	08/30/13	Acceptable

Comments:

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/2013
Date Received: 08/19/2013

Butyltins (as cation)

Sample Name: 3A-2
Lab Code: K1308384-003
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.2	0.52	1	08/22/13	09/03/13	KWG1309233	*
Tri-n-butyltin Cation	ND	U	1.2	0.51	1	08/22/13	09/03/13	KWG1309233	*
Di-n-butyltin Cation	ND	U	1.2	0.23	1	08/22/13	09/03/13	KWG1309233	*
n-Butyltin Cation	ND	U	1.2	0.31	1	08/22/13	09/03/13	KWG1309233	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	87	10-120	09/03/13	Acceptable

Comments:

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Sediment

Service Request: K1308384
Date Collected: NA
Date Received: NA

Butyltins (as cation)

Sample Name: Method Blank
Lab Code: KWG1309233-4
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.98	0.44	1	08/22/13	08/30/13	KWG1309233	
Tri-n-butyltin Cation	ND	U	0.98	0.43	1	08/22/13	08/30/13	KWG1309233	
Di-n-butyltin Cation	ND	U	0.98	0.19	1	08/22/13	08/30/13	KWG1309233	
n-Butyltin Cation	ND	U	0.98	0.26	1	08/22/13	08/30/13	KWG1309233	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	43	10-120	08/30/13	Acceptable

Comments:

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Sediment

Service Request: K1308384

Surrogate Recovery Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: Percent
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
Batch QC	K1308299-001	72
1A-2	K1308384-001	79
2A-2	K1308384-002	76
3A-2	K1308384-003	87
Method Blank	KWG1309233-4	43
Batch QCMS	KWG1309233-1	65
Batch QCDMS	KWG1309233-2	74
Lab Control Sample	KWG1309233-3	75

Surrogate Recovery Control Limits (%)

Sur1 = Tri-n-propyltin 10-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Sediment

Service Request: K1308384
Date Extracted: 08/22/2013
Date Analyzed: 08/30/2013

Matrix Spike/Duplicate Matrix Spike Summary
Butyltins (as cation)

Sample Name: Batch QC
Lab Code: K1308299-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1309233

Analyte Name	Sample Result	Batch QCMS KWG1309233-1 Matrix Spike			Batch QCDMS KWG1309233-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Tetra-n-butyltin	ND	16.9	30.0	56	21.0	30.0	70	16-126	21	40
Tri-n-butyltin Cation	ND	20.5	26.6	77	23.9	26.6	90	10-115	15	40
Di-n-butyltin Cation	ND	13.4	23.0	58	15.0	23.0	65	10-133	11	40
n-Butyltin Cation	ND	1.42	18.7	8 *	1.38	18.7	7 *	10-124	3	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Sediment

Service Request: K1308384
Date Extracted: 08/22/2013
Date Analyzed: 08/30/2013

Lab Control Spike Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1309233

Lab Control Sample
KWG1309233-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Tetra-n-butyltin	21.4	25.0	86	19-130
Tri-n-butyltin Cation	23.9	22.2	107	10-122
Di-n-butyltin Cation	17.6	19.2	92	12-136
n-Butyltin Cation	15.9	15.6	102	10-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS ENVIRONMENTAL

Client: Emax Laboratories, Incorporated
Project: DHCCP/ 13H125
Sample Matrix: Soil

Service Request No.: K1308384
Date Received: 08/19/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Three soil samples were received for analysis at ALS Environmental on 08/19/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Total Metals

No anomalies associated with the analysis of these samples were observed.

Organotin Compounds**Calibration Verification Exceptions:**

The analysis of Butyltins requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Tri-n-propyltin and Tetra-n-butyltin in 0830F014. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Holding Time Exceptions:

These field samples were received past holding time. The analysis was performed as soon as possible after receipt by the laboratory. The data was flagged to indicate the holding time violation.

Matrix Spike Recovery Exceptions:


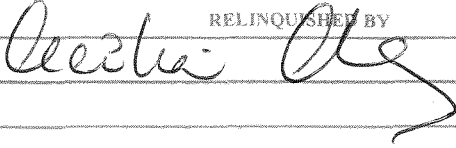
The matrix spike recovery of n-Butyltin for sample Batch QC was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Approved by _____

CHAIN OF CUSTODY

K1308884
DWR-207

 EMAX LABORATORIES, INC.		1835 W. 205th Street, Torrance, CA 90501 Tel #: 310-618-8889 Fax #: 310-618-0818 Email: info@emaxlabs.com				PO NUMBER: SAMPLE STORAGE				EMAX CONTROL NO. * PROJECT CODE: 13H125									
		CLIENT URS PROJECT DHCCP COORDINATOR TEL _____ FAX _____ EMAIL _____ SEND REPORT TO Caspar Pang (cpang@emaxlabs.com) COMPANY EMAX ADDRESS EMAX PM Caspar Pang				MATRIX CODE DW=Drinking Water GW=Ground Water WW=Waste Water SD=Solid Waste SL=Sludge SS=Soil Sediment WP=Wipes PP=Pure Products AR=Air O=				PRESERVATIVE CODE IC=Ice HC=HCl HN=HNO3 SH=NaOH ST=Na2S2O3 ZA=Zinc Acetate HS=H2SO4				ANALYSIS REQUIRED Butyltin Methyl Mercury (16304)				TAT <input type="checkbox"/> Rush _____ hrs. <input type="checkbox"/> Rush _____ days <input type="checkbox"/> 7 days <input checked="" type="checkbox"/> 14 days <input type="checkbox"/> 21 days <input type="checkbox"/> 30 days <input type="checkbox"/> _____ days <input type="checkbox"/>	
SAMPLE ID		SAMPLING			CONTAINER			MATRIX CODE		QC		PRESERVATIVE CODE						COMMENTS	
LAB	CLIENT	LOCATION	DATE	TIME	NO.	SIZE	TYPE												
* 1	1A-2		7/10/13	15:30	1	8 oz.	Jar	SS			X	X						H125-01	
* 2	2A-2		↓	↓	↓	↓	↓	↓			↓	↓						-02	
* 3	3A-2		↓	↓	↓	↓	↓	↓			↓	↓						-03	
* 4																			
* 5																			
* 6																			
* 7																			
* 8																			
* 9																			
* 10																			
Instructions Level 2 report												Cooler #		Temp. (°C)		Sample #s Sub to: ALS 1317 S. 13th Ave. Kelso, WA 98626 ATTN: Howard Holmes			
SAMPLER					COURIER/AIRBILL														
RELINQUISHED BY 					Date 8/15/13		Time 16:15		RECEIVED BY S. DAVIS / ALS-KELSO					Date 8/16/13		Time 0930			
NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepancies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associated with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be \$5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.																			

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
1A-2	K1308384-001	07/18/2013	08/19/2013	08/28/2013	84.3	
2A-2	K1308384-002	07/18/2013	08/19/2013	08/28/2013	73.5	
3A-2	K1308384-003	07/18/2013	08/19/2013	08/28/2013	84.7	

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/2013
Date Received: 08/19/2013
Date Analyzed: 08/28/2013

Duplicate Sample Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
1A-2	K1308384-001	84.3	84.5	84.4	<1	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/13
Date Received: 08/19/13

Methyl Mercury

Prep Method: CAS SOP
Analysis Method: CAS SOP
Test Notes:

Units: ng/g
Basis: Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1A-2	K1308384-001	0.4	0.04	1	08/27/13	08/29/13	ND	
2A-2	K1308384-002	0.4	0.04	1	08/27/13	08/29/13	0.05	J
3A-2	K1308384-003	0.4	0.04	1	08/27/13	08/29/13	ND	
Method Blank 1	K1308384-MB1	0.4	0.04	1	08/27/13	08/29/13	ND	
Method Blank 2	K1308384-MB2	0.4	0.04	1	08/27/13	08/29/13	ND	
Method Blank 3	K1308384-MB3	0.4	0.04	1	08/27/13	08/29/13	ND	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/13
Date Received: 08/19/13
Date Extracted: 08/27/13
Date Analyzed: 08/29/13

Matrix Spike/Duplicate Matrix Spike Summary
 Metals

Sample Name: 1A-2 Units: ng/g
 Lab Code: K1308384-001MS, K1308384-001MSD Basis: Dry
 Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Spike Level		Sample Result	Spike Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Methyl Mercury	CAS SOP	CAS SOP	0.4	115	111	ND	106	98.0	92	88	65-135	8	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
LCS Matrix: Water

Service Request: K1308384
Date Collected: NA
Date Received: NA
Date Extracted: 08/27/13
Date Analyzed: 08/29/13

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: pg
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Methyl Mercury	CAS SOP	CAS SOP	100	90.8	91	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
LCS Matrix: Water

Service Request: K1308384
Date Collected: NA
Date Received: NA
Date Extracted: 08/27/13
Date Analyzed: 08/29/13

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: pg
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Methyl Mercury	CAS SOP	CAS SOP	100	97.2	97	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
LCS Matrix: Soil

Service Request: K1308384
Date Collected: NA
Date Received: NA
Date Extracted: 08/27/13
Date Analyzed: 08/29/13

Quality Control Sample (QCS) Summary
 Total Metals

Sample Name: Quality Control Sample

Units: ng/g
Basis: Dry

Source: ERM - CC580 Estuarine Sediment

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Methyl Mercury	CAS SOP	CAS SOP	75.0	66.7	89	67-133	

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/2013
Date Received: 08/19/2013

Butyltins (as cation)

Sample Name: 1A-2
Lab Code: K1308384-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.2	0.53	1	08/22/13	08/30/13	KWG1309233	*
Tri-n-butyltin Cation	ND	U	1.2	0.51	1	08/22/13	08/30/13	KWG1309233	*
Di-n-butyltin Cation	ND	U	1.2	0.23	1	08/22/13	08/30/13	KWG1309233	*
n-Butyltin Cation	ND	U	1.2	0.31	1	08/22/13	08/30/13	KWG1309233	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	79	10-120	08/30/13	Acceptable

Comments: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/2013
Date Received: 08/19/2013

Butyltins (as cation)

Sample Name: 2A-2
Lab Code: K1308384-002
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.4	0.60	1	08/22/13	08/30/13	KWG1309233	*
Tri-n-butyltin Cation	ND	U	1.4	0.59	1	08/22/13	08/30/13	KWG1309233	*
Di-n-butyltin Cation	ND	U	1.4	0.26	1	08/22/13	08/30/13	KWG1309233	*
n-Butyltin Cation	ND	U	1.4	0.36	1	08/22/13	08/30/13	KWG1309233	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	76	10-120	08/30/13	Acceptable

Comments: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Soil

Service Request: K1308384
Date Collected: 07/18/2013
Date Received: 08/19/2013

Butyltins (as cation)

Sample Name: 3A-2
Lab Code: K1308384-003
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.2	0.52	1	08/22/13	09/03/13	KWG1309233	*
Tri-n-butyltin Cation	ND	U	1.2	0.51	1	08/22/13	09/03/13	KWG1309233	*
Di-n-butyltin Cation	ND	U	1.2	0.23	1	08/22/13	09/03/13	KWG1309233	*
n-Butyltin Cation	ND	U	1.2	0.31	1	08/22/13	09/03/13	KWG1309233	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	87	10-120	09/03/13	Acceptable

Comments: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Sediment

Service Request: K1308384
Date Collected: NA
Date Received: NA

Butyltins (as cation)

Sample Name: Method Blank
Lab Code: KWG1309233-4
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.98	0.44	1	08/22/13	08/30/13	KWG1309233	
Tri-n-butyltin Cation	ND	U	0.98	0.43	1	08/22/13	08/30/13	KWG1309233	
Di-n-butyltin Cation	ND	U	0.98	0.19	1	08/22/13	08/30/13	KWG1309233	
n-Butyltin Cation	ND	U	0.98	0.26	1	08/22/13	08/30/13	KWG1309233	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	43	10-120	08/30/13	Acceptable

Comments: _____

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Sediment

Service Request: K1308384

Surrogate Recovery Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: Percent
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
Batch QC	K1308299-001	72
1A-2	K1308384-001	79
2A-2	K1308384-002	76
3A-2	K1308384-003	87
Method Blank	KWG1309233-4	43
Batch QCMS	KWG1309233-1	65
Batch QCDMS	KWG1309233-2	74
Lab Control Sample	KWG1309233-3	75

Surrogate Recovery Control Limits (%)

Sur1 = Tri-n-propyltin 10-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Sediment

Service Request: K1308384
Date Extracted: 08/22/2013
Date Analyzed: 08/30/2013

Matrix Spike/Duplicate Matrix Spike Summary
Butyltins (as cation)

Sample Name: Batch QC
Lab Code: K1308299-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1309233

Analyte Name	Sample Result	Batch QCMS KWG1309233-1 Matrix Spike			Batch QCDMS KWG1309233-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Tetra-n-butyltin	ND	16.9	30.0	56	21.0	30.0	70	16-126	21	40
Tri-n-butyltin Cation	ND	20.5	26.6	77	23.9	26.6	90	10-115	15	40
Di-n-butyltin Cation	ND	13.4	23.0	58	15.0	23.0	65	10-133	11	40
n-Butyltin Cation	ND	1.42	18.7	8 *	1.38	18.7	7 *	10-124	3	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13H125
Sample Matrix: Sediment

Service Request: K1308384
Date Extracted: 08/22/2013
Date Analyzed: 08/30/2013

Lab Control Spike Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1309233

Lab Control Sample
KWG1309233-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Tetra-n-butyltin	21.4	25.0	86	19-130
Tri-n-butyltin Cation	23.9	22.2	107	10-122
Di-n-butyltin Cation	17.6	19.2	92	12-136
n-Butyltin Cation	15.9	15.6	102	10-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

SDG#: 13J055

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

One(1) soil sample was received on 10/07/13 for Semivolatile Organics by GCMS analysis, Method 3550B/8270C in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Instrument mass ratios as well as DDT breakdown were evaluated. Results were within acceptance criteria. Tailing factor for Benzidine and Pentachlorophenol were also verified and results were within the method limits. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for SVJ009SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
SEMI VOLATILE ORGANICS BY GC/MS

=====
Client : URS
Project : DHCCP
=====

SDG NO. : 13J055
Instrument ID : E4
=====

SOIL									
Client	Laboratory	Dilution	%	Analysis	Extraction	Sample	Calibration	Prep.	
Sample ID	Sample ID	Factor	Moist	DateTime	DateTime	Data FN	Data FN	Batch	Notes
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
MBLK1S	SVJ009SB	1	NA	10/08/1313:16	10/07/1311:35	RJJ194	RGJ400	SVJ009S	Method Blank
LCS1S	SVJ009SL	1	NA	10/08/1313:35	10/07/1311:35	RJJ195	RGJ400	SVJ009S	Lab Control Sample (LCS)
LCD1S	SVJ009SC	1	NA	10/08/1313:55	10/07/1311:35	RJJ196	RGJ400	SVJ009S	LCS Duplicate
1C-2	J055-01	1	8.7	10/09/1320:56	10/07/1311:35	RJJ254	RGJ400	SVJ009S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : URS                      Date Collected: 09/27/13
Project      : DHCCP                   Date Received: 10/07/13
Batch No.    : 13J055                  Date Extracted: 10/07/13 11:35
Sample ID    : 1C-2                    Date Analyzed: 10/09/13 20:56
Lab Samp ID  : J055-01                 Dilution Factor: 1
Lab File ID  : RJJ254                  Matrix          : SOIL
Ext Btch ID  : SVJ009S                 % Moisture      : 8.7
Calib. Ref.  : RGJ400                  Instrument ID    : T-OE4
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	360	180
1,2-DICHLOROBENZENE	ND	360	180
1,3-DICHLOROBENZENE	ND	360	180
1,4-DICHLOROBENZENE	ND	360	180
2,4,5-TRICHLOROPHENOL	ND	360	180
2,4,6-TRICHLOROPHENOL	ND	360	180
2,4-DICHLOROPHENOL	ND	360	180
2,4-DIMETHYLPHENOL	ND	360	180
2,4-DINITROPHENOL	ND	730	180
2,4-DINITROTOLUENE	ND	360	180
2,6-DINITROTOLUENE	ND	360	180
2-CHLORONAPHTHALENE	ND	360	180
2-CHLOROPHENOL	ND	360	180
2-METHYLNAPHTHALENE	ND	360	180
2-METHYLPHENOL	ND	360	180
2-NITROANILINE	ND	360	180
2-NITROPHENOL	ND	360	180
3,3'-DICHLOROBENZIDINE	ND	360	180
3-NITROANILINE	ND	360	180
4,6-DINITRO-2-METHYLPHENOL	ND	730	180
4-BROMOPHENYL-PHENYL ETHER	ND	360	180
4-CHLORO-3-METHYLPHENOL	ND	360	180
4-CHLOROANILINE	ND	360	180
4-CHLOROPHENYL-PHENYL ETHER	ND	360	180
4-METHYLPHENOL (1)	ND	360	180
4-NITROANILINE	ND	360	180
4-NITROPHENOL	ND	730	180
ACENAPHTHENE	ND	360	180
ACENAPHTHYLENE	ND	360	180
ANTHRACENE	ND	360	180
BENZO(A)ANTHRACENE	ND	360	180
BENZO(A)PYRENE	ND	360	180
BENZO(B)FLUORANTHENE	ND	360	180
BENZO(K)FLUORANTHENE	ND	360	180
BENZO(G,H,I)PERYLENE	ND	360	180
BIS(2-CHLOROETHOXY)METHANE	ND	360	180
BIS(2-CHLOROETHYL)ETHER	ND	360	180
BIS(2-CHLOROISOPROPYL)ETHER	ND	360	180
BIS(2-ETHYLHEXYL)PHTHALATE	ND	360	180
BUTYLBENZYLPHTHALATE	ND	360	180
CHRYSENE	ND	360	180
DI-N-BUTYLPHTHALATE	ND	360	180
DI-N-OCTYLPHTHALATE	ND	360	180
DIBENZO(A,H)ANTHRACENE	ND	360	180
DIBENZOFURAN	ND	360	180
DIETHYLPHTHALATE	ND	360	180
DIMETHYLPHTHALATE	ND	360	180
FLUORANTHENE	ND	360	180
FLUORENE	ND	360	180
HEXACHLOROBENZENE	ND	360	180
HEXACHLOROBUTADIENE	ND	360	180
HEXACHLOROCYCLOPENTADIENE	ND	360	180
HEXACHLOROETHANE	ND	360	180
INDENO(1,2,3-CD)PYRENE	ND	360	180
ISOPHORONE	ND	360	180
N-NITROSO-DI-N-PROPYLAMINE	ND	360	180
N-NITROSODIPHENYLAMINE (2)	ND	360	180
NAPHTHALENE	ND	360	180
NITROBENZENE	ND	360	180
PENTACHLOROPHENOL	ND	730	180
PHENANTHRENE	ND	360	180
PHENOL	ND	360	180
PYRENE	ND	360	180

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	2250	2191	103	40-130
2-FLUOROBIPHENYL	462	730.2	63.3	40-130
2-FLUOROPHENOL	1530	2191	69.8	30-130
NITROBENZENE-D5	423	730.2	57.9	30-130
PHENOL-D5	1740	2191	79.5	40-130
TERPHENYL-D14	673	730.2	92.1	60-130

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

QC SUMMARIES

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : URS
Project      : DHCCP
Batch No.    : 13J055
Sample ID    : MBLK1S
Lab Samp ID  : SVJ009SB
Lab File ID  : RJJ194
Ext Btch ID  : SVJ009S
Calib. Ref.  : RGJ400
Date Collected: NA
Date Received: 10/07/13
Date Extracted: 10/07/13 11:35
Date Analyzed: 10/08/13 13:16
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : NA
Instrument ID : T-OE4
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	330	170
1,2-DICHLOROBENZENE	ND	330	170
1,3-DICHLOROBENZENE	ND	330	170
1,4-DICHLOROBENZENE	ND	330	170
2,4,5-TRICHLOROPHENOL	ND	330	170
2,4,6-TRICHLOROPHENOL	ND	330	170
2,4-DICHLOROPHENOL	ND	330	170
2,4-DIMETHYLPHENOL	ND	330	170
2,4-DINITROPHENOL	ND	670	170
2,4-DINITROTOLUENE	ND	330	170
2,6-DINITROTOLUENE	ND	330	170
2-CHLORONAPHTHALENE	ND	330	170
2-CHLOROPHENOL	ND	330	170
2-METHYLNAPHTHALENE	ND	330	170
2-METHYLPHENOL	ND	330	170
2-NITROANILINE	ND	330	170
2-NITROPHENOL	ND	330	170
3,3'-DICHLOROBENZIDINE	ND	330	170
3-NITROANILINE	ND	330	170
4,6-DINITRO-2-METHYLPHENOL	ND	670	170
4-BROMOPHENYL-PHENYL ETHER	ND	330	170
4-CHLORO-3-METHYLPHENOL	ND	330	170
4-CHLOROANILINE	ND	330	170
4-CHLOROPHENYL-PHENYL ETHER	ND	330	170
4-METHYLPHENOL (1)	ND	330	170
4-NITROANILINE	ND	330	170
4-NITROPHENOL	ND	670	170
ACENAPHTHENE	ND	330	170
ACENAPHTHYLENE	ND	330	170
ANTHRACENE	ND	330	170
BENZO(A)ANTHRACENE	ND	330	170
BENZO(A)PYRENE	ND	330	170
BENZO(B)FLUORANTHENE	ND	330	170
BENZO(K)FLUORANTHENE	ND	330	170
BENZO(G,H,I)PERYLENE	ND	330	170
BIS(2-CHLOROETHOXY)METHANE	ND	330	170
BIS(2-CHLOROETHYL)ETHER	ND	330	170
BIS(2-CHLOROISOPROPYL)ETHER	ND	330	170
BIS(2-ETHYLHEXYL)PHTHALATE	ND	330	170
BUTYLBENZYLPHTHALATE	ND	330	170
CHRYSENE	ND	330	170
DI-N-BUTYLPHTHALATE	ND	330	170
DI-N-OCTYLPHTHALATE	ND	330	170
DIBENZO(A,H)ANTHRACENE	ND	330	170
DIBENZOFURAN	ND	330	170
DIETHYLPHTHALATE	ND	330	170
DIMETHYLPHTHALATE	ND	330	170
FLUORANTHENE	ND	330	170
FLUORENE	ND	330	170
HEXACHLOROBENZENE	ND	330	170
HEXACHLOROBUTADIENE	ND	330	170
HEXACHLOROCYCLOPENTADIENE	ND	330	170
HEXACHLOROETHANE	ND	330	170
INDENO(1,2,3-CD)PYRENE	ND	330	170
ISOPHORONE	ND	330	170
N-NITROSO-DI-N-PROPYLAMINE	ND	330	170
N-NITROSODIPHENYLAMINE (2)	ND	330	170
NAPHTHALENE	ND	330	170
NITROBENZENE	ND	330	170
PENTACHLOROPHENOL	ND	670	170
PHENANTHRENE	ND	330	170
PHENOL	ND	330	170
PYRENE	ND	330	170

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	1640	2000	82.1	30-140
2-FLUOROBIPHENYL	519	666.7	77.8	30-130
2-FLUOROPHENOL	1670	2000	83.6	40-130
NITROBENZENE-D5	459	666.7	68.9	40-130
PHENOL-D5	1780	2000	89.1	40-130
TERPHENYL-D14	560	666.7	84.1	40-140

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J055
METHOD: METHOD 3550B/8270C

MATRIX: SOIL
DILUTION FACTOR: 1 1 % MOISTURE: NA
SAMPLE ID: MBLK1S
LAB SAMP ID: SVJ009SB SVJ009SL SVJ009SC
LAB FILE ID: RJJ194 RJJ195 RJJ196
DATE EXTRACTED: 10/07/13 11:35 10/07/13 11:35 10/07/13 11:35
DATE ANALYZED: 10/08/13 13:16 10/08/13 13:35 10/08/13 13:55
PREP. BATCH: SVJ009S SVJ009S SVJ009S
CALIB. REF: RGJ400 RGJ400 RGJ400

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,2,4-Trichlorobenzene	ND	1330	1070	80	1330	1080	81	1	40-130	50
1,2-Dichlorobenzene	ND	1330	1090	82	1330	1070	80	2	50-130	50
1,3-Dichlorobenzene	ND	1330	1080	81	1330	1080	81	0	50-130	50
1,4-Dichlorobenzene	ND	1330	1090	82	1330	1080	81	1	40-130	50
2,4,5-Trichlorophenol	ND	1330	1080	81	1330	1090	82	1	40-130	50
2,4,6-Trichlorophenol	ND	1330	1050	79	1330	1040	78	1	40-130	50
2,4-Dichlorophenol	ND	1330	1070	80	1330	1060	79	1	50-130	50
2,4-Dimethylphenol	ND	1330	1060	79	1330	1030	77	3	50-130	50
2,4-Dinitrophenol	ND	1330	957	72	1330	951	71	1	20-130	50
2,4-Dinitrotoluene	ND	1330	1300	98	1330	1290	97	1	50-140	50
2,6-Dinitrotoluene	ND	1330	1220	92	1330	1210	91	1	40-130	50
2-Chloronaphthalene	ND	1330	1100	83	1330	1060	80	4	50-130	50
2-Chlorophenol	ND	1330	1120	84	1330	1090	82	3	40-130	50
2-Methylnaphthalene	ND	1330	1010	76	1330	1020	76	1	50-130	50
2-Methylphenol	ND	1330	1050	79	1330	1040	78	1	40-130	50
2-Nitroaniline	ND	1330	1150	86	1330	1130	85	1	40-130	50
2-Nitrophenol	ND	1330	1070	80	1330	1080	81	1	50-130	50
3,3'-Dichlorobenzidine	ND	1330	1170	87	1330	1180	89	2	40-130	50
3-Nitroaniline	ND	1330	1090	82	1330	1090	82	0	40-130	50
4,6-Dinitro-2-Methylphenol	ND	1330	1340	101	1330	1320	99	2	30-130	50
4-Bromophenyl-phenyl ether	ND	1330	1130	85	1330	1110	83	2	40-130	50
4-Chloro-3-Methylphenol	ND	1330	1090	82	1330	1100	83	1	50-130	50
4-Chloroaniline	ND	1330	1030	77	1330	1050	78	1	40-130	50
4-Chlorophenyl-phenyl ether	ND	1330	1050	79	1330	1020	77	3	50-130	50
4-Methylphenol	ND	1330	1120	84	1330	1130	85	1	50-130	50
4-Nitroaniline	ND	1330	1130	85	1330	1150	86	2	50-130	50
4-Nitrophenol	ND	1330	1050	79	1330	1050	79	0	30-130	50
Acenaphthene	ND	1330	1100	83	1330	1060	79	4	50-130	50
Acenaphthylene	ND	1330	1030	78	1330	1020	77	1	40-130	50
Anthracene	ND	1330	1100	82	1330	1070	80	3	40-130	50
Benzo(a)anthracene	ND	1330	1180	89	1330	1190	90	1	50-130	50
Benzo(a)pyrene	ND	1330	1170	88	1330	1150	87	1	50-130	50
Benzo(b)fluoranthene	ND	1330	1280	96	1330	1280	96	0	50-130	50
Benzo(k)fluoranthene	ND	1330	1150	87	1330	1130	84	3	50-130	50
Benzo(g,h,i)perylene	ND	1330	1250	93	1330	1210	91	3	50-130	50
bis(2-Chloroethoxy)methane	ND	1330	1160	87	1330	1160	87	0	50-130	50
bis(2-Chloroethyl)ether	ND	1330	1140	85	1330	1160	87	1	50-130	50
bis(2-Chloroisopropyl)ether	ND	1330	1090	82	1330	1100	82	0	40-130	50
bis(2-Ethylhexyl)phthalate	ND	1330	1450	109	1330	1480	111	2	50-130	50
Butylbenzylphthalate	ND	1330	1500	112	1330	1510	113	1	50-130	50
Chrysene	ND	1330	1190	89	1330	1190	89	1	50-130	50
Di-n-butylphthalate	ND	1330	1460	109	1330	1300	98	11	50-130	50
Di-n-octylphthalate	ND	1330	1500	112	1330	1500	113	0	40-140	50
Dibenzo(a,h)anthracene	ND	1330	1200	90	1330	1180	88	2	50-130	50
Dibenzofuran	ND	1330	1100	82	1330	1070	80	2	40-130	50
Diethylphthalate	ND	1330	1200	90	1330	1200	90	1	50-130	50
Dimethylphthalate	ND	1330	1360	102	1330	1330	99	3	50-130	50
Fluoranthene	ND	1330	1050	78	1330	1020	77	2	50-130	50
Fluorene	ND	1330	1080	81	1330	1060	79	2	50-130	50
Hexachlorobenzene	ND	1330	1300	97	1330	1270	96	2	40-130	50
Hexachlorobutadiene	ND	1330	1090	82	1330	1080	81	0	40-130	50
Hexachlorocyclopentadiene	ND	1330	891	67	1330	872	65	2	20-130	50
Hexachloroethane	ND	1330	1320	99	1330	1310	98	1	50-130	50
Indeno(1,2,3-cd)pyrene	ND	1330	1230	92	1330	1200	90	2	50-130	50
Isophorone	ND	1330	1390	105	1330	1390	104	0	50-130	50
n-Nitroso-di-n-propylamine	ND	1330	1160	87	1330	1110	83	4	40-130	50
n-Nitrosodiphenylamine	ND	1330	1000	75	1330	960	72	4	30-130	50
Naphthalene	ND	1330	1140	86	1330	1140	85	0	50-130	50
Nitrobenzene	ND	1330	1200	90	1330	1210	91	1	50-130	50
Pentachlorophenol	ND	1330	1040	78	1330	1030	77	2	40-130	50
Phenanthrene	ND	1330	1140	85	1330	1100	82	4	50-130	50
Phenol	ND	1330	1180	88	1330	1170	88	0	50-130	50
Pyrene	ND	1330	1150	86	1330	1180	88	2	50-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2,4,6-Tribromophenol	2000	1890	95	2000	1890	95	30-140
2-Fluorobiphenyl	667	501	75	667	518	78	30-130
2-Fluorophenol	2000	1640	82	2000	1690	84	40-130
Nitrobenzene-d5	667	461	69	667	474	71	40-130
Phenol-d5	2000	1730	87	2000	1850	93	40-130
Terphenyl-d14	667	564	85	667	595	89	40-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8270C SIM
PAH BY GC/MS

SDG#: 13J055

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 3550B/8270C SIM
PAHS BY GC/MS

One(1) soil sample was received on 10/07/13 for PAH BY 8270C SIM analysis, Method 3550B/8270C SIM in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Instrument mass ratios were evaluated and results were within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for SVJ009SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
PAHS BY GC/MS

```
=====
Client      : URS
Project     : DHCCP
SDG NO.     : 13J055
Instrument ID : E4
=====
```

```

SOIL
Client      Laboratory Dilution % Analysis Extraction Sample Calibration Prep.
Sample ID   Sample ID   Factor Moist  DateTime   DateTime   Data FN    Data FN    Batch    Notes
-----
MBLK1S      SVJ009SB      1      NA   10/08/1313:16  10/07/1311:35  RJJ194    RGJ400    SVJ009S  Method Blank
LCS1S      SVJ009SL      1      NA   10/08/1313:35  10/07/1311:35  RJJ195    RGJ400    SVJ009S  Lab Control Sample (LCS)
LCD1S      SVJ009SC      1      NA   10/08/1313:55  10/07/1311:35  RJJ196    RGJ400    SVJ009S  LCS Duplicate
1C-2       J055-01      1      8.7  10/09/1320:56  10/07/1311:35  RJJ254    RGJ400    SVJ009S  Field Sample
```

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8270C SIM
PAHS BY GC/MS

```

=====
Client       : URS                      Date Collected: 09/27/13
Project      : DHCCP                   Date Received: 10/07/13
Batch No.    : 13J055                 Date Extracted: 10/07/13 11:35
Sample ID    : 1C-2                   Date Analyzed: 10/09/13 20:56
Lab Samp ID  : J055-01                Dilution Factor: 1
Lab File ID  : RJJ254                 Matrix       : SOIL
Ext Btch ID  : SVJ009S                % Moisture   : 8.7
Calib. Ref.  : RGJ400                 Instrument ID : T-OE4
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
-----	-----	-----	-----
ACENAPHTHENE	ND	11	2.7
ACENAPHTHYLENE	ND	11	2.7
ANTHRACENE	ND	11	2.7
BENZO(A)ANTHRACENE	ND	11	2.7
BENZO(A)PYRENE	ND	11	2.7
BENZO(B)FLUORANTHENE	ND	11	2.7
BENZO(K)FLUORANTHENE	ND	11	2.7
BENZO(G,H,I)PERYLENE	ND	11	2.7
CHRYSENE	ND	11	2.7
DIBENZO(A,H)ANTHRACENE	ND	11	2.7
FLUORANTHENE	ND	11	2.7
FLUORENE	ND	11	2.7
INDENO(1,2,3-CD)PYRENE	ND	11	2.7
NAPHTHALENE	ND	11	2.7
PHENANTHRENE	ND	11	2.7
PYRENE	ND	11	2.7

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
2-FLUOROBIPHENYL	407	730.2	55.8	30-160
NITROBENZENE-D5	414	730.2	56.7	30-160
TERPHENYL-D14	650	730.2	89.0	40-150

QC SUMMARIES

METHOD 3550B/8270C SIM
PAHS BY GC/MS

```

=====
Client       : URS                      Date Collected: NA
Project      : DHCCP                   Date Received: 10/07/13
Batch No.    : 13J055                  Date Extracted: 10/07/13 11:35
Sample ID    : MBLK1S                  Date Analyzed: 10/08/13 13:16
Lab Samp ID  : SVJ009SB                Dilution Factor: 1
Lab File ID  : RJJ194                  Matrix       : SOIL
Ext Btch ID  : SVJ009S                 % Moisture    : NA
Calib. Ref.  : RGJ400                 Instrument ID  : T-OE4
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
-----	-----	-----	-----
ACENAPHTHENE	ND	10	2.5
ACENAPHTHYLENE	ND	10	2.5
ANTHRACENE	ND	10	2.5
BENZO(A)ANTHRACENE	ND	10	2.5
BENZO(A)PYRENE	ND	10	2.5
BENZO(B)FLUORANTHENE	ND	10	2.5
BENZO(K)FLUORANTHENE	ND	10	2.5
BENZO(G,H,I)PERYLENE	ND	10	2.5
CHRYSENE	ND	10	2.5
DIBENZO(A,H)ANTHRACENE	ND	10	2.5
FLUORANTHENE	ND	10	2.5
FLUORENE	ND	10	2.5
INDENO(1,2,3-CD)PYRENE	ND	10	2.5
NAPHTHALENE	ND	10	2.5
PHENANTHRENE	ND	10	2.5
PYRENE	ND	10	2.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
2-FLUOROBIPHENYL	438	666.7	65.8	30-130
NITROBENZENE-D5	458	666.7	68.7	40-130
TERPHENYL-D14	556	666.7	83.4	40-140

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J055
METHOD: METHOD 3550B/8270C SIM

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: SVJ009SB SVJ009SL SVJ009SC
LAB FILE ID: RJJ194 RJJ195 RJJ196
DATE EXTRACTED: 10/07/1311:35 10/07/1311:35 10/07/1311:35 DATE COLLECTED: NA
DATE ANALYZED: 10/08/1313:16 10/08/1313:35 10/08/1313:55 DATE RECEIVED: 10/07/13
PREP. BATCH: SVJ009S SVJ009S SVJ009S
CALIB. REF: RGJ400 RGJ400 RGJ400

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Acenaphthene	ND	1330	1070	80	1330	1050	79	2	50-130	50
Acenaphthylene	ND	1330	1160	87	1330	1140	85	2	40-130	50
Anthracene	ND	1330	1080	81	1330	1070	80	1	40-130	50
Benzo(a)anthracene	ND	1330	1150	86	1330	1130	84	2	50-130	50
Benzo(a)pyrene	ND	1330	1250	94	1330	1230	92	1	50-130	50
Benzo(b)fluoranthene	ND	1330	1220	91	1330	1200	90	2	50-130	50
Benzo(k)fluoranthene	ND	1330	1240	93	1330	1220	91	2	50-130	50
Benzo(g,h,i)perylene	ND	1330	1270	95	1330	1250	94	1	50-130	50
Chrysene	ND	1330	1110	83	1330	1100	82	1	50-130	50
Dibenzo(a,h)anthracene	ND	1330	1240	93	1330	1230	92	1	50-130	50
Fluoranthene	ND	1330	1120	84	1330	1110	83	1	50-130	50
Fluorene	ND	1330	1060	80	1330	1050	79	1	50-130	50
Indeno(1,2,3-cd)pyrene	ND	1330	1260	95	1330	1250	94	1	50-130	50
Naphthalene	ND	1330	1080	81	1330	1060	79	2	50-130	50
Phenanthrene	ND	1330	1060	79	1330	1040	78	2	50-130	50
Pyrene	ND	1330	1110	83	1330	1100	83	1	50-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2-Fluorobiphenyl	667	444	67	667	460	69	30-130
Nitrobenzene-d5	667	459	69	667	483	72	40-130
Terphenyl-d14	667	540	81	667	567	85	40-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND
TRAP

SDG#: 13J055

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

One(1) soil sample was received on 10/07/13 for TPH-Gasoline analysis, Method 5030B/8015B in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for GMJ003SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogate was added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                                     SDG NO.       : 13J055
Project     : DHCCP                                   Instrument ID  : GCT039
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	GMJ003SB	1	NA	10/09/1314:09	10/09/1314:09	EJ09006A	EJ09003A	GMJ003S	Method Blank
LCS1S	GMJ003SL	1	NA	10/09/1312:50	10/09/1312:50	EJ09004A	EJ09003A	GMJ003S	Lab Control Sample (LCS)
LCD1S	GMJ003SC	1	NA	10/09/1313:27	10/09/1313:27	EJ09005A	EJ09003A	GMJ003S	LCS Duplicate
1C-2	J055-01	.97	8.7	10/10/1300:11	10/10/1300:11	EJ09022A	EJ09015A	GMJ003S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: 09/27/13
Project     : DHCCP                   Date Received: 10/07/13
Batch No.   : 13J055                 Date Extracted: 10/10/13 00:11
Sample ID: 1C-2                     Date Analyzed: 10/10/13 00:11
Lab Samp ID: J055-01                Dilution Factor: .97
Lab File ID: EJ09022A               Matrix       : SOIL
Ext Btch ID: GMJ003S               % Moisture    : 8.7
Calib. Ref.: EJ09015A              Instrument ID : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
GASOLINE	ND	1.1	0.53

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
BROMOFLUOROBENZENE	1.66	2.125	78.2	10-160

Parameter	H-C Range
Gasoline	C6-C10

QC SUMMARIES

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/09/13
Batch No.   : 13J055                 Date Extracted: 10/09/13 14:09
Sample ID   : MBLK1S                 Date Analyzed: 10/09/13 14:09
Lab Samp ID : GMJ003SB               Dilution Factor: 1
Lab File ID : EJ09006A               Matrix          : SOIL
Ext Btch ID : GMJ003S                % Moisture       : NA
Calib. Ref. : EJ09003A               Instrument ID    : GCT039
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
GASOLINE	ND	1.0	0.50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
BROMOFLUOROBENZENE	1.73	2.000	86.4	70-140

Parameter H-C Range
Gasoline C6-C10

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J055
METHOD: METHOD 5030B/8015B

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: GMJ003SB GMJ003SL GMJ003SC
LAB FILE ID: EJ09006A EJ09004A EJ09005A
DATE EXTRACTED: 10/09/1314:09 10/09/1312:50 10/09/1313:27 DATE COLLECTED: NA
DATE ANALYZED: 10/09/1314:09 10/09/1312:50 10/09/1313:27 DATE RECEIVED: 10/09/13
PREP. BATCH: GMJ003S GMJ003S GMJ003S
CALIB. REF: EJ09003A EJ09003A EJ09003A

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Gasoline	ND	25.0	23.6	95	25.0	23.4	93	1	60-130	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Bromofluorobenzene	2.00	2.07	104	2.00	2.02	101	70-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 13J055

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) soil sample was received on 10/07/13 for TPH Diesel analysis, Method 3550B/8015B in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for DSJ004SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      SDG NO.       : 13J055
Project     : DHCCP                   Instrument ID  : GCT105
=====
```

Client	Laboratory	Dilution	%	SOIL	Extraction	Sample	Calibration	Prep.	
Sample ID	Sample ID	Factor	Moist	Analysis DateTime	DateTime	Data FN	Data FN	Batch	Notes
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
MBLK1S	DSJ004SB	1	NA	10/08/1317:54	10/08/1315:45	LJ08005A	LJ08003A	DSJ004S	Method Blank
LCS1S	DSJ004SL	1	NA	10/08/1318:11	10/08/1315:45	LJ08006A	LJ08003A	DSJ004S	Lab Control Sample (LCS)
LCD1S	DSJ004SC	1	NA	10/08/1318:28	10/08/1315:45	LJ08007A	LJ08003A	DSJ004S	LCS Duplicate
1C-2	J055-01	1	8.7	10/08/1318:45	10/08/1315:45	LJ08008A	LJ08003A	DSJ004S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS                      Date Collected: 09/27/13
Project      : DHCCP                   Date Received: 10/07/13
Batch No.    : 13J055                  Date Extracted: 10/08/13 15:45
Sample ID    : 1C-2                    Date Analyzed: 10/08/13 18:45
Lab Samp ID  : J055-01                 Dilution Factor: 1
Lab File ID  : LJ08008A                Matrix       : SOIL
Ext Btch ID  : DSJ004S                 % Moisture    : 8.7
Calib. Ref.  : LJ08003A                Instrument ID : GCT105
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
DIESEL	ND	11	5.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
BROMOBENZENE	83.4	109.5	76.1	50-130
HEXACOSANE	26.9	27.38	98.3	40-160

RL : Reporting Limit
 Parameter H-C Range
 Diesel C10-C24

QC SUMMARIES

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/08/13
Batch No.   : 13J055                  Date Extracted: 10/08/13 15:45
Sample ID   : MBLK1S                 Date Analyzed: 10/08/13 17:54
Lab Samp ID : DSJ004SB               Dilution Factor: 1
Lab File ID : LJ08005A               Matrix          : SOIL
Ext Btch ID : DSJ004S                % Moisture       : NA
Calib. Ref. : LJ08003A              Instrument ID    : GCT105
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	80.2	100.0	80.2	50-130
HEXACOSANE	23.9	25.00	95.7	60-130

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J055
METHOD: METHOD 3550B/8015B

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: DSJ004SB DSJ004SL DSJ004SC
LAB FILE ID: LJ08005A LJ08006A LJ08007A
DATE EXTRACTED: 10/08/1315:45 10/08/1315:45 10/08/1315:45 DATE COLLECTED: NA
DATE ANALYZED: 10/08/1317:54 10/08/1318:11 10/08/1318:28 DATE RECEIVED: 10/08/13
PREP. BATCH: DSJ004S DSJ004S DSJ004S
CALIB. REF: LJ08003A LJ08003A LJ08003A

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	500	458	92	500	430	86	6	60-130	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Bromobenzene	100	81.2	81	100	83.9	84	50-130
Hexacosane	25.0	24.5	98	25.0	25.3	101	60-130

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8081A
PESTICIDES

SDG#: 13J055

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 3550B/8081A
PESTICIDES

One(1) soil sample was received on 10/07/13 for Pesticides Organochlorine analysis, Method 3550B/8081A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument performance was checked prior to calibration. DDT and Endrin breakdown were within specification. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for CPJ013SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter. Positive sample results were confirmed by a second column. Relative percentage difference (RPD) between the two results was evaluated. If RPD is less than 40% and peaks are well defined the higher result is reported. Where RPD is greater than 40% the chromatogram is checked for anomalies and results are selected based on processed knowledge. If there is no evidence of any chromatographic ambiguity, the higher result is reported.

LAB CHRONICLE
PESTICIDES

```
=====
Client      : URS                                     SDG NO.       : 13J055
Project     : DHCCP                                   Instrument ID  : F9
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	CPJ013SB	1	NA	10/17/1318:50	10/09/1314:12	RJ16076A	RJ16072A	CPJ013S	Method Blank
LCS1S	CPJ013SL	1	NA	10/17/1319:09	10/09/1314:12	RJ16077A	RJ16072A	CPJ013S	Lab Control Sample (LCS)
LCD1S	CPJ013SC	1	NA	10/17/1319:28	10/09/1314:12	RJ16078A	RJ16072A	CPJ013S	LCS Duplicate
1C-2	J055-01	1	8.7	10/17/1321:56	10/09/1314:12	RJ16086A	RJ16072A	CPJ013S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8081A
PESTICIDES

```

=====
Client      : URS                      Date Collected: 09/27/13
Project     : DHCCP                   Date Received: 10/07/13
Batch No.   : 13J055                  Date Extracted: 10/09/13 14:12
Sample ID   : 1C-2                    Date Analyzed: 10/17/13 21:56
Lab Samp ID : J055-01                 Dilution Factor: 1
Lab File ID : RJ16086A                Matrix       : SOIL
Ext Btch ID : CPJ013S                 % Moisture    : 8.7
Calib. Ref. : RJ16072A                Instrument ID  : F9
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.2	0.44 0.44
GAMMA-BHC (LINDANE)	(ND) ND	2.2	0.44 0.44
BETA-BHC	1.4J (ND)	2.2	0.44 0.44
HEPTACHLOR	(ND) ND	2.2	0.44 0.44
DELTA-BHC	(ND) ND	2.2	0.44 0.44
ALDRIN	(ND) 1.2J	2.2	0.44 0.44
HEPTACHLOR EPOXIDE	(ND) 0.60J	2.2	0.44 0.44
GAMMA-CHLORDANE	(ND) ND	2.2	0.44 0.44
ALPHA-CHLORDANE	(ND) ND	2.2	0.44 0.44
ENDOSULFAN I	(ND) ND	2.2	0.44 0.44
4,4'-DDE	(ND) ND	2.2	0.44 0.44
DIELDRIN	(ND) ND	2.2	0.44 0.44
ENDRIN	(ND) ND	2.2	0.44 0.44
4,4'-DDD	(ND) ND	2.2	0.44 0.44
ENDOSULFAN II	(ND) ND	2.2	0.44 0.44
4,4'-DDT	(ND) 0.48J	2.2	0.44 0.44
ENDRIN ALDEHYDE	(ND) ND	2.2	0.44 0.44
ENDOSULFAN SULFATE	(ND) ND	2.2	0.44 0.44
ENDRIN KETONE	(ND) ND	2.2	0.44 0.44
METHOXYCHLOR	(ND) ND	11	4.4 4.4
TOXAPHENE	(ND) ND	55	11 11

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	11.77 (13.64)	14.60	80.6 (93.5)	50-140
DECACHLOROBIPHENYL	12.76 (13.30)	14.60	87.4 (91.1)	10-160

RL : Reporting limit

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

QC SUMMARIES

METHOD 3550B/8081A
PESTICIDES

```

=====
Client       : URS                               Date Collected: NA
Project      : DHCCP                             Date Received: 10/09/13
Batch No.    : 13J055                           Date Extracted: 10/09/13 14:12
Sample ID    : MBLK1S                           Date Analyzed: 10/17/13 18:50
Lab Samp ID  : CPJ013SB                        Dilution Factor: 1
Lab File ID  : RJ16076A                       Matrix       : SOIL
Ext Btch ID  : CPJ013S                        % Moisture    : NA
Calib. Ref.: RJ16072A                        Instrument ID : F9
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.0	0.40 0.40
GAMMA-BHC (LINDANE)	(ND) ND	2.0	0.40 0.40
BETA-BHC	(ND) ND	2.0	0.40 0.40
HEPTACHLOR	(ND) ND	2.0	0.40 0.40
DELTA-BHC	(ND) ND	2.0	0.40 0.40
ALDRIN	(ND) ND	2.0	0.40 0.40
HEPTACHLOR EPOXIDE	(ND) ND	2.0	0.40 0.40
GAMMA-CHLORDANE	(ND) ND	2.0	0.40 0.40
ALPHA-CHLORDANE	(ND) ND	2.0	0.40 0.40
ENDOSULFAN I	(ND) ND	2.0	0.40 0.40
4,4'-DDE	(ND) ND	2.0	0.40 0.40
DIELDRIN	(ND) ND	2.0	0.40 0.40
ENDRIN	(ND) ND	2.0	0.40 0.40
4,4'-DDD	(ND) ND	2.0	0.40 0.40
ENDOSULFAN II	(ND) ND	2.0	0.40 0.40
4,4'-DDT	(ND) ND	2.0	0.40 0.40
ENDRIN ALDEHYDE	(ND) ND	2.0	0.40 0.40
ENDOSULFAN SULFATE	(ND) ND	2.0	0.40 0.40
ENDRIN KETONE	(ND) ND	2.0	0.40 0.40
METHOXYCHLOR	(ND) ND	10	4.0 4.0
TOXAPHENE	(ND) ND	50	10 10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	12.62 (13.52)	13.33	94.6 (101)	60-130
DECACHLOROBIPHENYL	12.99 (13.08)	13.33	97.4 (98.1)	60-140

RL : Reporting limit

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J055
METHOD: SW3550B/8081A

356

MATRIX: SOIL
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: CPJ013SB CPJ013SL CPJ013SC
LAB FILE ID: RJ16076A RJ16077A RJ16078A
DATE EXTRACTED: 10/09/1314:12 10/09/1314:12 10/09/1314:12 DATE COLLECTED: NA
DATE ANALYZED: 10/17/1318:50 10/17/1319:09 10/17/1319:28 DATE RECEIVED: 10/09/13
PREP. BATCH: CPJ013S CPJ013S CPJ013S
CALIB. REF: RJ16072A RJ16072A RJ16072A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
alpha-BHC	(ND) ND	6.67	6.40 (6.71)	96 (101)	6.67	6.73 (7.13)	101 (107)	5 (6)	50-140	50
gamma-BHC (Lindane)	(ND) ND	6.67	(6.17) 6.10	(93) 91	6.67	(6.51) 6.40	(98) 96	(5) 5	60-130	50
beta-BHC	(ND) ND	6.67	(6.75) 6.52	(101) 98	6.67	(7.12) 6.75	(107) 101	(5) 3	50-130	50
Heptachlor	(ND) ND	6.67	6.10 (6.43)	91 (96)	6.67	6.47 (6.79)	97 (102)	6 (5)	50-140	50
delta-BHC	(ND) ND	6.67	6.25 (6.69)	94 (100)	6.67	6.64 (7.20)	100 (108)	6 (7)	50-150	50
Aldrin	(ND) ND	6.67	6.17 (6.47)	93 (97)	6.67	6.51 (6.70)	98 (100)	5 (3)	60-140	50
Heptachlor Epoxide	(ND) ND	6.67	6.35 (6.56)	95 (98)	6.67	(6.74) 6.72	(101) 101	(6) 2	70-130	50
gamma-Chlordane	(ND) ND	6.67	6.30 (6.72)	94 (101)	6.67	6.69 (7.11)	100 (107)	6 (6)	70-130	50
alpha-Chlordane	(ND) ND	6.67	6.29 (6.44)	94 (97)	6.67	6.67 (6.78)	100 (102)	6 (5)	70-130	50
Endosulfan I	(ND) ND	6.67	6.09 (6.36)	91 (95)	6.67	6.44 (6.72)	97 (101)	6 (6)	60-130	50
4,4'-DDE	(ND) ND	6.67	6.29 (6.61)	94 (99)	6.67	6.63 (7.00)	99 (105)	5 (6)	70-140	50
Dieldrin	(ND) ND	6.67	6.50 (6.53)	97 (98)	6.67	6.89 (6.94)	103 (104)	6 (6)	70-140	50
Endrin	(ND) ND	6.67	6.53 (6.84)	98 (103)	6.67	6.92 (7.17)	104 (107)	6 (5)	70-150	50
4,4'-DDD	(ND) ND	6.67	6.50 (6.67)	97 (100)	6.67	6.87 (6.98)	103 (105)	6 (5)	70-140	50
Endosulfan II	(ND) ND	6.67	7.10 (7.17)	106 (107)	6.67	(7.49) 7.48	(112) 112	(5) 4	70-130	50
4,4'-DDT	(ND) ND	6.67	(7.40) 6.90	(111) 103	6.67	(7.79) 7.31	(117) 110	(5) 6	70-150	50
Endrin aldehyde	(ND) ND	6.67	6.87 (7.12)	103 (107)	6.67	7.12 (7.34)	107 (110)	4 (3)	70-130	50
Endosulfan Sulfate	(ND) ND	6.67	6.76 (6.93)	101 (104)	6.67	7.11 (7.25)	107 (109)	5 (5)	70-150	50
Endrin Ketone	(ND) ND	6.67	6.74 (6.91)	101 (104)	6.67	7.02 (7.28)	105 (109)	4 (5)	70-140	50
Methoxychlor	(ND) ND	66.7	65.0 (70.3)	97 (105)	66.7	67.9 (73.7)	102 (110)	4 (5)	70-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	13.33	11.23 (11.74)	84.3 (88.0)	13.33	11.78 (12.40)	88.4 (93.0)	60-130
Decachlorobiphenyl	13.33	11.33 (11.55)	85.0 (86.6)	13.33	11.75 (11.97)	88.2 (89.8)	60-140

DWR-207

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8081A
PCBS

SDG#: 13J055

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 3550B/8082
PCBS

One(1) soil sample was received on 10/07/13 for Polychlorinated Biphenyls (PCBs) analysis, Method 3550B/8082 in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for 60J013SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter. Sample extracts subjected to appropriate cleanup technique to reduce matrix interference are recorded in extraction log.

LAB CHRONICLE
PCBs

```
=====
Client      : URS                      SDG NO.       : 13J055
Project     : DHCCP                  Instrument ID  : 71
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	60J013SB	1	NA	10/10/1321:02	10/09/1314:12	KJ09070A	KJ09068A	CPJ013S	Method Blank
LCS1S	60J013SL	1	NA	10/10/1321:26	10/09/1314:12	KJ09071A	KJ09068A	CPJ013S	Lab Control Sample (LCS)
LCD1S	60J013SC	1	NA	10/10/1321:50	10/09/1314:12	KJ09072A	KJ09068A	CPJ013S	LCS Duplicate
1C-2	J055-01	1	8.7	10/10/1322:14	10/09/1314:12	KJ09073A	KJ09068A	CPJ013S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8082
PCBs

```

=====
Client      : URS                      Date Collected: 09/27/13
Project     : DHCCP                   Date Received: 10/07/13
Batch No.   : 13J055                 Date Extracted: 10/09/13 14:12
Sample ID: 1C-2                     Date Analyzed: 10/10/13 22:14
Lab Samp ID: J055-01                Dilution Factor: 1
Lab File ID: KJ09073A               Matrix      : SOIL
Ext Btch ID: CPJ013S                % Moisture   : 8.7
Calib. Ref.: KJ09068A               Instrument ID : GCT071
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	55	18 18
PCB-1221	(ND) ND	55	18 18
PCB-1232	(ND) ND	55	18 18
PCB-1242	(ND) ND	55	18 18
PCB-1248	(ND) ND	55	18 18
PCB-1254	(ND) ND	55	18 18
PCB-1260	(ND) ND	55	18 18

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(14.28) 13.17	14.60	(97.8) 90.2	50-130
DECACHLOROBIPHENYL	(14.14) 14.05	14.60	(96.9) 96.2	50-150

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Final result indicated by ()

* Out side of QC Limit

QC SUMMARIES

METHOD 3550B/8082
PCBs

```

=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/09/13
Batch No.   : 13J055                 Date Extracted: 10/09/13 14:12
Sample ID:  MBLK1S                   Date Analyzed: 10/10/13 21:02
Lab Samp ID: 60J013SB                Dilution Factor: 1
Lab File ID: KJ09070A                Matrix      : SOIL
Ext Btch ID: CPJ013S                 % Moisture   : NA
Calib. Ref.: KJ09068A                Instrument ID : GCT071
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	50	17 17
PCB-1221	(ND) ND	50	17 17
PCB-1232	(ND) ND	50	17 17
PCB-1242	(ND) ND	50	17 17
PCB-1248	(ND) ND	50	17 17
PCB-1254	(ND) ND	50	17 17
PCB-1260	(ND) ND	50	17 17

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(12.69) 11.84	13.33	(95.2) 88.8	60-130
DECACHLOROBIPHENYL	(13.54) 13.46	13.33	(102) 101	70-140

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J055
METHOD: METHOD 3550B/8082

MATRIX: SOIL
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: 60J013SB 60J013SL 60J013SC
LAB FILE ID: KJ09070A KJ09071A KJ09072A
DATE EXTRACTED: 10/09/1314:12 10/09/1314:12 10/09/1314:12 DATE COLLECTED: NA
DATE ANALYZED: 10/10/1321:02 10/10/1321:26 10/10/1321:50 DATE RECEIVED: 10/09/13
PREP. BATCH: CPJ013S CPJ013S CPJ013S
CALIB. REF: KJ09068A KJ09068A KJ09068A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
PCB-1016	(ND) ND	167	(148) 143	(89) 86	167	(159) 155	(95) 93	(7) 8	70-140	50
PCB-1260	(ND) ND	167	151 (152)	91 (91)	167	161 (163)	97 (98)	6 (7)	70-140	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	13.33	(12.80) 12.30	(96.1) 92.3	13.33	(13.05) 12.45	(97.9) 93.4	60-130
Decachlorobiphenyl	13.33	(13.30) 13.21	(99.8) 99.1	13.33	(13.44) 13.34	(101) 100	70-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 8151A
HERBICIDES

SDG#: 13J055

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 8151A
HERBICIDES

One(1) soil sample was received on 10/07/13 for Chlorinated Herbicides analysis, Method 8151A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HEJ003SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogate was added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
HERBICIDES

Client : URS
Project : DHCCP

SDG NO. : 13J055
Instrument ID : 16

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	HEJ003SB	1	NA	10/11/1313:11	10/10/1316:30	WJ11003A	WJ11002A	HEJ003S	Method Blank
LCS1S	HEJ003SL	1	NA	10/11/1313:41	10/10/1316:30	WJ11004A	WJ11002A	HEJ003S	Lab Control Sample (LCS)
LCD1S	HEJ003SC	1	NA	10/11/1314:12	10/10/1316:30	WJ11005A	WJ11002A	HEJ003S	LCS Duplicate
1C-2	J055-01	1	8.7	10/11/1318:17	10/10/1316:30	WJ11012A	WJ11002A	HEJ003S	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 8151A
HERBICIDES

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=====
Client       : URS                      Date Collected: 09/27/13
Project      : DHCCP                   Date Received: 10/07/13
Batch No.    : 13J055                 Date Extracted: 10/10/13 16:30
Sample ID    : 1C-2                   Date Analyzed: 10/11/13 18:17
Lab Samp ID  : J055-01                Dilution Factor: 1
Lab File ID  : WJ11012A              Matrix       : SOIL
Ext Btch ID  : HEJ003S               % Moisture    : 8.7
Calib. Ref.  : WJ11002A              Instrument ID : GCT016
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) ND	11	5.5 5.5
2,4-DB	(ND) ND	11	5.5 5.5
2,4,5-T	(ND) ND	11	5.5 5.5
2,4,5-TP(SILVEX)	(ND) ND	11	5.5 5.5
DALAPON	(ND) ND	11	5.5 5.5
DICAMBA	(ND) ND	11	5.5 5.5
DICHLOROPROP	(ND) ND	11	5.5 5.5
DINOSEB	(ND) ND	11	5.5 5.5
MCPA	(ND) ND	2200	1100 1100
MCP	(ND) ND	2200	1100 1100

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	558.0 (608.2)	547.6	102 (111)	20-150

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

QC SUMMARIES

METHOD 8151A
HERBICIDES

```

=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/10/13
Batch No.   : 13J055                  Date Extracted: 10/10/13 16:30
Sample ID   : MBLK1S                  Date Analyzed: 10/11/13 13:11
Lab Samp ID : HEJ003SB                Dilution Factor: 1
Lab File ID : WJ11003A                Matrix       : SOIL
Ext Btch ID : HEJ003S                 % Moisture    : NA
Calib. Ref.: WJ11002A                 Instrument ID : GCT016
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
2,4-D	(ND) ND	10	5.0 5.0	
2,4-DB	(ND) ND	10	5.0 5.0	
2,4,5-T	(ND) ND	10	5.0 5.0	
2,4,5-TP(SILVEX)	(ND) ND	10	5.0 5.0	
DALAPON	(ND) ND	10	5.0 5.0	
DICAMBA	(ND) ND	10	5.0 5.0	
DICHLOROPROP	(ND) ND	10	5.0 5.0	
DINOSEB	(ND) ND	10	5.0 5.0	
MCPA	(ND) ND	2000	1000 1000	
MCP	(ND) ND	2000	1000 1000	

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	481.9 (507.4)	500.0	96.4 (101)	60-140

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J055
METHOD: METHOD 8151A

MATRIX: SOIL
DILUTION FACTOR: 1 1 1 % MOISTURE: NA
SAMPLE ID: MBLK1S
LAB SAMP ID: HEJ003SB HEJ003SL HEJ003SC
LAB FILE ID: WJ11003A WJ11004A WJ11005A
DATE EXTRACTED: 10/10/1316:30 10/10/1316:30 10/10/1316:30 DATE COLLECTED: NA
DATE ANALYZED: 10/11/1313:11 10/11/1313:41 10/11/1314:12 DATE RECEIVED: 10/10/13
PREP. BATCH: HEJ003S HEJ003S HEJ003S
CALIB. REF: WJ11002A WJ11002A WJ11002A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)		SPIKE AMT (ug/kg)	BS RSLT (ug/kg)		BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)		BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)			
2,4-D	(ND)	ND	50.0	53.5	(53.9)	107	(108)	50.0	51.7	(51.8)	103	(104)	3	(4)	60-150	50
2,4-DB	(ND)	ND	50.0	(55.6)	55.5	(111)	111	50.0	(55.2)	53.5	(110)	107	(1)	4	60-140	50
2,4,5-T	(ND)	ND	50.0	50.9	(61.2)	102	(122)	50.0	49.2	(62.8)	98	(126)	3	(3)	60-140	50
2,4,5-TP(Silvex)	(ND)	ND	50.0	52.4	(57.4)	105	(115)	50.0	50.4	(54.0)	101	(108)	4	(6)	50-150	50
Dalapon	(ND)	ND	50.0	45.9	(56.0)	92	(112)	50.0	43.3	(51.0)	87	(102)	6	(9)	10-160	50
Dicamba	(ND)	ND	50.0	48.8	(54.1)	98	(108)	50.0	47.4	(51.7)	95	(103)	3	(5)	30-130	50
Dichloroprop	(ND)	ND	50.0	54.7	(56.8)	109	(114)	50.0	51.9	(54.3)	104	(109)	5	(5)	30-130	50
Dinoseb	(ND)	ND	50.0	54.6	(55.8)	109	(112)	50.0	(50.8)	50.5	(102)	101	(7)	10	30-130	50
MCPA	(ND)	ND	2500	1710J	(2770)	68	(111)	2500	1600J	(2640)	64	(106)	7	(5)	30-130	50
MCPP	(ND)	ND	2500	(2220)	2170	(89)	87	2500	(2430)	2030	(97)	81	(9)	7	30-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2,4-DCPAA	500.0	481.5 (513.6)	96.3 (103)	500.0	479.9 (499.6)	96.0 (99.9)	60-140

LABORATORY REPORT FOR

URS

DHCCP

METALS/MERCURY

SDG#: 13J055

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 6020A
METALS BY ICP-MS

One(1) soil sample was received on 10/07/13 for Metals CAM analysis, Method 6020A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source. Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for IMJ024SL/C were all within QC limits.

Matrix QC Sample

Analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
METALS BY ICP-MS

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=====
Client      : URS                      SDG NO.       : 13J055
Project     : DHCCP                  Instrument ID  : T-198
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	IMJ024SB	1	NA	10/17/1318:10	10/10/1314:00	98J10020	98J10017	IMJ024S	Method Blank
LCS1S	IMJ024SL	1	NA	10/17/1318:14	10/10/1314:00	98J10021	98J10017	IMJ024S	Lab Control Sample (LCS)
LCD1S	IMJ024SC	1	NA	10/17/1318:18	10/10/1314:00	98J10022	98J10017	IMJ024S	LCS Duplicate
1C-2AS	J055-01A	1.00	8.7	10/17/1318:22	10/10/1314:00	98J10023	98J10017	IMJ024S	Analytical Spike Sample
1C-2	J055-01	1.00	8.7	10/17/1318:27	10/10/1314:00	98J10024	98J10017	IMJ024S	Field Sample
1C-2DL	J055-01J	5.00	8.7	10/17/1318:31	10/10/1314:00	98J10025	98J10017	IMJ024S	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD 6020A
METALS BY ICP-MS

```

=====
Client      : URS                      Date Collected: 09/27/13
Project     : DHCCP                   Date Received: 10/07/13
SDG NO.     : 13J055                 Date Extracted: 10/10/13 14:00
Sample ID   : 1C-2                   Date Analyzed: 10/17/13 18:27 # 10/17/13 20:32
Lab Samp ID: J055-01 #J055-01I       Dilution Factor: 1.00 # 5.00
Lab File ID: 98J10024 #98J10048      Matrix : SOIL
Ext Btch ID: IMJ024S                 % Moisture : 8.7
Calib. Ref.: 98J10017 #98J10040      Instrument ID : T-I98
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
Antimony	ND	0.548	0.219
Arsenic	4.03	0.548	0.110
Barium	200	0.548	0.110
Beryllium	0.607	0.548	0.110
Cadmium	0.348J	0.548	0.110
Chromium	56.1	0.548	0.110
Cobalt	15.9	0.548	0.110
Copper	33.7	0.548	0.219
Lead	7.75	0.548	0.110
Molybdenum	0.282J	0.548	0.219
# Nickel	75.7	2.74	0.548
Selenium	0.153J	0.548	0.110
Silver	ND	0.548	0.110
Thallium	0.165J	0.548	0.110
Vanadium	59.9	0.548	0.274
Zinc	154	2.19	1.10

Members of the Associated File

METHOD 6020A
METALS BY ICP-MS

```

=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/10/13
SDG NO.     : 13J055                  Date Extracted: 10/10/13 14:00
Sample ID   : MBLK1S                  Date Analyzed: 10/17/13 18:10
Lab Samp ID : IMJ024SB                 Dilution Factor: 1
Lab File ID : 98J10020                 Matrix          : SOIL
Ext Btch ID : IMJ024S                  % Moisture       : NA
Calib. Ref.: 98J10017                 Instrument ID    : T-I98
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
Antimony	ND	0.500	0.200
Arsenic	ND	0.500	0.100
Barium	ND	0.500	0.100
Beryllium	ND	0.500	0.100
Cadmium	ND	0.500	0.100
Chromium	ND	0.500	0.100
Cobalt	ND	0.500	0.100
Copper	ND	0.500	0.200
Lead	ND	0.500	0.100
Molybdenum	ND	0.500	0.200
Nickel	ND	0.500	0.100
Selenium	ND	0.500	0.100
Silver	ND	0.500	0.100
Thallium	ND	0.500	0.100
Vanadium	ND	0.500	0.250
Zinc	ND	2.00	1.00

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J055
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: NA
DILT N FACTR: 1 1 1
SAMPLE ID: MBLK1S
CONTROL NO.: IMJ024SB IMJ024SL IMJ024SC
LAB FILE ID: 98J10020 98J10021 98J10022
DATE TIME EXTRCTD: 10/10/1314:00 10/10/1314:00 10/10/1314:00 DATE COLLECTED: NA
DATE TIME ANALYZD: 10/17/1318:10 10/17/1318:14 10/17/1318:18 DATE RECEIVED: 10/10/13
PREP. BATCH: IMJ024S IMJ024S IMJ024S
CALIB. REF: 98J10017 98J10017 98J10017

ACCESSION:

PARAMETER	BLNK RSLT mg/kg	SPIKE AMT mg/kg	BS RSLT mg/kg	BS % REC	SPIKE AMT mg/kg	BSD RSLT mg/kg	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	25.0	25.6	102	25.0	25.5	102	0	80-120	20
Arsenic	ND	25.0	25.4	102	25.0	25.1	100	1	80-120	20
Barium	ND	25.0	26.0	104	25.0	25.8	103	1	80-120	20
Beryllium	ND	25.0	27.6	110	25.0	26.7	107	3	80-120	20
Cadmium	ND	25.0	25.1	100	25.0	24.6	98	2	80-120	20
Chromium	ND	25.0	25.1	100	25.0	25.3	101	1	80-120	20
Cobalt	ND	25.0	26.0	104	25.0	25.7	103	1	80-120	20
Copper	ND	25.0	25.3	101	25.0	25.7	103	1	80-120	20
Lead	ND	25.0	25.4	102	25.0	25.6	102	1	80-120	20
Molybdenum	ND	25.0	25.7	103	25.0	25.2	101	2	80-120	20
Nickel	ND	25.0	25.2	101	25.0	25.3	101	0	80-120	20
Selenium	ND	25.0	25.0	100	25.0	25.2	101	1	80-120	20
Silver	ND	25.0	25.9	104	25.0	25.5	102	1	80-120	20
Thallium	ND	25.0	25.3	101	25.0	25.4	102	1	80-120	20
Vanadium	ND	25.0	25.5	102	25.0	25.6	102	1	80-120	20
Zinc	ND	50.0	48.8	98	50.0	49.9	100	2	80-120	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J055
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: 8.7
DILUTION FACTOR: 1.00 5.00
SAMPLE ID: 1C-2 1C-2DL
EMAX SAMP ID: J055-01 J055-01J
LAB FILE ID: 98J10024 98J10025
DATE EXTRACTED: 10/10/13 14:00 10/10/13 14:00 DATE COLLECTED: 09/27/13
DATE ANALYZED: 10/17/13 18:27 10/17/13 18:31 DATE RECEIVED: 10/07/13
PREP. BATCH: IMJ024S IMJ024S
CALIB. REF: 98J10017 98J10017

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SERIAL DIL RSLT (mg/kg)	DIF RSLT %	QC LIMIT (%)
Antimony	ND	ND	0	10
Arsenic	4.03	4.21	5	10
Barium	200	189	6	10
Beryllium	0.607	0.577J	NA	10
Cadmium	0.348J	ND	NA	10
Chromium	56.1	60.7	8	10
Cobalt	15.9	18.2	14*	10
Copper	33.7	38.1	13*	10
Lead	7.75	7.83	1	10
Molybdenum	0.282J	ND	NA	10
# Nickel	75.7	83.0	10	10
Selenium	0.153J	ND	NA	10
Silver	ND	ND	0	10
Thallium	0.165J	ND	NA	10
Vanadium	59.9	64.8	8	10
Zinc	154	159	3	10

J055-01J : Analyzed at DF 25 on 10/17/13 20:36 | File ID 98J10049

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J055
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: 8.7
DILT N FACTR: 1.00
SAMPLE ID: 1C-2
CONTROL NO.: J055-01 J055-01A
LAB FILE ID: 98J10024 98J10023
DATIME EXTRCTD: 10/10/1314:00 10/10/1314:00 DATE COLLECTED: 09/27/13
DATIME ANALYZD: 10/17/1318:27 10/17/1318:22 DATE RECEIVED: 10/07/13
PREP. BATCH: IMJ024S IMJ024S
CALIB. REF: 98J10017 98J10017

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	AS RSLT (mg/kg)	AS % REC	QC LIMIT (%)
Antimony	ND	27.4	27.4	100	80-120
Arsenic	4.03	27.4	30.4	96	80-120
Barium	200	27.4	230	110	80-120
Beryllium	0.607	27.4	28.9	103	80-120
Cadmium	0.348J	27.4	26.9	97	80-120
Chromium	56.1	27.4	77.7	79*	80-120
Cobalt	15.9	27.4	38.3	82	80-120
Copper	33.7	27.4	55.1	78	80-120
Lead	7.75	27.4	33.7	95	80-120
Molybdenum	0.282J	27.4	27.7	100	80-120
# Nickel	75.7	137	201	91	80-120
Selenium	0.153J	27.4	27.1	98	80-120
Silver	ND	27.4	28.0	102	80-120
Thallium	0.165J	27.4	27.7	101	80-120
Vanadium	59.9	27.4	81.9	80	80-120
Zinc	154	54.8	206	95	80-120

J055-01A : Analyzed at DF 5 on 10/17/13 20:28 | File ID 98J10047

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

One (1) soil sample was received on 10/07/13 for Metals DI-WET analysis, Method DI WET/6020A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source. Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for IMJ029WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries were within project QC limits except for results qualified with [*] in J055-01M/S summary form, most likely due to low spike level as compared to concentration of parent sample. Check QC summary form for details. In addition, analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
DI WET METALS BY ICP-MS

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=====
Client      : URS                                     SDG NO.       : 13J055
Project     : DHCCP                                  Instrument ID  : T-198
=====
```

LEACHATE									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IMJ029WB	1	NA	10/17/1318:57	10/15/1310:48	98J10031	98J10029	IMJ029W	Method Blank
LCS1W	IMJ029WL	1	NA	10/17/1319:02	10/15/1310:48	98J10032	98J10029	IMJ029W	Lab Control Sample (LCS)
LCD1W	IMJ029WC	1	NA	10/17/1319:06	10/15/1310:48	98J10033	98J10029	IMJ029W	LCS Duplicate
MBLK2W	WTJ004SB	1	NA	10/17/1319:10	10/15/1310:48	98J10034	98J10029	IMJ029W	Method Blank
1C-2MS	J055-01M	1	NA	10/17/1320:06	10/15/1310:48	98J10042	98J10040	IMJ029W	Matrix Spike Sample (MS)
1C-2MSD	J055-01S	1	NA	10/17/1320:10	10/15/1310:48	98J10043	98J10040	IMJ029W	MS Duplicate (MSD)
1C-2AS	J055-01A	1	NA	10/17/1320:15	10/15/1310:48	98J10044	98J10040	IMJ029W	Analytical Spike Sample
1C-2	J055-01	1	NA	10/17/1320:19	10/15/1310:48	98J10045	98J10040	IMJ029W	Field Sample
1C-2DL	J055-01J	5	NA	10/17/1320:23	10/15/1310:48	98J10046	98J10040	IMJ029W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

```
=====
Client      : URS                      Date Collected: 09/27/13
Project     : DHCCP                   Date Received: 10/07/13
SDG NO.     : 13J055                 Date Extracted: 10/15/13 10:48
Sample ID   : 1C-2                   Date Analyzed: 10/17/13 20:19
Lab Samp ID : J055-01                 Dilution Factor: 1
Lab File ID : 98J10045                Matrix          : LEACHATE
Ext Btch ID : IMJ029W                 % Moisture       : NA
Calib. Ref. : 98J10040                Instrument ID    : T-I98
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
-----	-----	-----	-----
Antimony	1.80	1.00	0.500
Arsenic	10.9	1.00	0.200
Barium	85.3	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	0.971J	1.00	0.200
Cobalt	0.428J	1.00	0.200
Copper	15.2	1.00	0.500
Lead	1.60	1.00	0.100
Molybdenum	7.59	2.00	0.500
Nickel	2.33	1.00	0.200
Selenium	8.77	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	19.9	1.00	0.500
Zinc	43.9	20.0	10.0

SPLP EXTRACTION DATE: 10/10/13 16:30

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

```

=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/15/13
SDG NO.     : 13J055                  Date Extracted: 10/15/13 10:48
Sample ID   : MBLK1W                  Date Analyzed: 10/17/13 18:57
Lab Samp ID : IMJ029WB                 Dilution Factor: 1
Lab File ID : 98J10031                 Matrix          : WATER
Ext Btch ID : IMJ029W                 % Moisture       : NA
Calib. Ref.: 98J10029                 Instrument ID    : T-I98
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
-----	-----	-----	-----
Antimony	ND	1.00	0.500
Arsenic	ND	1.00	0.200
Barium	ND	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	ND	1.00	0.200
Cobalt	ND	1.00	0.200
Copper	ND	1.00	0.500
Lead	ND	1.00	0.100
Molybdenum	ND	2.00	0.500
Nickel	ND	1.00	0.200
Selenium	ND	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	ND	1.00	0.500
Zinc	ND	20.0	10.0

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J055
METHOD: METHOD DI WET/6020A

MATRIX: WATER % MOISTURE: NA
DILT N FACTR: 1 1 1
SAMPLE ID: MBLK1W
CONTROL NO.: IMJ029WB IMJ029WL IMJ029WC
LAB FILE ID: 98J10031 98J10032 98J10033
DATE TIME EXTRCTD: 10/15/1310:48 10/15/1310:48 10/15/1310:48 DATE COLLECTED: NA
DATE TIME ANALYZD: 10/17/1318:57 10/17/1319:02 10/17/1319:06 DATE RECEIVED: 10/15/13
PREP. BATCH: IMJ029W IMJ029W IMJ029W
CALIB. REF: 98J10029 98J10029 98J10029

ACCESSION:

PARAMETER	BLNK RSLT ug/L	SPIKE AMT ug/L	BS RSLT ug/L	BS % REC	SPIKE AMT ug/L	BSD RSLT ug/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	25.0	24.3	97	25.0	23.4	94	4	80-120	20
Arsenic	ND	25.0	25.7	103	25.0	24.6	98	4	80-120	20
Barium	ND	25.0	26.1	104	25.0	24.7	99	5	80-120	20
Beryllium	ND	25.0	26.0	104	25.0	24.3	97	7	80-120	20
Cadmium	ND	25.0	24.7	99	25.0	24.2	97	2	80-120	20
Chromium	ND	25.0	24.4	98	25.0	24.3	97	0	80-120	20
Cobalt	ND	25.0	24.8	99	25.0	23.9	96	4	80-120	20
Copper	ND	25.0	25.3	101	25.0	24.9	100	2	80-120	20
Lead	ND	25.0	25.7	103	25.0	25.0	100	3	80-120	20
Molybdenum	ND	25.0	25.4	102	25.0	24.6	98	3	80-120	20
Nickel	ND	25.0	25.1	100	25.0	24.4	98	3	80-120	20
Selenium	ND	25.0	24.8	99	25.0	24.2	97	2	80-120	20
Silver	ND	25.0	24.9	100	25.0	24.6	98	1	80-120	20
Thallium	ND	25.0	25.8	103	25.0	25.3	101	2	80-120	20
Vanadium	ND	25.0	25.0	100	25.0	24.8	99	1	80-120	20
Zinc	ND	50.0	54.7	109	50.0	50.4	101	8	80-120	20

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

```
=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/15/13
SDG NO.     : 13J055                  Date Extracted: 10/15/13 10:48
Sample ID   : MBLK2W                  Date Analyzed: 10/17/13 19:10
Lab Samp ID : WTJ004SB                 Dilution Factor: 1
Lab File ID : 98J10034                 Matrix          : LEACHATE
Ext Btch ID : IMJ029W                  % Moisture       : NA
Calib. Ref.: 98J10029                  Instrument ID    : T-198
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
-----	-----	-----	-----
Antimony	ND	1.00	0.500
Arsenic	ND	1.00	0.200
Barium	ND	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	ND	1.00	0.200
Cobalt	ND	1.00	0.200
Copper	ND	1.00	0.500
Lead	ND	1.00	0.100
Molybdenum	ND	2.00	0.500
Nickel	ND	1.00	0.200
Selenium	ND	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	ND	1.00	0.500
Zinc	ND	20.0	10.0

SPLP EXTRACTION DATE: 10/10/13 16:30

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J055
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILTN FACTR: 1 1 1
SAMPLE ID: 1C-2
CONTROL NO.: J055-01 J055-01M J055-01S
LAB FILE ID: 98J10045 98J10042 98J10043
DATIME EXTRCTD: 10/15/1310:48 10/15/1310:48 10/15/1310:48 DATE COLLECTED: 09/27/13
DATIME ANALYZD: 10/17/1320:19 10/17/1320:06 10/17/1320:10 DATE RECEIVED: 10/07/13
PREP. BATCH: IMJ029W IMJ029W IMJ029W
CALIB. REF: 98J10040 98J10040 98J10040

ACCESSION:

PARAMETER	SMPL RSLT ug/L	SPIKE AMT ug/L	MS RSLT ug/L	MS % REC	SPIKE AMT ug/L	MSD RSLT ug/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	1.80	25.0	21.7	80	25.0	22.1	81	2	75-125	20
Arsenic	10.9	25.0	34.4	94	25.0	35.4	98	3	75-125	20
Barium	85.3	25.0	229	575*	25.0	227	567*	1	75-125	20
Beryllium	ND	25.0	24.4	98	25.0	24.6	98	1	75-125	20
Cadmium	ND	25.0	22.7	91	25.0	23.2	93	2	75-125	20
Chromium	0.971J	25.0	24.2	93	25.0	25.1	97	4	75-125	20
Cobalt	0.428J	25.0	22.8	89	25.0	23.4	92	3	75-125	20
Copper	15.2	25.0	34.6	78	25.0	35.4	81	2	75-125	20
Lead	1.60	25.0	25.4	95	25.0	25.4	95	0	75-125	20
Molybdenum	7.59	25.0	30.6	92	25.0	30.7	92	0	75-125	20
Nickel	2.33	25.0	26.2	95	25.0	26.8	98	2	75-125	20
Selenium	8.77	25.0	31.5	91	25.0	31.7	92	1	75-125	20
Silver	ND	25.0	22.9	92	25.0	23.5	94	3	75-125	20
Thallium	ND	25.0	23.3	93	25.0	23.8	95	2	75-125	20
Vanadium	19.9	25.0	43.0	92	25.0	44.4	98	3	75-125	20
Zinc	43.9	50.0	117	146*	50.0	122	156*	5	75-125	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J055
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID: 1C-2 1C-2DL
EMAX SAMP ID: J055-01 J055-01J
LAB FILE ID: 98J10045 98J10046
DATE EXTRACTED: 10/15/1310:48 10/15/1310:48 DATE COLLECTED: 09/27/13
DATE ANALYZED: 10/17/1320:19 10/17/1320:23 DATE RECEIVED: 10/07/13
PREP. BATCH: IMJ029W IMJ029W
CALIB. REF: 98J10040 98J10040

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SERIAL DIL RSLT (ug/L)	DIF RSLT %	QC LIMIT (%)
Antimony	1.80	ND	NA	10
Arsenic	10.9	11.4	4	10
Barium	85.3	87.7	3	10
Beryllium	ND	ND	0	10
Cadmium	ND	ND	0	10
Chromium	0.971J	ND	NA	10
Cobalt	0.428J	ND	NA	10
Copper	15.2	19.7	30*	10
Lead	1.60	1.84J	NA	10
Molybdenum	7.59	7.31J	NA	10
Nickel	2.33	2.57J	NA	10
Selenium	8.77	9.15	4	10
Silver	ND	ND	0	10
Thallium	ND	ND	0	10
Vanadium	19.9	20.2	2	10
Zinc	43.9	51.2J	NA	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J055
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILTN FACTR: 1 1
SAMPLE ID: 1C-2
CONTROL NO.: J055-01 J055-01A
LAB FILE ID: 98J10045 98J10044
DATIME EXTRCTD: 10/15/1310:48 10/15/1310:48 DATE COLLECTED: 09/27/13
DATIME ANALYZD: 10/17/1320:19 10/17/1320:15 DATE RECEIVED: 10/07/13
PREP. BATCH: IMJ029W IMJ029W
CALIB. REF: 98J10040 98J10040

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	AS RSLT (ug/L)	AS % REC	QC LIMIT (%)
Antimony	1.80	25.0	26.2	98	80-120
Arsenic	10.9	25.0	35.9	100	80-120
Barium	85.3	25.0	120	139*	80-120
Beryllium	ND	25.0	25.7	103	80-120
Cadmium	ND	25.0	24.9	100	80-120
Chromium	0.971J	25.0	25.2	97	80-120
Cobalt	0.428J	25.0	25.0	98	80-120
Copper	15.2	25.0	38.7	94	80-120
Lead	1.60	25.0	27.7	104	80-120
Molybdenum	7.59	25.0	34.5	108	80-120
Nickel	2.33	25.0	26.5	97	80-120
Selenium	8.77	25.0	32.3	94	80-120
Silver	ND	25.0	26.0	104	80-120
Thallium	ND	25.0	25.8	103	80-120
Vanadium	19.9	25.0	44.5	98	80-120
Zinc	43.9	50.0	91.3	95	80-120

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 7471A
MERCURY BY COLD VAPOR

One(1) soil sample was received on 10/07/13 for Mercury analysis, Method 7471A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HGJ015SL/C were all within QC limits.

Matrix QC Sample

Analytical spike and serial dilution from another SDG were analyzed for matrix evaluation. Results were within method acceptance criteria.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP

SDG NO. : 13J055
Instrument ID : 47

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	HGJ015SB	1	NA	10/09/1318:59	10/09/1316:30	M47J010011	M47J010	HGJ015S	Method Blank
LCS1S	HGJ015SL	1	NA	10/09/1319:01	10/09/1316:30	M47J010012	M47J010	HGJ015S	Lab Control Sample (LCS)
LCD1S	HGJ015SC	1	NA	10/09/1319:03	10/09/1316:30	M47J010013	M47J010	HGJ015S	LCS Duplicate
1C-2	J055-01	1	8.7	10/09/1319:18	10/09/1316:30	M47J010020	M47J010	HGJ015S	Field Sample

FN - Filename

% Moist - Percent Moisture

METHOD 7471A
MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP
Batch No. : 13J055

Matrix : SOIL
InstrumentID : 47

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DIL'N FACTOR (%)	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	HGJ015SB	ND	1	NA	0.1	0.02	10/09/1318:59	10/09/1316:30	M47J010011	M47J010	HGJ015S	NA	NA
LCS1S	HGJ015SL	0.422	1	NA	0.1	0.02	10/09/1319:01	10/09/1316:30	M47J010012	M47J010	HGJ015S	NA	NA
LCD1S	HGJ015SC	0.428	1	NA	0.1	0.02	10/09/1319:03	10/09/1316:30	M47J010013	M47J010	HGJ015S	NA	NA
1C-2	J055-01	ND	1	8.7	0.11	0.0219	10/09/1319:18	10/09/1316:30	M47J010020	M47J010	HGJ015S	09/27/1312:00	10/07/13

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : 7471A

MATRIX : SOIL % MOISTURE: N/A
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : HGJ015SB HGJ015SL HGJ015SC
LAB FILE ID : M47J010011 M47J010012 M47J010013
DATE PREPARED : 10/09/1316:30 10/09/1316:30 10/09/1316:30
DATE ANALYZED : 10/09/1318:59 10/09/1319:01 10/09/1319:03
PREP BATCH : HGJ015S HGJ015S HGJ015S
CALIBRATION REF: M47J010 M47J010 M47J010

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	0.417	0.422	101	0.417	0.428	103	1	80-120	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD DI WET/7470A
DI WET MERCURY BY COLD VAPOR

One(1) soil sample was received on 10/07/13 for Mercury by DI WET analysis, Method DI WET/7470A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HGJ022WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for J055-01M/J055-01S are within project QC limits.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
DI WET MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP

SDG NO. : 13J055
Instrument ID : 47

LEACHATE									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	HGJ022WB	1	NA	10/17/1311:06	10/16/1317:45	M47J016011	M47J016	HGJ022W	Method Blank
LCS1W	HGJ022WL	1	NA	10/17/1311:09	10/16/1317:45	M47J016012	M47J016	HGJ022W	Lab Control Sample (LCS)
LCD1W	HGJ022WC	1	NA	10/17/1311:11	10/16/1317:45	M47J016013	M47J016	HGJ022W	LCS Duplicate
MBLK2W	WTJ004SB	1	NA	10/17/1312:46	10/16/1317:45	M47J016056	M47J016	HGJ022W	Method Blank
1C-2	J055-01	1	NA	10/17/1312:55	10/16/1317:45	M47J016060	M47J016	HGJ022W	Field Sample
1C-2MS	J055-01M	1	NA	10/17/1312:59	10/16/1317:45	M47J016062	M47J016	HGJ022W	Matrix Spike Sample (MS)
1C-2MSD	J055-01S	1	NA	10/17/1313:02	10/16/1317:45	M47J016063	M47J016	HGJ022W	MS Duplicate (MSD)

FN - Filename
% Moist - Percent Moisture

METHOD DI WET/7470A
DI WET MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP
Batch No. : 13J055

Matrix : LEACHATE
InstrumentID : 47

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CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DIL'N FACTOR	MOIST (%)	LOQ (ug/L)	LOD (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HGJ022WB	ND	1	NA	0.5	0.1	10/17/1311:06	10/16/1317:45	M47J016011	M47J016	HGJ022W	NA	NA
LCS1W	HGJ022WL	2.48	1	NA	0.5	0.1	10/17/1311:09	10/16/1317:45	M47J016012	M47J016	HGJ022W	NA	NA
LCD1W	HGJ022WC	2.45	1	NA	0.5	0.1	10/17/1311:11	10/16/1317:45	M47J016013	M47J016	HGJ022W	NA	NA
MBLK2W	WTJ004SB	ND	1	NA	0.5	0.1	10/17/1312:46	10/16/1317:45	M47J016056	M47J016	HGJ022W	NA	NA
1C-2	J055-01	ND	1	NA	0.5	0.1	10/17/1312:55	10/16/1317:45	M47J016060	M47J016	HGJ022W	09/27/1312:00	10/07/13
1C-2MS	J055-01M	2.62	1	NA	0.5	0.1	10/17/1312:59	10/16/1317:45	M47J016062	M47J016	HGJ022W	09/27/1312:00	10/07/13
1C-2MSD	J055-01S	2.63	1	NA	0.5	0.1	10/17/1313:02	10/16/1317:45	M47J016063	M47J016	HGJ022W	09/27/1312:00	10/07/13

DateTime Leached: 10/08/13 14:15

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : DI WET/7470A

MATRIX : WATER % MOISTURE: N/A
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : HGJ022WB HGJ022WL HGJ022WC
LAB FILE ID : M47J016011 M47J016012 M47J016013
DATE PREPARED : 10/16/1317:45 10/16/1317:45 10/16/1317:45
DATE ANALYZED : 10/17/1311:06 10/17/1311:09 10/17/1311:11
PREP BATCH : HGJ022W HGJ022W HGJ022W
CALIBRATION REF: M47J016 M47J016 M47J016

ACCESSION:

PARAMETER	MB RESULT (ug/L)	SPIKE AMT (ug/L)	BS RESULT (ug/L)	BS REC (%)	SPIKE AMT (ug/L)	BSD RESULT (ug/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.48	99	2.50	2.45	98	1	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : DI WET/7470A

MATRIX : LEACHATE
DILUTION FACTOR: 1 1
SAMPLE ID : 1C-2 1C-2MS 1C-2MSD
LAB SAMPLE ID : J055-01 J055-01M J055-01S
LAB FILE ID : M47J016060 M47J016062 M47J016063
DATE PREPARED : 10/16/1317:45 10/16/1317:45 10/16/1317:45
DATE ANALYZED : 10/17/1312:55 10/17/1312:59 10/17/1313:02
PREP BATCH : HGJ022W HGJ022W HGJ022W
CALIBRATION REF: M47J016 M47J016 M47J016

ACCESSION:

PARAMETER	PARENT RESULT (ug/L)	SPIKE AMT (ug/L)	MS RESULT (ug/L)	MS REC (%)	SPIKE AMT (ug/L)	MSD RESULT (ug/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.62	105	2.50	2.63	105	0	75-125	20

LABORATORY REPORT FOR

URS

DHCCP

WET CHEMICAL
ANALYSES

SDG#: 13J055

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

SM 4500NH3F
AMMONIA (NH3-N)

One(1) soil sample was received on 10/07/13 for Ammonia-N by SM4500-NH3 F analysis, MethodSM 4500NH3F in accordance with Standard Methods for the Examination of Water and Wastewater, 21st Edition.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NHJ006SL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for J055-01M is within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

SM 4500NH3F
AMMONIA (NH3-N)

=====
Client : URS
Project : DHCCP
Batch No. : 13J055
=====

Matrix : SOIL
InstrumentID : 70

400

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	NHJ006SB	ND	1	NA	1	0.6	10/11/1319:45	10/10/1318:08	13NHJ00611	13NHJ006	NHJ006S	NA	NA
LCS1S	NHJ006SL	4.68	1	NA	1	0.6	10/11/1319:46	10/10/1318:08	13NHJ00612	13NHJ006	NHJ006S	NA	NA
LCD1S	NHJ006SC	4.97	1	NA	1	0.6	10/11/1319:46	10/10/1318:08	13NHJ00613	13NHJ006	NHJ006S	NA	NA
1C-2	J055-01	0.738J	0.991	8.7	1.09	00.651	10/11/1319:47	10/10/1318:08	13NHJ00616	13NHJ006	NHJ006S	09/27/1312:00	10/07/13
1C-2DUP	J055-01D	0.686J	1	8.7	1.10	00.657	10/11/1319:47	10/10/1318:08	13NHJ00617	13NHJ006	NHJ006S	09/27/1312:00	10/07/13
1C-2MS	J055-01M	5.13	0.996	8.7	1.09	00.655	10/11/1319:48	10/10/1318:08	13NHJ00618	13NHJ006	NHJ006S	09/27/1312:00	10/07/13

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : SM 4500NH3F

=====

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : NHJ006SB NHJ006SL NHJ006SC
LAB FILE ID : 13NHJ00611 13NHJ00612 13NHJ00613
DATE PREPARED : 10/10/1318:08 10/10/1318:08 10/10/1318:08
DATE ANALYZED : 10/11/1319:45 10/11/1319:46 10/11/1319:46
PREP BATCH : NHJ006S NHJ006S NHJ006S
CALIBRATION REF: 13NHJ006 13NHJ006 13NHJ006

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ammonia (NH3-N)	ND	5	4.68	94	5	4.97	99	6	80-120	20

EMAX QUALITY CONTROL DATA
MATRIX SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : SM 4500NH3F

=====

MATRIX	: SOIL	% MOISTURE:	8.7
DILUTION FACTOR:	0.991	0.996	
SAMPLE ID	: 1C-2	1C-2MS	
LAB SAMPLE ID	: J055-01	J055-01M	
LAB FILE ID	: 13NHJ00616	13NHJ00618	
DATE PREPARED	: 10/10/1318:08	10/10/1318:08	
DATE ANALYZED	: 10/11/1319:47	10/11/1319:48	
PREP BATCH	: NHJ006S	NHJ006S	
CALIBRATION REF:	13NHJ006	13NHJ006	

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Ammonia (NH3-N)	0.738J	5.45	5.13	81	75-125

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : SM 4500NH3F

=====

MATRIX : SOIL
DILUTION FACTOR: 0.991 1
SAMPLE ID : 1C-2 1C-2DUP
LAB SAMPLE ID : J055-01 J055-01D
LAB FILE ID : 13NHJ00616 13NHJ00617
DATE PREPARED : 10/10/1318:08 10/10/1318:08
DATE ANALYZED : 10/11/1319:47 10/11/1319:47
PREP BATCH : NHJ006S NHJ006S
CALIBRATION REF: 13NHJ006 13NHJ006

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
-----	-----	-----	-----	-----
Ammonia (NH3-N)	0.738J	0.686J	NA	20

CASE NARRATIVE

Client : URS

Project : DHCCP

SDG : 13J055

SM 4500NO3E
NITRATE/NITRITE

One (1) soil sample was received on 10/07/13 for Nitrate/Nitrite as N analysis, Method SM 4500NO3E in accordance with Standard Methods for the Examination of Water and Wastewater, 21st Edition.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NAJ002SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated for this SDG.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

SM 4500NO3E
NITRATE/NITRITE

Client : URS
Project : DHCCP
Batch No. : 13J055

Matrix : SOIL
InstrumentID : 70

405

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFXPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	NAJ002SB	ND	1	NA	0.5	0.2	10/11/1318:29	10/11/1310:14	13NAJ00210	13NAJ002	NAJ002S	NA	NA
LCS1S	NAJ002SL	4.88	1	NA	0.5	0.2	10/11/1318:29	10/11/1310:14	13NAJ00211	13NAJ002	NAJ002S	NA	NA
LCD1S	NAJ002SC	5.01	1	NA	0.5	0.2	10/11/1318:30	10/11/1310:14	13NAJ00212	13NAJ002	NAJ002S	NA	NA
1C-2	J055-01	0.450J	0.997	8.7	0.546	0.218	10/11/1318:30	10/11/1310:14	13NAJ00213	13NAJ002	NAJ002S	09/27/1312:00	10/07/13

DWR-207

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : SM 4500NO3E

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : NAJ002SB NAJ002SL NAJ002SC
LAB FILE ID : 13NAJ00210 13NAJ00211 13NAJ00212
DATE PREPARED : 10/11/1310:14 10/11/1310:14 10/11/1310:14
DATE ANALYZED : 10/11/1318:29 10/11/1318:29 10/11/1318:30
PREP BATCH : NAJ002S NAJ002S NAJ002S
CALIBRATION REF: 13NAJ002 13NAJ002 13NAJ002

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
NITRATE/NITRITE	ND	5	4.88	98	5	5.01	100	3	80-120	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

METHOD 7196A
HEXAVALENT CHROMIUM

One (1) soil sample was received on 10/07/13 for Chromium Hexavalent analysis, Method 7196A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

Two (2) LCS were analyzed with the samples in this SDG.
Percent recovery for CSJ001SL (soluble) was within QC limits.
Percent recovery for CIJ001SL (insoluble) was within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for J055-01M/M (soluble and insoluble) were within project QC limits.
Sample duplicate was also analyzed with the samples. RPD was within project limit. Analytical spike was analyzed for matrix interference evaluation. Result was within method acceptance criteria.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD 7196A
HEXAVALENT CHROMIUM

Client : URS
Project : DHCCP
Batch No. : 13J055

Matrix : SOIL
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	CRJ001SB	ND	1	NA	1	0.5	10/11/1311:39	10/08/1315:01	13CRJ00109	13CRJ001	CRJ001S	NA	NA
LCS1S	CSJ001SL	10.9	1	NA	1	0.5	10/11/1311:39	10/08/1315:01	13CRJ00110	13CRJ001	CRJ001S	NA	NA
LCS2S	CIJ001SL	593	50	NA	50	25	10/11/1311:40	10/08/1315:01	13CRJ00111	13CRJ001	CRJ001S	NA	NA
1C-2	J055-01	ND	0.997	8.7	1.09	0.546	10/11/1311:41	10/08/1315:01	13CRJ00114	13CRJ001	CRJ001S	09/27/1312:00	10/07/13
1C-2DUP	J055-01D	ND	0.999	8.7	1.09	0.547	10/11/1311:41	10/08/1315:01	13CRJ00115	13CRJ001	CRJ001S	09/27/1312:00	10/07/13
1C-2MS	J055-01M	12.3	0.998	8.7	1.09	0.547	10/11/1311:41	10/08/1315:01	13CRJ00116	13CRJ001	CRJ001S	09/27/1312:00	10/07/13
1C-2MS	J055-01M	699	50	8.7	54.8	27.4	10/11/1311:41	10/08/1315:01	13CRJ00117	13CRJ001	CRJ001S	09/27/1312:00	10/07/13
1C-2AS	J055-01A	14.1	0.997	8.7	1.09	0.546	10/11/1311:42	10/08/1315:01	13CRJ00118	13CRJ001	CRJ001S	09/27/1312:00	10/07/13

EMAX QUALITY CONTROL DATA
LCS (SOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : METHOD 7196A

=====

MATRIX : SOIL
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1S LCS1S
LAB SAMPLE ID : CRJ001SB CSJ001SL
LAB FILE ID : 13CRJ00109 13CRJ00110
DATE PREPARED : 10/08/1315:01 10/08/1315:01
DATE ANALYZED : 10/11/1311:39 10/11/1311:39
PREP BATCH : CRJ001S CRJ001S
CALIBRATION REF: 13CRJ001 13CRJ001

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	12	10.9	91	85-115

EMAX QUALITY CONTROL DATA
MATRIX SPIKE (SOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : METHOD 7196A

=====

MATRIX : SOIL % MOISTURE: 8.7
DILUTION FACTOR: 0.997 0.998
SAMPLE ID : 1C-2 1C-2MS
LAB SAMPLE ID : J055-01 J055-01M
LAB FILE ID : 13CRJ00114 13CRJ00116
DATE PREPARED : 10/08/1315:01 10/08/1315:01
DATE ANALYZED : 10/11/1311:41 10/11/1311:41
PREP BATCH : CRJ001S CRJ001S
CALIBRATION REF: 13CRJ001 13CRJ001

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	13.1	12.3	94	85-115

EMAX QUALITY CONTROL DATA
LCS (INSOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : METHOD 7196A

=====

MATRIX : SOIL
DILUTION FACTOR: 1 50
SAMPLE ID : MBLK1S LCS2S
LAB SAMPLE ID : CRJ001SB CIJ001SL
LAB FILE ID : 13CRJ00109 13CRJ00111
DATE PREPARED : 10/08/1315:01 10/08/1315:01
DATE ANALYZED : 10/11/1311:39 10/11/1311:40
PREP BATCH : CRJ001S CRJ001S
CALIBRATION REF: 13CRJ001 13CRJ001

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	637	593	93	80-120

EMAX QUALITY CONTROL DATA
MATRIX SPIKE (INSOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : METHOD 7196A

=====

MATRIX	: SOIL	% MOISTURE:	8.7
DILUTION FACTOR:	0.997	50	
SAMPLE ID	: 1C-2	1C-2MS	
LAB SAMPLE ID	: J055-01	J055-01M	
LAB FILE ID	: 13CRJ00114	13CRJ00117	
DATE PREPARED	: 10/08/1315:01	10/08/1315:01	
DATE ANALYZED	: 10/11/1311:41	10/11/1311:41	
PREP BATCH	: CRJ001S	CRJ001S	
CALIBRATION REF:	13CRJ001	13CRJ001	

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	663	699	105	75-125

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : METHOD 7196A

=====

MATRIX : SOIL % MOISTURE: 8.7
PREPxDIL FACTOR: 0.997 0.999
SAMPLE ID : 1C-2 1C-2DUP
LAB SAMPLE ID : J055-01 J055-01D
LAB FILE ID : 13CRJ00114 13CRJ00115
DATE PREPARED : 10/08/1315:01 10/08/1315:01
DATE ANALYZED : 10/11/1311:41 10/11/1311:41
PREP BATCH : CRJ001S CRJ001S
CALIBRATION REF: 13CRJ001 13CRJ001

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
-----	-----	-----	-----	-----
Hexavalent Chromium	ND	ND	0	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J055

WALKLEY-BLACK
TOC BY WALKLEY-BLACK METHOD

One(1) soil sample was received on 10/07/13 for Total Organic Carbon analysis, Method WALKLEY-BLACK in accordance with Walkley-Black Procedure (Walkley, 1946; Peech et al., 1947; Greweling & Peech, 1960).

Holding Time

The sample was analyzed within the prescribed holding time.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for WBJ001SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated for this SDG.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

WALKLEY-BLACK
TOC BY WALKLEY-BLACK METHOD

Client : URS
Project : DHCCP
Batch No. : 13J055

Matrix : SOIL
InstrumentID : NA

415

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	PREP. FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	WBJ001SB	ND	1.00	NA	600	600	10/11/1314:43	10/11/1314:43	13WBJ00101	13WBJ001	WBJ001S	NA	NA
LCS1S	WBJ001SL	2110	1.00	NA	600	600	10/11/1314:44	10/11/1314:44	13WBJ00102	13WBJ001	WBJ001S	NA	NA
LCD1S	WBJ001SC	2310	1.00	NA	600	600	10/11/1314:45	10/11/1314:45	13WBJ00103	13WBJ001	WBJ001S	NA	NA
1C-2	J055-01	1670	0.990	8.7	651	651	10/11/1314:54	10/11/1314:54	13WBJ00106	13WBJ001	WBJ001S	09/27/1312:00	10/07/13

DWR-207

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J055
METHOD : WALKLEY-BLACK

=====

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : WBJ001SB WBJ001SL WBJ001SC
LAB FILE ID : 13WBJ00101 13WBJ00102 13WBJ00103
DATE EXTRACTED : 10/11/1314:54 10/11/1314:54 10/11/1314:54
DATE ANALYZED : 10/11/1314:43 10/11/1314:44 10/11/1314:45
PREP BATCH : WBJ001S WBJ001S WBJ001S
CALIBRATION REF: 13WBJ001 13WBJ001 13WBJ001

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	2000	2110	106	2000	2310	116	9	80-120	20



October 28, 2013

Analytical Report for Service Request No: K1310791

Caspar Pang
Emax Laboratories, Incorporated
1835 W. 205th St.
Torrance, CA 90501

RE: DHCCP/13J055

Dear Caspar:

Enclosed are the results of the sample submitted to our laboratory on October 08, 2013. For your reference, these analyses have been assigned our service request number K1310791.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3364. You may also contact me via Email at Howard.Holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Howard Holmes
Project Manager

HH/ln

Page 1 of _____

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier See case narrative
- # The control limit criteria is not applicable See case narrative
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards
- E The result is an estimate amount because the value exceeded the instrument calibration range
- J The result is an estimated value
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project The detection limit is adjusted for dilution
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference
- X See case narrative
- Q See case narrative One or more quality control criteria was outside the limits
- H The holding time for this test is immediately following sample collection The samples were analyzed as soon as possible after receipt by the laboratory

Metals Data Qualifiers

- # The control limit criteria is not applicable See case narrative
- J The result is an estimated value
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample
- M The duplicate injection precision was not met
- N The Matrix Spike sample recovery is not within control limits See case narrative
- S The reported value was determined by the Method of Standard Additions (MSA)
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project The detection limit is adjusted for dilution
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference
- X See case narrative
- + The correlation coefficient for the MSA is less than 0.995
- Q See case narrative One or more quality control criteria was outside the limits

Organic Data Qualifiers

- * The result is an outlier See case narrative
- # The control limit criteria is not applicable See case narrative
- A A tentatively identified compound, a suspected aldol-condensation product
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data
- D The reported result is from a dilution
- E The result is an estimated value
- J The result is an estimated value
- N The result is presumptive The analyte was tentatively identified, but a confirmation analysis was not performed
- P The GC or HPLC confirmation criteria was exceeded The relative percent difference is greater than 40% between the two analytical results
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project The detection limit is adjusted for dilution
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference
- X See case narrative
- Q See case narrative One or more quality control criteria was outside the limits

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard
- Z The chromatographic fingerprint does not resemble a petroleum product

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjllabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

ALS ENVIRONMENTAL

Client: Emax Laboratories
Project: DHCCP
Sample Matrix: Soil

Service Request No.: K1310791
Date Received: 10/8/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), and Laboratory Control Sample (LCS).

Sample Receipt

One soil sample was received for analysis at ALS Environmental on 10/8/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Methyl Mercury by EPA 1630M

No anomalies associated with this analysis were observed.

Organotin Compounds**Matrix Spike Recovery Exceptions:**


The matrix spike recovery of Di-n-butyltin and n-Butyltin for sample Batch QC was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

No other anomalies associated with this analysis were observed.

Approved by _____

CHAIN OF CUSTODY

K1310791

		1835 W. 205th Street, Torrance, CA 90501 Tel #: 310-618-8889 Fax #: 310-618-0818 Email: info@emaxlabs.com		PO NUMBER:		EMAX CONTROL NO. *	
CLIENT URS		MATRIX CODE		PRESERVATIVE CODE		PROJECT CODE: 13J055	
PROJECT DHCCP		DW=Drinking Water		IC = Ice		ANALYSIS REQUIRED	
COORDINATOR TEL _____ FAX _____ EMAIL _____		GW=Ground Water		HC = HCl		<input type="checkbox"/> Rush _____ hrs.	
SEND REPORT TO Casper Pang (cpang@emaxlabs.com)		WW=Waste Water		HN=HNO3		<input type="checkbox"/> Rush _____ days	
COMPANY		SD=Solid Waste SL=Sludge		SH=NaOH		<input type="checkbox"/> 7 days	
ADDRESS		SS=Soil/ Sediment		ST=Na2S2O3		<input checked="" type="checkbox"/> 14 days	
EMAX PM Casper Pang		WP=Wipes PP=Pure Products		ZA=Zinc Acetate		<input type="checkbox"/> 21 days	
		AR=Air		HS=H2SO4		<input type="checkbox"/> 30 days	
		O=				<input type="checkbox"/> _____ days	
SAMPLE ID		SAMPLING		CONTAINER		PRESERVATIVE CODE	
LAB	CLIENT	LOCATION	DATE	TIME	NO.	SIZE	TYPE
* 1	1C-2		9/27/13	12:00	1	802	Sur SS
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
Instructions Level II Report + standard EDD See ALS Service Request K1308384						Cooler #	Temp (°C)
						Sample #s	
						Sub to:	
						ALS	
						1317 S. 13th Ave	
						Kelso, WA 98626	
						Attn: Howard Holmes	
SAMPLER				COURIER/AIRBILL			
RELINQUISHED BY		Date	Time	RECEIVED BY			
EMAX mc myr		10/7/13	15:40	10/8/13 0910			
NOTICE Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepancies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associated with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non hazardous shall be \$5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.							

Cooler Receipt and Preservation Form

Client / Project: EMAL Service Request K13 10791Received: 10/8/13 Opened: 10/8/13 By: FW Unloaded: 10/8/13 By: FW

1. Samples were received via? Mail Fed Ex UPS DHL PDX Courier Hand Delivered
2. Samples were received in: (circle) Cooler Box Envelope Other NA
3. Were custody seals on coolers? NA Y N If yes, how many and where? one front
- If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
-0.2	-0.2	2.0	2.0	0	329		6919 4917 8143		

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions:

Rec'd 2-4oz jars, not one 8oz.

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
Sample Matrix: Soil

Service Request: K1310791

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
1C-2	K1310791-001	09/27/2013	10/08/2013	10/22/2013	91.8	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
Sample Matrix: Soil

Service Request: K1310791
Date Collected: 09/27/13
Date Received: 10/08/13

Methyl Mercury

Prep Method: ALS SOP
Analysis Method: ALS SOP
Test Notes:

Units: ng/g
Basis: Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1C-2	K1310791-001	0.4	0.04	1	10/22/13	10/23/13	ND	
Method Blank 1	K1310791-MB 1	0.4	0.04	1	10/22/13	10/23/13	ND	
Method Blank 2	K1310791-MB 2	0.4	0.04	1	10/22/13	10/23/13	ND	
Method Blank 3	K1310791-MB 3	0.4	0.04	1	10/22/13	10/23/13	ND	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
Sample Matrix: Soil

Service Request: K1310791
Date Collected: NA
Date Received: NA
Date Extracted: 10/22/13
Date Analyzed: 10/23/13

Matrix Spike/Duplicate Matrix Spike Summary
 Metals

Sample Name: Batch QC Units: ng/g
 Lab Code: K1311280-001MS, K1311280-001MSD Basis: Dry
 Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Spike Level			Sample Result		Spike Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
											MS	DMS			
Methyl Mercury	CAS SOP	CAS SOP	0.4	96	100	ND	92.9	84.3	97	84			65-135	10	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
LCS Matrix: Water

Service Request: K1310791
Date Collected: NA
Date Received: NA
Date Extracted: 10/22/13
Date Analyzed: 10/23/13

Ongoing Precision and Recovery (OPR) Sample Summary
 Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: pg
 Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Methyl Mercury	CAS SOP	CAS SOP	100	95.1	95	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
LCS Matrix: Water

Service Request: K1310791
Date Collected: NA
Date Received: NA
Date Extracted: 10/22/13
Date Analyzed: 10/23/13

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: pg
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Methyl Mercury	CAS SOP	CAS SOP	100	69.5	70	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
LCS Matrix: Soil

Service Request: K1310791
Date Collected: NA
Date Received: NA
Date Extracted: 10/22/13
Date Analyzed: 10/23/13

Quality Control Sample (QCS) Summary
 Total Metals

Sample Name: Quality Control Sample

Units: ng/g
Basis: Dry

Source: ERM - CC580 Estuarine Sediment

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Methyl Mercury	CAS SOP	CAS SOP	75.0	59.9	80	67-133	

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
Sample Matrix: Soil

Service Request: K1310791
Date Collected: 09/27/2013
Date Received: 10/08/2013

Butyltins (as cation)

Sample Name: 1C-2
Lab Code: K1310791-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.1	0.47	1	10/11/13	10/24/13	KWG1311556	
Tri-n-butyltin Cation	ND	U	1.1	0.46	1	10/11/13	10/24/13	KWG1311556	
Di-n-butyltin Cation	ND	U	1.1	0.21	1	10/11/13	10/24/13	KWG1311556	
n-Butyltin Cation	ND	U	1.1	0.28	1	10/11/13	10/24/13	KWG1311556	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	62	10-120	10/24/13	Acceptable

Comments: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
Sample Matrix: Sediment

Service Request: K1310791
Date Collected: NA
Date Received: NA

Butyltins (as cation)

Sample Name: Method Blank
Lab Code: KWG1311556-4
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.98	0.44	1	10/11/13	10/24/13	KWG1311556	
Tri-n-butyltin Cation	1.1		0.98	0.43	1	10/11/13	10/24/13	KWG1311556	
Di-n-butyltin Cation	ND	U	0.98	0.19	1	10/11/13	10/24/13	KWG1311556	
n-Butyltin Cation	ND	U	0.98	0.26	1	10/11/13	10/24/13	KWG1311556	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	68	10-120	10/24/13	Acceptable

Comments: _____

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
Sample Matrix: Soil

Service Request: K1310791

Surrogate Recovery Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: Percent
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
1C-2	K1310791-001	62
Batch QC	K1310857-014	57 D
Method Blank	KWG1311556-4	68
Batch QCMS	KWG1311556-1	69 D
Batch QCDMS	KWG1311556-2	75 D
Lab Control Sample	KWG1311556-3	68

Surrogate Recovery Control Limits (%)

Sur1 = Tri-n-propyltin 10-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
Sample Matrix: Sediment

Service Request: K1310791
Date Extracted: 10/11/2013
Date Analyzed: 10/24/2013

Matrix Spike/Duplicate Matrix Spike Summary
Butyltins (as cation)

Sample Name: Batch QC
Lab Code: K1310857-014
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1311556

Analyte Name	Sample Result	Batch QCMS KWG1311556-1 Matrix Spike			Batch QCDMS KWG1311556-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Tetra-n-butyltin	ND	24.4	40.2	61	21.2	39.5	54	16-126	14	40
Tri-n-butyltin Cation	23	59.1	35.7	100	55.1	35.1	91	10-115	7	40
Di-n-butyltin Cation	21	48.2	30.9	88	223	30.3	667 *	10-133	129 *	40
n-Butyltin Cation	10	16.7	25.1	26	49.1	24.6	158 *	10-124	98 *	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J055
Sample Matrix: Sediment

Service Request: K1310791
Date Extracted: 10/11/2013
Date Analyzed: 10/24/2013

Lab Control Spike Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1311556

Lab Control Sample
KWG1311556-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Tetra-n-butyltin	13.7	25.0	55	19-130
Tri-n-butyltin Cation	17.5	22.2	79	10-122
Di-n-butyltin Cation	4.81	19.2	25	12-136
n-Butyltin Cation	16.4	15.6	105	10-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

SDG#: 13J124

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

One(1) soil sample was received on 10/14/13 for Semivolatile Organics by GCMS analysis, Method 3550B/8270C in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Instrument mass ratios as well as DDT breakdown were evaluated. Results were within acceptance criteria. Tailing factor for Benzidine and Pentachlorophenol were also verified and results were within the method limits. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for SVJ026SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
SEMI VOLATILE ORGANICS BY GC/MS

=====
Client : URS
Project : DHCCP
=====

SDG NO. : 13J124
Instrument ID : E4
=====

SOIL									
Client	Laboratory	Dilution	%	Analysis	Extraction	Sample	Calibration Prep.		
Sample ID	Sample ID	Factor	Moist	DateTime	DateTime	Data FN	Data FN	Batch	Notes
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
MBLK1S	SVJ026SB	1	NA	10/18/1316:21	10/17/1311:45	RJJ453	RGJ400	SVJ026S	Method Blank
LCS1S	SVJ026SL	1	NA	10/18/1316:41	10/17/1311:45	RJJ454	RGJ400	SVJ026S	Lab Control Sample (LCS)
LCD1S	SVJ026SC	1	NA	10/18/1317:00	10/17/1311:45	RJJ455	RGJ400	SVJ026S	LCS Duplicate
2B-2	J124-01	1	9.4	10/18/1320:32	10/17/1311:45	RJJ466	RGJ400	SVJ026S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : URS
Project      : DHCCP
Batch No.    : 13J124
Sample ID    : 2B-2
Lab Samp ID  : J124-01
Lab File ID  : RJJ466
Ext Btch ID  : SVJ026S
Calib. Ref.  : RGJ400
Date Collected: 10/07/13
Date Received: 10/14/13
Date Extracted: 10/17/13 11:45
Date Analyzed: 10/18/13 20:32
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : 9.4
Instrument ID : T-OE4
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
1,2,4-TRICHLOROBENZENE	ND	370	180	
1,2-DICHLOROBENZENE	ND	370	180	
1,3-DICHLOROBENZENE	ND	370	180	
1,4-DICHLOROBENZENE	ND	370	180	
2,4,5-TRICHLOROPHENOL	ND	370	180	
2,4,6-TRICHLOROPHENOL	ND	370	180	
2,4-DICHLOROPHENOL	ND	370	180	
2,4-DIMETHYLPHENOL	ND	370	180	
2,4-DINITROPHENOL	ND	740	180	
2,4-DINITROTOLUENE	ND	370	180	
2,6-DINITROTOLUENE	ND	370	180	
2-CHLORONAPHTHALENE	ND	370	180	
2-CHLOROPHENOL	ND	370	180	
2-METHYLNAPHTHALENE	ND	370	180	
2-METHYLPHENOL	ND	370	180	
2-NITROANILINE	ND	370	180	
2-NITROPHENOL	ND	370	180	
3,3'-DICHLOROBENZIDINE	ND	370	180	
3-NITROANILINE	ND	370	180	
4,6-DINITRO-2-METHYLPHENOL	ND	740	180	
4-BROMOPHENYL-PHENYL ETHER	ND	370	180	
4-CHLORO-3-METHYLPHENOL	ND	370	180	
4-CHLOROANILINE	ND	370	180	
4-CHLOROPHENYL-PHENYL ETHER	ND	370	180	
4-METHYLPHENOL (1)	ND	370	180	
4-NITROANILINE	ND	370	180	
4-NITROPHENOL	ND	740	180	
ACENAPHTHENE	ND	370	180	
ACENAPHTHYLENE	ND	370	180	
ANTHRACENE	ND	370	180	
BENZO(A)ANTHRACENE	ND	370	180	
BENZO(A)PYRENE	ND	370	180	
BENZO(B)FLUORANTHENE	ND	370	180	
BENZO(K)FLUORANTHENE	ND	370	180	
BENZO(G,H,I)PERYLENE	ND	370	180	
BIS(2-CHLOROETHOXY)METHANE	ND	370	180	
BIS(2-CHLOROETHYL)ETHER	ND	370	180	
BIS(2-CHLOROISOPROPYL)ETHER	ND	370	180	
BIS(2-ETHYLHEXYL)PHTHALATE	ND	370	180	
BUTYLBENZYLPHTHALATE	ND	370	180	
CHRYSENE	ND	370	180	
DI-N-BUTYLPHTHALATE	ND	370	180	
DI-N-OCTYLPHTHALATE	ND	370	180	
DIBENZO(A,H)ANTHRACENE	ND	370	180	
DIBENZOFURAN	ND	370	180	
DIETHYLPHTHALATE	ND	370	180	
DIMETHYLPHTHALATE	ND	370	180	
FLUORANTHENE	ND	370	180	
FLUORENE	ND	370	180	
HEXACHLOROBENZENE	ND	370	180	
HEXACHLOROBUTADIENE	ND	370	180	
HEXACHLOROCYCLOPENTADIENE	ND	370	180	
HEXACHLOROETHANE	ND	370	180	
INDENO(1,2,3-CD)PYRENE	ND	370	180	
ISOPHORONE	ND	370	180	
N-NITROSO-DI-N-PROPYLAMINE	ND	370	180	
N-NITROSODIPHENYLAMINE (2)	ND	370	180	
NAPHTHALENE	ND	370	180	
NITROBENZENE	ND	370	180	
PENTACHLOROPHENOL	ND	740	180	
PHENANTHRENE	ND	370	180	
PHENOL	ND	370	180	
PYRENE	ND	370	180	
SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	2110	2208	95.7	40-130
2-FLUOROBIPHENYL	442	735.9	60.1	40-130
2-FLUOROPHENOL	1700	2208	77.1	30-130
NITROBENZENE-D5	415	735.9	56.3	30-130
PHENOL-D5	1760	2208	79.8	40-130
TERPHENYL-D14	628	735.9	85.3	60-130

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

QC SUMMARIES

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

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Client       : URS
Project      : DHCCP
Batch No.    : 13J124
Sample ID    : MBLK1S
Lab Samp ID  : SVJ026SB
Lab File ID  : RJJ453
Ext Btch ID  : SVJ026S
Calib. Ref.  : RGJ400
Date Collected: NA
Date Received: 10/17/13
Date Extracted: 10/17/13 11:45
Date Analyzed: 10/18/13 16:21
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : NA
Instrument ID : T-OE4
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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	330	170
1,2-DICHLOROBENZENE	ND	330	170
1,3-DICHLOROBENZENE	ND	330	170
1,4-DICHLOROBENZENE	ND	330	170
2,4,5-TRICHLOROPHENOL	ND	330	170
2,4,6-TRICHLOROPHENOL	ND	330	170
2,4-DICHLOROPHENOL	ND	330	170
2,4-DIMETHYLPHENOL	ND	330	170
2,4-DINITROPHENOL	ND	670	170
2,4-DINITROTOLUENE	ND	330	170
2,6-DINITROTOLUENE	ND	330	170
2-CHLORONAPHTHALENE	ND	330	170
2-CHLOROPHENOL	ND	330	170
2-METHYLNAPHTHALENE	ND	330	170
2-METHYLPHENOL	ND	330	170
2-NITROANILINE	ND	330	170
2-NITROPHENOL	ND	330	170
3,3'-DICHLOROBENZIDINE	ND	330	170
3-NITROANILINE	ND	330	170
4,6-DINITRO-2-METHYLPHENOL	ND	670	170
4-BROMOPHENYL-PHENYL ETHER	ND	330	170
4-CHLORO-3-METHYLPHENOL	ND	330	170
4-CHLOROANILINE	ND	330	170
4-CHLOROPHENYL-PHENYL ETHER	ND	330	170
4-METHYLPHENOL (1)	ND	330	170
4-NITROANILINE	ND	330	170
4-NITROPHENOL	ND	670	170
ACENAPHTHENE	ND	330	170
ACENAPHTHYLENE	ND	330	170
ANTHRACENE	ND	330	170
BENZO(A)ANTHRACENE	ND	330	170
BENZO(A)PYRENE	ND	330	170
BENZO(B)FLUORANTHENE	ND	330	170
BENZO(K)FLUORANTHENE	ND	330	170
BENZO(G,H,I)PERYLENE	ND	330	170
BIS(2-CHLOROETHOXY)METHANE	ND	330	170
BIS(2-CHLOROETHYL)ETHER	ND	330	170
BIS(2-CHLOROISOPROPYL)ETHER	ND	330	170
BIS(2-ETHYLHEXYL)PHTHALATE	ND	330	170
BUTYLBENZYLPHTHALATE	ND	330	170
CHRYSENE	ND	330	170
DI-N-BUTYLPHTHALATE	ND	330	170
DI-N-OCTYLPHTHALATE	ND	330	170
DIBENZO(A,H)ANTHRACENE	ND	330	170
DIBENZOFURAN	ND	330	170
DIETHYLPHTHALATE	ND	330	170
DIMETHYLPHTHALATE	ND	330	170
FLUORANTHENE	ND	330	170
FLUORENE	ND	330	170
HEXACHLOROBENZENE	ND	330	170
HEXACHLOROBUTADIENE	ND	330	170
HEXACHLOROCYCLOPENTADIENE	ND	330	170
HEXACHLOROETHANE	ND	330	170
INDENO(1,2,3-CD)PYRENE	ND	330	170
ISOPHORONE	ND	330	170
N-NITROSO-DI-N-PROPYLAMINE	ND	330	170
N-NITROSODIPHENYLAMINE (2)	ND	330	170
NAPHTHALENE	ND	330	170
NITROBENZENE	ND	330	170
PENTACHLOROPHENOL	ND	670	170
PHENANTHRENE	ND	330	170
PHENOL	ND	330	170
PYRENE	ND	330	170

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	1790	2000	89.3	30-140
2-FLUOROBIPHENYL	474	666.7	71.1	30-130
2-FLUOROPHENOL	1730	2000	86.4	40-130
NITROBENZENE-D5	504	666.7	75.6	40-130
PHENOL-D5	1810	2000	90.5	40-130
TERPHENYL-D14	608	666.7	91.2	40-140

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J124
METHOD: METHOD 3550B/8270C

MATRIX: SOIL
DILUTION FACTOR: 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: SVJ026SL SVJ026SC
LAB FILE ID: RJJ454 RJJ455
DATE EXTRACTED: 10/17/1311:45 10/17/1311:45 10/17/1311:45 DATE COLLECTED: NA
DATE ANALYZED: 10/18/1316:21 10/18/1316:41 10/18/1317:00 DATE RECEIVED: 10/17/13
PREP. BATCH: SVJ026S SVJ026S SVJ026S
CALIB. REF: RGJ400 RGJ400 RGJ400

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,2,4-Trichlorobenzene	ND	1330	1020	77	1330	1130	85	10	40-130	50
1,2-Dichlorobenzene	ND	1330	1040	78	1330	1120	84	8	50-130	50
1,3-Dichlorobenzene	ND	1330	1050	79	1330	1120	84	6	50-130	50
1,4-Dichlorobenzene	ND	1330	1050	79	1330	1140	85	8	40-130	50
2,4,5-Trichlorophenol	ND	1330	976	73	1330	1050	79	8	40-130	50
2,4,6-Trichlorophenol	ND	1330	1180	88	1330	1230	93	5	40-130	50
2,4-Dichlorophenol	ND	1330	1150	86	1330	1240	93	8	50-130	50
2,4-Dimethylphenol	ND	1330	891	67	1330	940	71	5	50-130	50
2,4-Dinitrophenol	ND	1330	967	73	1330	999	75	3	20-130	50
2,4-Dinitrotoluene	ND	1330	1200	90	1330	1250	93	4	50-140	50
2,6-Dinitrotoluene	ND	1330	1120	84	1330	1180	88	5	40-130	50
2-Chloronaphthalene	ND	1330	1020	76	1330	1080	81	6	50-130	50
2-Chlorophenol	ND	1330	942	71	1330	1030	78	9	40-130	50
2-Methylnaphthalene	ND	1330	1070	81	1330	1170	88	9	50-130	50
2-Methylphenol	ND	1330	985	74	1330	1020	77	4	40-130	50
2-Nitroaniline	ND	1330	1080	81	1330	1030	77	5	40-130	50
2-Nitrophenol	ND	1330	970	73	1330	1040	78	7	50-130	50
3,3'-Dichlorobenzidine	ND	1330	1160	87	1330	1230	92	6	40-130	50
3-Nitroaniline	ND	1330	1110	83	1330	1140	86	3	40-130	50
4,6-Dinitro-2-Methylphenol	ND	1330	1260	95	1330	1210	91	5	30-130	50
4-Bromophenyl-phenyl ether	ND	1330	1160	87	1330	1230	93	6	40-130	50
4-Chloro-3-Methylphenol	ND	1330	1050	79	1330	1110	83	6	50-130	50
4-Chloroaniline	ND	1330	944	71	1330	973	73	3	40-130	50
4-Chlorophenyl-phenyl ether	ND	1330	1120	84	1330	1140	85	1	50-130	50
4-Methylphenol	ND	1330	1030	77	1330	1210	91	16	50-130	50
4-Nitroaniline	ND	1330	969	73	1330	1030	77	6	50-130	50
4-Nitrophenol	ND	1330	848	64	1330	865	65	2	30-130	50
Acenaphthene	ND	1330	1030	77	1330	1080	81	5	50-130	50
Acenaphthylene	ND	1330	937	70	1330	997	75	6	40-130	50
Anthracene	ND	1330	1050	79	1330	1110	83	6	40-130	50
Benzo(a)anthracene	ND	1330	1120	84	1330	1190	89	6	50-130	50
Benzo(a)pyrene	ND	1330	1130	84	1330	1170	88	4	50-130	50
Benzo(b)fluoranthene	ND	1330	1190	89	1330	1250	94	5	50-130	50
Benzo(k)fluoranthene	ND	1330	1130	85	1330	1170	87	3	50-130	50
Benzo(g,h,i)perylene	ND	1330	1190	90	1330	1340	101	12	50-130	50
bis(2-Chloroethoxy)methane	ND	1330	921	69	1330	989	74	7	50-130	50
bis(2-Chloroethyl)ether	ND	1330	920	69	1330	980	73	6	50-130	50
bis(2-Chloroisopropyl)ether	ND	1330	912	68	1330	998	75	9	40-130	50
bis(2-Ethylhexyl)phthalate	ND	1330	1240	93	1330	1310	98	5	50-130	50
Butylbenzylphthalate	ND	1330	1240	93	1330	1290	97	4	50-130	50
Chrysene	ND	1330	1090	82	1330	1160	87	6	50-130	50
Di-n-butylphthalate	ND	1330	1140	86	1330	1380	103	19	50-130	50
Di-n-octylphthalate	ND	1330	1270	95	1330	1300	97	2	40-140	50
Dibenzo(a,h)anthracene	ND	1330	1220	92	1330	1290	97	6	50-130	50
Dibenzofuran	ND	1330	1080	81	1330	1140	85	5	40-130	50
Diethylphthalate	ND	1330	1070	80	1330	1120	84	4	50-130	50
Dimethylphthalate	ND	1330	1230	93	1330	1280	96	4	50-130	50
Fluoranthene	ND	1330	1090	82	1330	1160	87	6	50-130	50
Fluorene	ND	1330	1040	78	1330	1060	80	3	50-130	50
Hexachlorobenzene	ND	1330	1250	94	1330	1280	96	3	40-130	50
Hexachlorobutadiene	ND	1330	1000	75	1330	1100	82	9	40-130	50
Hexachlorocyclopentadiene	ND	1330	854	64	1330	928	70	8	20-130	50
Hexachloroethane	ND	1330	1150	86	1330	1250	94	8	50-130	50
Indeno(1,2,3-cd)pyrene	ND	1330	1200	90	1330	1290	97	7	50-130	50
Isophorone	ND	1330	1080	81	1330	1150	86	6	50-130	50
n-Nitroso-di-n-propylamine	ND	1330	985	74	1330	1060	80	7	40-130	50
n-Nitrosodiphenylamine	ND	1330	922	69	1330	1020	76	10	30-130	50
Naphthalene	ND	1330	990	74	1330	1060	79	7	50-130	50
Nitrobenzene	ND	1330	1010	75	1330	1090	82	8	50-130	50
Pentachlorophenol	ND	1330	858	64	1330	954	72	11	40-130	50
Phenanthrene	ND	1330	1190	89	1330	1260	94	5	50-130	50
Phenol	ND	1330	990	74	1330	1040	78	5	50-130	50
Pyrene	ND	1330	1040	78	1330	1110	83	6	50-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2,4,6-Tribromophenol	2000	2050	102	2000	2060	103	30-140
2-Fluorobiphenyl	667	483	72	667	497	74	30-130
2-Fluorophenol	2000	1710	86	2000	1640	82	40-130
Nitrobenzene-d5	667	432	65	667	464	70	40-130
Phenol-d5	2000	1820	91	2000	1990	99	40-130
Terphenyl-d14	667	609	91	667	637	95	40-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8270C SIM
PAH BY GC/MS

SDG#: 13J124

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 3550B/8270C SIM
PAHS BY GC/MS

One(1) soil sample was received on 10/14/13 for PAH BY 8270C SIM analysis, Method 3550B/8270C SIM in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Instrument mass ratios were evaluated and results were within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for SVJ026SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
PAHS BY GC/MS

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=====
Client      : URS
Project     : DHCCP
SDG NO.    : 13J124
Instrument ID : E4
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SOIL									
Client	Laboratory	Dilution	%	Analysis	Extraction	Sample	Calibration	Prep.	
Sample ID	Sample ID	Factor	Moist	DateTime	DateTime	Data FN	Data FN	Batch	Notes
MBLK1S	SVJ026SB	1	NA	10/18/1316:21	10/17/1311:45	RJJ453	RGJ400	SVJ026S	Method Blank
LCS1S	SVJ026SL	1	NA	10/18/1316:41	10/17/1311:45	RJJ454	RGJ400	SVJ026S	Lab Control Sample (LCS)
LCD1S	SVJ026SC	1	NA	10/18/1317:00	10/17/1311:45	RJJ455	RGJ400	SVJ026S	LCS Duplicate
2B-2	J124-01	1	9.4	10/18/1320:32	10/17/1311:45	RJJ466	RGJ400	SVJ026S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8270C SIM
PAHS BY GC/MS

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=====
Client       : URS                      Date Collected: 10/07/13
Project      : DHCCP                   Date Received: 10/14/13
Batch No.    : 13J124                  Date Extracted: 10/17/13 11:45
Sample ID:   2B-2                      Date Analyzed: 10/18/13 20:32
Lab Samp ID: J124-01                   Dilution Factor: 1
Lab File ID: RJJ466                    Matrix       : SOIL
Ext Btch ID: SVJ026S                   % Moisture    : 9.4
Calib. Ref.: RGJ400                    Instrument ID : T-OE4
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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	11	2.8
ACENAPHTHYLENE	ND	11	2.8
ANTHRACENE	ND	11	2.8
BENZO(A)ANTHRACENE	ND	11	2.8
BENZO(A)PYRENE	ND	11	2.8
BENZO(B)FLUORANTHENE	ND	11	2.8
BENZO(K)FLUORANTHENE	ND	11	2.8
BENZO(G,H,I)PERYLENE	ND	11	2.8
CHRYSENE	ND	11	2.8
DIBENZO(A,H)ANTHRACENE	ND	11	2.8
FLUORANTHENE	ND	11	2.8
FLUORENE	ND	11	2.8
INDENO(1,2,3-CD)PYRENE	ND	11	2.8
NAPHTHALENE	4.0J	11	2.8
PHENANTHRENE	3.9J	11	2.8
PYRENE	ND	11	2.8

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	424	735.9	57.7	30-160
NITROBENZENE-D5	434	735.9	59.0	30-160
TERPHENYL-D14	659	735.9	89.6	40-150

QC SUMMARIES

METHOD 3550B/8270C SIM
PAHS BY GC/MS

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=====
Client       : URS                      Date Collected: NA
Project      : DHCCP                   Date Received: 10/17/13
Batch No.    : 13J124                  Date Extracted: 10/17/13 11:45
Sample ID    : MBLK1S                  Date Analyzed: 10/18/13 16:21
Lab Samp ID  : SVJ026SB                Dilution Factor: 1
Lab File ID  : RJJ453                  Matrix       : SOIL
Ext Btch ID  : SVJ026S                 % Moisture    : NA
Calib. Ref.  : RGJ400                  Instrument ID  : T-OE4
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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	10	2.5
ACENAPHTHYLENE	ND	10	2.5
ANTHRACENE	ND	10	2.5
BENZO(A)ANTHRACENE	ND	10	2.5
BENZO(A)PYRENE	ND	10	2.5
BENZO(B)FLUORANTHENE	ND	10	2.5
BENZO(K)FLUORANTHENE	ND	10	2.5
BENZO(G,H,I)PERYLENE	ND	10	2.5
CHRYSENE	ND	10	2.5
DIBENZO(A,H)ANTHRACENE	ND	10	2.5
FLUORANTHENE	ND	10	2.5
FLUORENE	ND	10	2.5
INDENO(1,2,3-CD)PYRENE	ND	10	2.5
NAPHTHALENE	ND	10	2.5
PHENANTHRENE	ND	10	2.5
PYRENE	ND	10	2.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	448	666.7	67.2	30-130
NITROBENZENE-D5	456	666.7	68.5	40-130
TERPHENYL-D14	590	666.7	88.4	40-140

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J124
METHOD: METHOD 3550B/8270C SIM

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: SVJ026SB SVJ026SL SVJ026SC
LAB FILE ID: RJJ453 RJJ454 RJJ455
DATE EXTRACTED: 10/17/1311:45 10/17/1311:45 10/17/1311:45 DATE COLLECTED: NA
DATE ANALYZED: 10/18/1316:21 10/18/1316:41 10/18/1317:00 DATE RECEIVED: 10/17/13
PREP. BATCH: SVJ026S SVJ026S SVJ026S
CALIB. REF: RGJ400 RGJ400 RGJ400

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Acenaphthene	ND	1330	1010	76	1330	1050	79	4	50-130	50
Acenaphthylene	ND	1330	1040	78	1330	1090	82	5	40-130	50
Anthracene	ND	1330	1100	83	1330	1160	87	5	40-130	50
Benzo(a)anthracene	ND	1330	1160	87	1330	1220	92	5	50-130	50
Benzo(a)pyrene	ND	1330	1210	91	1330	1280	96	5	50-130	50
Benzo(b)fluoranthene	ND	1330	1230	92	1330	1300	97	6	50-130	50
Benzo(k)fluoranthene	ND	1330	1110	84	1330	1160	87	4	50-130	50
Benzo(g,h,i)perylene	ND	1330	1170	87	1330	1250	93	7	50-130	50
Chrysene	ND	1330	1070	81	1330	1130	84	5	50-130	50
Dibenzo(a,h)anthracene	ND	1330	1200	90	1330	1280	96	6	50-130	50
Fluoranthene	ND	1330	1100	82	1330	1160	87	5	50-130	50
Fluorene	ND	1330	1060	79	1330	1100	82	4	50-130	50
Indeno(1,2,3-cd)pyrene	ND	1330	1210	91	1330	1290	97	6	50-130	50
Naphthalene	ND	1330	968	73	1330	1040	78	7	50-130	50
Phenanthrene	ND	1330	1060	80	1330	1120	84	5	50-130	50
Pyrene	ND	1330	1090	82	1330	1140	86	5	50-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2-Fluorobiphenyl	667	460	69	667	480	72	30-130
Nitrobenzene-d5	667	443	66	667	469	70	40-130
Terphenyl-d14	667	597	90	667	621	93	40-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND
TRAP

SDG#: 13J124

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

One(1) soil sample was received on 10/14/13 for TPH-Gasoline analysis, Method 5030B/8015B in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for GMJ010SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogate was added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

=====
Client : URS
Project : DHCCP
=====
SDG NO. : 13J124
Instrument ID : GCT039
=====

SOIL									
Client	Laboratory	Dilution	%	Analysis	Extraction	Sample	Calibration	Prep.	
Sample ID	Sample ID	Factor	Moist	DateTime	DateTime	Data FN	Data FN	Batch	Notes
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
MBLK1S	GMJ010SB	1	NA	10/16/1321:47	10/16/1321:47	EJ16014A	EJ16013A	GMJ010S	Method Blank
LCS1S	GMJ010SL	1	NA	10/16/1322:24	10/16/1322:24	EJ16015A	EJ16013A	GMJ010S	Lab Control Sample (LCS)
LCD1S	GMJ010SC	1	NA	10/16/1323:01	10/16/1323:01	EJ16016A	EJ16013A	GMJ010S	LCS Duplicate
2B-2	J124-01	.99	9.4	10/17/1300:16	10/17/1300:16	EJ16018A	EJ16013A	GMJ010S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client       : URS                      Date Collected: 10/07/13
Project      : DHCCP                   Date Received: 10/14/13
Batch No.    : 13J124                 Date Extracted: 10/17/13 00:16
Sample ID    : 2B-2                   Date Analyzed: 10/17/13 00:16
Lab Samp ID  : J124-01                Dilution Factor: .99
Lab File ID  : EJ16018A               Matrix          : SOIL
Ext Btch ID  : GMJ010S                % Moisture       : 9.4
Calib. Ref.  : EJ16013A               Instrument ID    : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
GASOLINE	ND	1.1	0.55

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
BROMOFLUOROBENZENE	1.68	2.185	77.1	10-160

Parameter	H-C Range
Gasoline	C6-C10

QC SUMMARIES

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/16/13
Batch No.   : 13J124                 Date Extracted: 10/16/13 21:47
Sample ID   : MBLK1S                 Date Analyzed: 10/16/13 21:47
Lab Samp ID : GMJ010SB               Dilution Factor: 1
Lab File ID : EJ16014A               Matrix       : SOIL
Ext Btch ID : GMJ010S                % Moisture    : NA
Calib. Ref. : EJ16013A               Instrument ID : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
-----	-----	-----	-----
GASOLINE	ND	1.0	0.50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
BROMOFLUOROBENZENE	1.60	2.000	79.9	70-140

Parameter	H-C Range
Gasoline	C6-C10

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J124
METHOD: METHOD 5030B/8015B

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: GMJ010SB GMJ010SL GMJ010SC
LAB FILE ID: EJ16014A EJ16015A EJ16016A
DATE EXTRACTED: 10/16/1321:47 10/16/1322:24 10/16/1323:01 DATE COLLECTED: NA
DATE ANALYZED: 10/16/1321:47 10/16/1322:24 10/16/1323:01 DATE RECEIVED: 10/16/13
PREP. BATCH: GMJ010S GMJ010S GMJ010S
CALIB. REF: EJ16013A EJ16013A EJ16013A

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Gasoline	ND	25.0	22.6	90	25.0	21.1	85	7	60-130	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Bromofluorobenzene	2.00	1.87	93	2.00	1.82	91	70-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 13J124

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) soil sample was received on 10/14/13 for TPH Diesel analysis, Method 3550B/8015B in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for DSJ012SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

The sample displayed mix hydrocarbons.

LAB CHRONICLE
PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS                      SDG NO.       : 13J124
Project     : DHCCP                   Instrument ID  : GCT105
=====
  
```

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	SOIL		Sample Data FN	Calibration Prep.		Notes
				Analysis DateTime	Extraction DateTime		Data FN	Batch	
MBLK1S	DSJ012SB	1	NA	10/18/1319:22	10/16/1311:42	LJ18053A	LJ18045A	DSJ012S	Method Blank
LCS1S	DSJ012SL	1	NA	10/18/1319:39	10/16/1311:42	LJ18054A	LJ18045A	DSJ012S	Lab Control Sample (LCS)
LCD1S	DSJ012SC	1	NA	10/18/1319:56	10/16/1311:42	LJ18055A	LJ18045A	DSJ012S	LCS Duplicate
2B-2	J124-01	1	9.4	10/18/1320:13	10/16/1311:42	LJ18056A	LJ18045A	DSJ012S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS                      Date Collected: 10/07/13
Project      : DHCCP                   Date Received: 10/14/13
Batch No.    : 13J124                  Date Extracted: 10/16/13 11:42
Sample ID    : 2B-2                    Date Analyzed: 10/18/13 20:13
Lab Samp ID  : J124-01                  Dilution Factor: 1
Lab File ID  : LJ18056A                 Matrix          : SOIL
Ext Btch ID  : DSJ012S                  % Moisture       : 9.4
Calib. Ref.  : LJ18045A                 Instrument ID    : GCT105
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	56	11	5.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	78.0	110.4	70.7	50-130
HEXACOSANE	26.5	27.59	95.9	40-160

RL : Reporting Limit
 Parameter H-C Range
 Diesel C10-C24

QC SUMMARIES

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/16/13
Batch No.   : 13J124                 Date Extracted: 10/16/13 11:42
Sample ID   : MBLK1S                 Date Analyzed: 10/18/13 19:22
Lab Samp ID : DSJ012SB              Dilution Factor: 1
Lab File ID : LJ18053A              Matrix       : SOIL
Ext Btch ID : DSJ012S              % Moisture    : NA
Calib. Ref. : LJ18045A             Instrument ID : GCT105
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	81.4	100.0	81.4	50-130
HEXACOSANE	22.2	25.00	88.9	60-130

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J124
METHOD: METHOD 3550B/8015B

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: DSJ012SB DSJ012SL DSJ012SC
LAB FILE ID: LJ18053A LJ18054A LJ18055A
DATE EXTRACTED: 10/16/1311:42 10/16/1311:42 10/16/1311:42 DATE COLLECTED: NA
DATE ANALYZED: 10/18/1319:22 10/18/1319:39 10/18/1319:56 DATE RECEIVED: 10/16/13
PREP. BATCH: DSJ012S DSJ012S DSJ012S
CALIB. REF: LJ18045A LJ18045A LJ18045A

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	500	430	86	500	424	85	2	60-130	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Bromobenzene	100	91.3	91	100	87.4	87	50-130
Hexacosane	25.0	24.2	97	25.0	23.7	95	60-130

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8081A
PESTICIDES

SDG#: 13J124

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 3550B/8081A
PESTICIDES

One(1) soil sample was received on 10/14/13 for Pesticides Organochlorine analysis, Method 3550B/8081A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument performance was checked prior to calibration. DDT and Endrin breakdown were within specification. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for CPJ020SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter. Positive sample results were confirmed by a second column. Relative percentage difference (RPD) between the two results was evaluated. If RPD is less than 40% and peaks are well defined the higher result is reported. Where RPD is greater than 40% the chromatogram is checked for anomalies and results are selected based on processed knowledge. If there is no evidence of any chromatographic ambiguity, the higher result is reported.

LAB CHRONICLE
PESTICIDES

Client : URS
Project : DHCCP

SDG NO. : 13J124
Instrument ID : F9

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	CPJ020SB	1	NA	10/21/1322:32	10/17/1314:30	RJ21035A	RJ21030A	CPJ020S	Method Blank
LCS1S	CPJ020SL	1	NA	10/21/1322:50	10/17/1314:30	RJ21036A	RJ21030A	CPJ020S	Lab Control Sample (LCS)
LCD1S	CPJ020SC	1	NA	10/21/1323:09	10/17/1314:30	RJ21037A	RJ21030A	CPJ020S	LCS Duplicate
2B-2	J124-01	1	9.4	10/21/1323:46	10/17/1314:30	RJ21039A	RJ21030A	CPJ020S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8081A
PESTICIDES

```

=====
Client      : URS                      Date Collected: 10/07/13
Project     : DHCCP                   Date Received: 10/14/13
Batch No.   : 13J124                  Date Extracted: 10/17/13 14:30
Sample ID   : 2B-2                    Date Analyzed: 10/21/13 23:46
Lab Samp ID : J124-01                 Dilution Factor: 1
Lab File ID : RJ21039A                Matrix       : SOIL
Ext Btch ID : CPJ020S                 % Moisture    : 9.4
Calib. Ref. : RJ21030A                Instrument ID : F9
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.2	0.44 0.44
GAMMA-BHC (LINDANE)	(ND) ND	2.2	0.44 0.44
BETA-BHC	(ND) ND	2.2	0.44 0.44
HEPTACHLOR	(ND) ND	2.2	0.44 0.44
DELTA-BHC	(ND) ND	2.2	0.44 0.44
ALDRIN	(ND) ND	2.2	0.44 0.44
HEPTACHLOR EPOXIDE	(ND) 0.53J	2.2	0.44 0.44
GAMMA-CHLORDANE	(ND) ND	2.2	0.44 0.44
ALPHA-CHLORDANE	(ND) 0.54J	2.2	0.44 0.44
ENDOSULFAN I	(ND) 0.77J	2.2	0.44 0.44
4,4'-DDE	(ND) ND	2.2	0.44 0.44
DIELDRIN	(ND) ND	2.2	0.44 0.44
ENDRIN	(ND) ND	2.2	0.44 0.44
4,4'-DDD	(ND) ND	2.2	0.44 0.44
ENDOSULFAN II	(ND) ND	2.2	0.44 0.44
4,4'-DDT	(ND) ND	2.2	0.44 0.44
ENDRIN ALDEHYDE	(ND) ND	2.2	0.44 0.44
ENDOSULFAN SULFATE	(ND) ND	2.2	0.44 0.44
ENDRIN KETONE	(ND) ND	2.2	0.44 0.44
METHOXYCHLOR	(ND) ND	11	4.4 4.4
TOXAPHENE	(ND) ND	55	11 11

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	12.47 (14.64)	14.71	84.8 (99.5)	50-140
DECACHLOROBIPHENYL	13.18 (14.31)	14.71	89.6 (97.2)	10-160

RL : Reporting limit

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

QC SUMMARIES

METHOD 3550B/8081A
PESTICIDES

```

=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/17/13
Batch No.   : 13J124                  Date Extracted: 10/17/13 14:30
Sample ID:  MBLK1S                    Date Analyzed: 10/21/13 22:32
Lab Samp ID: CPJ020SB                 Dilution Factor: 1
Lab File ID: RJ21035A                Matrix       : SOIL
Ext Btch ID: CPJ020S                  % Moisture    : NA
Calib. Ref.: RJ21030A                 Instrument ID : F9
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.0	0.40 0.40
GAMMA-BHC (LINDANE)	(ND) ND	2.0	0.40 0.40
BETA-BHC	(ND) ND	2.0	0.40 0.40
HEPTACHLOR	(ND) ND	2.0	0.40 0.40
DELTA-BHC	(ND) ND	2.0	0.40 0.40
ALDRIN	(ND) ND	2.0	0.40 0.40
HEPTACHLOR EPOXIDE	(ND) ND	2.0	0.40 0.40
GAMMA-CHLORDANE	(ND) ND	2.0	0.40 0.40
ALPHA-CHLORDANE	(ND) ND	2.0	0.40 0.40
ENDOSULFAN I	(ND) ND	2.0	0.40 0.40
4,4'-DDE	(ND) ND	2.0	0.40 0.40
DIELDRIN	(ND) ND	2.0	0.40 0.40
ENDRIN	(ND) ND	2.0	0.40 0.40
4,4'-DDD	(ND) ND	2.0	0.40 0.40
ENDOSULFAN II	(ND) ND	2.0	0.40 0.40
4,4'-DDT	(ND) ND	2.0	0.40 0.40
ENDRIN ALDEHYDE	(ND) ND	2.0	0.40 0.40
ENDOSULFAN SULFATE	(ND) ND	2.0	0.40 0.40
ENDRIN KETONE	(ND) ND	2.0	0.40 0.40
METHOXYCHLOR	(ND) ND	10	4.0 4.0
TOXAPHENE	(ND) ND	50	10 10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	12.21 (13.03)	13.33	91.6 (97.8)	60-130
DECACHLOROBIPHENYL	12.73 (13.50)	13.33	95.5 (101)	60-140

RL : Reporting limit

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J124
METHOD: SW3550B/8081A

474

MATRIX: SOIL
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: CPJ020SB CPJ020SL CPJ020SC
LAB FILE ID: RJ21035A RJ21036A RJ21037A
DATE EXTRACTED: 10/17/1314:30 10/17/1314:30 10/17/1314:30 DATE COLLECTED: NA
DATE ANALYZED: 10/21/1322:32 10/21/1322:50 10/21/1323:09 DATE RECEIVED: 10/17/13
PREP. BATCH: CPJ020S CPJ020S CPJ020S
CALIB. REF: RJ21030A RJ21030A RJ21030A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
alpha-BHC	(ND) ND	6.67	7.19 (7.59)	108 (114)	6.67	7.25 (7.83)	109 (117)	1 (3)	50-140	50
gamma-BHC (Lindane)	(ND) ND	6.67	(7.00) 6.95	(105) 104	6.67	(7.11) 6.99	(107) 105	(2) 1	60-130	50
beta-BHC	(ND) ND	6.67	7.46 (7.55)	112 (113)	6.67	(7.55) 7.39	(113) 111	(1) 2	50-130	50
Heptachlor	(ND) ND	6.67	7.26 (7.42)	109 (111)	6.67	7.06 (7.59)	106 (114)	3 (2)	50-140	50
delta-BHC	(ND) ND	6.67	7.09 (7.99)	106 (120)	6.67	7.06 (8.00)	106 (120)	0 (0)	50-150	50
Aldrin	(ND) ND	6.67	7.14 (7.45)	107 (112)	6.67	7.41 (7.68)	111 (115)	4 (3)	60-140	50
Heptachlor Epoxide	(ND) ND	6.67	7.66 (7.75)	115 (116)	6.67	7.65 (7.70)	115 (115)	0 (1)	70-130	50
gamma-Chlordane	(ND) ND	6.67	7.57 (8.20)	113 (123)	6.67	7.67 (8.32)	115 (125)	1 (1)	70-130	50
alpha-Chlordane	(ND) ND	6.67	7.56 (7.85)	113 (118)	6.67	7.64 (7.92)	115 (119)	1 (1)	70-130	50
Endosulfan I	(ND) ND	6.67	7.16 (7.70)	107 (115)	6.67	7.26 (7.74)	109 (116)	1 (1)	60-130	50
4,4'-DDE	(ND) ND	6.67	7.66 (8.27)	115 (124)	6.67	7.75 (8.32)	116 (125)	1 (1)	70-140	50
Dieldrin	(ND) ND	6.67	7.76 (7.95)	116 (119)	6.67	7.92 (8.16)	119 (122)	2 (3)	70-140	50
Endrin	(ND) ND	6.67	8.01 (8.39)	120 (126)	6.67	8.04 (8.44)	121 (127)	0 (1)	70-150	50
4,4'-DDD	(ND) ND	6.67	8.07 (8.35)	121 (125)	6.67	8.09 (8.44)	121 (127)	0 (1)	70-140	50
Endosulfan II	(ND) ND	6.67	8.35 (8.54)	125 (128)	6.67	8.53 (8.66)	128 (130)	2 (1)	70-130	50
4,4'-DDT	(ND) ND	6.67	(8.89) 8.53	(133) 128	6.67	(9.12) 8.62	(137) 129	(3) 1	70-150	50
Endrin aldehyde	(ND) ND	6.67	7.93 (8.34)	119 (125)	6.67	7.99 (8.34)	120 (125)	1 (0)	70-130	50
Endosulfan Sulfate	(ND) ND	6.67	7.99 (8.37)	120 (125)	6.67	8.17 (8.45)	122 (127)	2 (1)	70-150	50
Endrin Ketone	(ND) ND	6.67	7.87 (8.22)	118 (123)	6.67	8.09 (8.48)	121 (127)	3 (3)	70-140	50
Methoxychlor	(ND) ND	66.7	75.2 (83.2)	113 (125)	66.7	76.5 (84.6)	115 (127)	2 (2)	70-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	13.33	12.83 (13.72)	96.3 (103)	13.33	12.62 (13.68)	94.7 (103)	60-130
Decachlorobiphenyl	13.33	13.27 (13.91)	99.6 (104)	13.33	13.22 (13.67)	99.2 (103)	60-140

DWR-207

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8081A
PCBS

SDG#: 13J124

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 3550B/8082
PCBS

One(1) soil sample was received on 10/14/13 for Polychlorinated Biphenyls (PCBs) analysis, Method 3550B/8082 in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for 60J020SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter. Sample extracts subjected to appropriate cleanup technique to reduce matrix interference are recorded in extraction log.

LAB CHRONICLE
PCBs

```
=====
Client      : URS                      SDG NO.       : 13J124
Project     : DHCCP                  Instrument ID  : 71
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	60J020SB	1	NA	10/18/1311:43	10/17/1314:30	KJ18005A	KJ18002A	CPJ020S	Method Blank
LCS1S	60J020SL	1	NA	10/18/1312:08	10/17/1314:30	KJ18006A	KJ18002A	CPJ020S	Lab Control Sample (LCS)
LCD1S	60J020SC	1	NA	10/18/1312:32	10/17/1314:30	KJ18007A	KJ18002A	CPJ020S	LCS Duplicate
2B-2	J124-01	1	9.4	10/18/1313:20	10/17/1314:30	KJ18009A	KJ18002A	CPJ020S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8082
PCBs

```

=====
Client      : URS                      Date Collected: 10/07/13
Project     : DHCCP                   Date Received: 10/14/13
Batch No.   : 13J124                 Date Extracted: 10/17/13 14:30
Sample ID: 2B-2                     Date Analyzed: 10/18/13 13:20
Lab Samp ID: J124-01                Dilution Factor: 1
Lab File ID: KJ18009A               Matrix      : SOIL
Ext Btch ID: CPJ020S                % Moisture   : 9.4
Calib. Ref.: KJ18002A              Instrument ID : GCT071
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	55	18 18
PCB-1221	(ND) ND	55	18 18
PCB-1232	(ND) ND	55	18 18
PCB-1242	(ND) ND	55	18 18
PCB-1248	(ND) ND	55	18 18
PCB-1254	(ND) ND	55	18 18
PCB-1260	(ND) ND	55	18 18

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(14.27) 14.07	14.71	(97.0) 95.6	50-130
DECACHLOROBIPHENYL	(14.76) 14.34	14.71	(100) 97.5	50-150

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

QC SUMMARIES

METHOD 3550B/8082
PCBs

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=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/17/13
Batch No.   : 13J124                 Date Extracted: 10/17/13 14:30
Sample ID:  MBLK1S                   Date Analyzed: 10/18/13 11:43
Lab Samp ID: 60J020SB                Dilution Factor: 1
Lab File ID: KJ18005A                Matrix       : SOIL
Ext Btch ID: CPJ020S                 % Moisture    : NA
Calib. Ref.: KJ18002A                Instrument ID : GCT071
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	50	17 17
PCB-1221	(ND) ND	50	17 17
PCB-1232	(ND) ND	50	17 17
PCB-1242	(ND) ND	50	17 17
PCB-1248	(ND) ND	50	17 17
PCB-1254	(ND) ND	50	17 17
PCB-1260	(ND) ND	50	17 17

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(12.86) 12.56	13.33	(96.5) 94.2	60-130
DECACHLOROBIPHENYL	14.02 (14.10)	13.33	105 (106)	70-140

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J124
METHOD: METHOD 3550B/8082

MATRIX: SOIL
DILUTION FACTOR: 1 1 1 % MOISTURE: NA
SAMPLE ID: MBLK1S
LAB SAMP ID: 60J020SB 60J020SL 60J020SC
LAB FILE ID: KJ18005A KJ18006A KJ18007A
DATE EXTRACTED: 10/17/1314:30 10/17/1314:30 10/17/1314:30 DATE COLLECTED: NA
DATE ANALYZED: 10/18/1311:43 10/18/1312:08 10/18/1312:32 DATE RECEIVED: 10/17/13
PREP. BATCH: CPJ020S CPJ020S CPJ020S
CALIB. REF: KJ18002A KJ18002A KJ18002A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
PCB-1016	(ND) ND	167	(177) 177	(106) 106	167	(176) 175	(106) 105	(1) 1	70-140	50
PCB-1260	(ND) ND	167	183 (188)	110 (113)	167	181 (186)	109 (112)	1 (1)	70-140	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	13.33	(13.93) 13.85	(105) 104	13.33	(14.04) 13.82	(105) 104	60-130
Decachlorobiphenyl	13.33	14.86 (14.91)	111 (112)	13.33	14.80 (14.81)	111 (111)	70-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 8151A
HERBICIDES

SDG#: 13J124

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 8151A
HERBICIDES

One(1) soil sample was received on 10/14/13 for Chlorinated Herbicides analysis, Method 8151A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HEJ005SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogate was added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
HERBICIDES

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=====
Client      : URS                                     SDG NO.       : 13J124
Project     : DHCCP                                 Instrument ID  : 16
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	HEJ005SB	1	NA	10/17/1310:44	10/16/1312:45	WJ17003A	WJ17002A	HEJ005S	Method Blank
LCS1S	HEJ005SL	1	NA	10/17/1311:14	10/16/1312:45	WJ17004A	WJ17002A	HEJ005S	Lab Control Sample (LCS)
LCD1S	HEJ005SC	1	NA	10/17/1311:45	10/16/1312:45	WJ17005A	WJ17002A	HEJ005S	LCS Duplicate
2B-2	J124-01	1	9.4	10/17/1312:16	10/16/1312:45	WJ17006A	WJ17002A	HEJ005S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 8151A
HERBICIDES

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=====
Client       : URS                      Date Collected: 10/07/13
Project      : DHCCP                   Date Received: 10/14/13
Batch No.    : 13J124                  Date Extracted: 10/16/13 12:45
Sample ID    : 2B-2                    Date Analyzed: 10/17/13 12:16
Lab Samp ID  : J124-01                 Dilution Factor: 1
Lab File ID  : WJ17006A                Matrix       : SOIL
Ext Btch ID  : HEJ005S                 % Moisture    : 9.4
Calib. Ref.  : WJ17002A                Instrument ID  : GCT016
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) ND	11	5.5 5.5
2,4-DB	(ND) ND	11	5.5 5.5
2,4,5-T	(ND) ND	11	5.5 5.5
2,4,5-TP(SILVEX)	(ND) 15	11	5.5 5.5
DALAPON	(ND) ND	11	5.5 5.5
DICAMBA	(ND) ND	11	5.5 5.5
DICHLOROPROP	(ND) ND	11	5.5 5.5
DINOSEB	(ND) ND	11	5.5 5.5
MCPA	(ND) ND	2200	1100 1100
MCP	(ND) ND	2200	1100 1100

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	486.9 (555.5)	551.9	88.2 (101)	20-150

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

QC SUMMARIES

METHOD 8151A
HERBICIDES

```
=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 10/16/13
Batch No.   : 13J124                 Date Extracted: 10/16/13 12:45
Sample ID:  MBLK1S                   Date Analyzed: 10/17/13 10:44
Lab Samp ID: HEJ005SB                Dilution Factor: 1
Lab File ID: WJ17003A                Matrix       : SOIL
Ext Btch ID: HEJ005S                 % Moisture    : NA
Calib. Ref.: WJ17002A                Instrument ID : GCT016
=====
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
2,4-D	(ND) ND	10	5.0 5.0	
2,4-DB	(ND) ND	10	5.0 5.0	
2,4,5-T	(ND) ND	10	5.0 5.0	
2,4,5-TP(SILVEX)	(ND) ND	10	5.0 5.0	
DALAPON	(ND) ND	10	5.0 5.0	
DICAMBA	(ND) ND	10	5.0 5.0	
DICHLOROPROP	(ND) ND	10	5.0 5.0	
DINOSEB	(ND) ND	10	5.0 5.0	
MCPA	(ND) ND	2000	1000 1000	
MCPP	(ND) ND	2000	1000 1000	

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	438.1 (461.6)	500.0	87.6 (92.3)	60-140

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J124
METHOD: METHOD 8151A

490

MATRIX: SOIL
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: HEJ005SB HEJ005SL HEJ005SC
LAB FILE ID: WJ17003A WJ17004A WJ17005A
DATE EXTRACTED: 10/16/1312:45 10/16/1312:45 10/16/1312:45 DATE COLLECTED: NA
DATE ANALYZED: 10/17/1310:44 10/17/1311:14 10/17/1311:45 DATE RECEIVED: 10/16/13
PREP. BATCH: HEJ005S HEJ005S HEJ005S
CALIB. REF: WJ17002A WJ17002A WJ17002A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)		SPIKE AMT (ug/kg)	BS RSLT (ug/kg)		BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)		BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
2,4-D	(ND)	ND	50.0	47.5	(48.3)	95 (97)	50.0	49.3	(49.9)	99 (100)	4 (3)	60-150	50
2,4-DB	(ND)	ND	50.0	48.6	(49.9)	97 (100)	50.0	(50.4)	48.7	(101) 97	(4) 2	60-140	50
2,4,5-T	(ND)	ND	50.0	45.5	(53.3)	91 (107)	50.0	47.0	(55.9)	94 (112)	3 (5)	60-140	50
2,4,5-TP(Silvex)	(ND)	ND	50.0	47.3	(51.1)	95 (102)	50.0	49.0	(52.6)	98 (105)	4 (3)	50-150	50
Dalapon	(ND)	ND	50.0	39.1	(42.5)	78 (85)	50.0	44.8	(49.2)	90 (98)	14 (15)	10-160	50
Dicamba	(ND)	ND	50.0	43.8	(49.7)	88 (99)	50.0	44.6	(49.6)	89 (99)	2 (0)	30-130	50
Dichloroprop	(ND)	ND	50.0	47.7	(49.6)	95 (99)	50.0	49.4	(52.3)	99 (105)	4 (5)	30-130	50
Dinoseb	(ND)	ND	50.0	(45.3)	43.2	(91) 86	50.0	(49.5)	46.8	(99) 94	(9) 8	30-130	50
MCPA	(ND)	ND	2500	1490J	(2340)	60 (94)	2500	1580J	(2390)	63 (96)	6 (2)	30-130	50
MCPP	(ND)	ND	2500	(2240)	1800J	(90) 72	2500	(2020)	1950J	(81) 78	(10) 8	30-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2,4-DCPAA	500.0	454.2 (492.7)	90.8 (98.5)	500.0	474.8 (499.5)	95.0 (99.9)	60-140

DWR-207

LABORATORY REPORT FOR

URS

DHCCP

METALS/MERCURY

SDG#: 13J124

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 6020A
METALS BY ICP-MS

One (1) soil sample was received on 10/14/13 for Metals CAM analysis, Method 6020A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source. Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Results were compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for IMJ031SL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries were within project QC limits except for results qualified with [*] in J124-01M/S summary form, most likely due to matrix interference and low spike level as compared to concentration of parent sample. Check QC summary form for details.

In addition, analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD 6020A
METALS BY ICP-MS

Client : URS	Date Collected: 10/07/13
Project : DHCCP	Date Received: 10/14/13
SDG NO. : 13J124	Date Extracted: 10/17/13 16:30
Sample ID: 2B-2	Date Analyzed: 10/21/13 16:27 # 10/21/13 17:01
Lab Samp ID: J124-01 #J124-01I	Dilution Factor: 0.980 # 4.9
Lab File ID: F6J10048 #F6J10056	Matrix : SOIL
Ext Btch ID: IMJ031S	% Moisture : 9.4
Calib. Ref.: F6J10040 #F6J10052	Instrument ID : T-IF6

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	0.229J	0.541	0.216
Arsenic	4.51	0.541	0.108
Barium	172	0.541	0.108
# Beryllium	ND	2.70	0.541
Cadmium	0.342J	0.541	0.108
Chromium	50.1	0.541	0.108
Cobalt	14.3	0.541	0.108
# Copper	34.7	2.70	1.08
Lead	6.90	0.541	0.108
Molybdenum	0.315J	0.541	0.216
# Nickel	68.0	2.70	0.541
Selenium	0.183J	0.541	0.108
Silver	ND	0.541	0.108
Thallium	0.159J	0.541	0.108
Vanadium	53.5	0.541	0.270
Zinc	64.0	2.16	1.08

Members of the Associated File

METHOD 6020A
METALS BY ICP-MS

Client	: URS	Date Collected:	NA
Project	: DHCCP	Date Received:	10/17/13
SDG NO.	: 13J124	Date Extracted:	10/17/13 16:30
Sample ID:	MBLK1S	Date Analyzed:	10/21/13 16:03
Lab Samp ID:	IMJ031SB	Dilution Factor:	1
Lab File ID:	F6J10042	Matrix	: SOIL
Ext Btch ID:	IMJ031S	% Moisture	: NA
Calib. Ref.:	F6J10040	Instrument ID	: T-IF6

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	0.500	0.200
Arsenic	ND	0.500	0.100
Barium	ND	0.500	0.100
Beryllium	ND	0.500	0.100
Cadmium	ND	0.500	0.100
Chromium	ND	0.500	0.100
Cobalt	ND	0.500	0.100
Copper	ND	0.500	0.200
Lead	ND	0.500	0.100
Molybdenum	ND	0.500	0.200
Nickel	ND	0.500	0.100
Selenium	ND	0.500	0.100
Silver	ND	0.500	0.100
Thallium	ND	0.500	0.100
Vanadium	ND	0.500	0.250
Zinc	ND	2.00	1.00

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J124
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: NA
DILTN FACTR: 1 1 1
SAMPLE ID: MBLK1S
CONTROL NO.: IMJ031SB IMJ031SL IMJ031SC
LAB FILE ID: F6J10042 F6J10043 F6J10044
DATE COLLECTED: NA
DATE ANALYZD: 10/17/1316:30 10/17/1316:30 10/17/1316:30
DATE RECEIVED: 10/17/13
PREP. BATCH: IMJ031S IMJ031S IMJ031S
CALIB. REF: F6J10040 F6J10040 F6J10040

ACCESSION:

PARAMETER	BLNK RSLT mg/kg	SPIKE AMT mg/kg	BS RSLT mg/kg	BS % REC	SPIKE AMT mg/kg	BSD RSLT mg/kg	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	25.0	23.6	94	25.0	24.0	96	2	80-120	20
Arsenic	ND	25.0	23.6	94	25.0	23.5	94	1	80-120	20
Barium	ND	25.0	24.8	99	25.0	24.9	100	0	80-120	20
Beryllium	ND	25.0	23.3	93	25.0	22.9	92	2	80-120	20
Cadmium	ND	25.0	24.1	96	25.0	24.4	98	1	80-120	20
Chromium	ND	25.0	23.6	94	25.0	23.5	94	1	80-120	20
Cobalt	ND	25.0	24.7	99	25.0	24.2	97	2	80-120	20
Copper	ND	25.0	23.5	94	25.0	23.0	92	2	80-120	20
Lead	ND	25.0	23.8	95	25.0	24.3	97	2	80-120	20
Molybdenum	ND	25.0	24.8	99	25.0	25.1	100	1	80-120	20
Nickel	ND	25.0	23.4	94	25.0	23.1	92	1	80-120	20
Selenium	ND	25.0	23.3	93	25.0	23.2	93	0	80-120	20
Silver	ND	25.0	24.8	99	25.0	24.8	99	0	80-120	20
Thallium	ND	25.0	24.2	97	25.0	24.2	97	0	80-120	20
Vanadium	ND	25.0	24.3	97	25.0	23.9	96	1	80-120	20
Zinc	ND	50.0	46.7	93	50.0	46.6	93	0	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J124
METHOD: METHOD 6020A

MATRIX:	SOIL			% MOISTURE:	9.4
DILTN FACTR:	0.980	0.976	0.990		
SAMPLE ID:	2B-2				
CONTROL NO.:	J124-01	J124-01M	J124-01S		
LAB FILE ID:	F6J10048	F6J10045	F6J10046		
DATIME EXTRCTD:	10/17/1316:30	10/17/1316:30	10/17/1316:30	DATE COLLECTED:	10/07/13
DATIME ANALYZD:	10/21/1316:27	10/21/1316:15	10/21/1316:19	DATE RECEIVED:	10/14/13
PREP. BATCH:	IMJ031S	IMJ031S	IMJ031S		
CALIB. REF:	F6J10040	F6J10040	F6J10040		

ACCESSION:

PARAMETER	SMPL RSLT mg/kg	SPIKE AMT mg/kg	MS RSLT mg/kg	MS % REC	SPIKE AMT mg/kg	MSD RSLT mg/kg	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	0.229J	26.9	14.7	54*	27.3	15.5	56*	5	75-125	20
Arsenic	4.51	26.9	26.5	82	27.3	27.7	85	5	75-125	20
Barium	172	26.9	207	130*	27.3	215	157*	4	75-125	20
# Beryllium	ND	26.9	21.4	80	27.3	22.1	81	3	75-125	20
Cadmium	0.342J	26.9	25.7	94	27.3	26.7	96	4	75-125	20
Chromium	50.1	26.9	77.3	101	27.3	79.2	107	2	75-125	20
Cobalt	14.3	26.9	36.6	83	27.3	38.1	87	4	75-125	20
# Copper	34.7	26.9	48.9	53*	27.3	51.1	60*	4	75-125	20
Lead	6.90	26.9	31.3	91	27.3	33.2	96	6	75-125	20
Molybdenum	0.315J	26.9	24.1	88	27.3	25.5	92	6	75-125	20
# Nickel	68.0	26.9	83.1	56*	27.3	86.1	66*	3	75-125	20
Selenium	0.183J	26.9	23.4	86	27.3	24.4	89	4	75-125	20
Silver	ND	26.9	25.7	95	27.3	27.0	99	5	75-125	20
Thallium	0.159J	26.9	24.8	91	27.3	26.2	95	5	75-125	20
Vanadium	53.5	26.9	82.1	106	27.3	85.8	118	4	75-125	20
Zinc	64.0	53.9	115	95	54.6	119	101	3	75-125	20

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J124
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: 9.4
DILTN FACTR: 0.980 0.980
SAMPLE ID: 2B-2
CONTROL NO.: J124-01 J124-01A
LAB FILE ID: F6J10048 F6J10047
DATE EXTRACTED: 10/17/13 16:30 10/17/13 16:30 DATE COLLECTED: 10/07/13
DATE ANALYZED: 10/21/13 16:27 10/21/13 16:23 DATE RECEIVED: 10/14/13
PREP. BATCH: IMJ031S IMJ031S
CALIB. REF: F6J10040 F6J10040

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	AS RSLT (mg/kg)	AS % REC	QC LIMIT (%)
Antimony	0.229J	27.0	25.7	94	80-120
Arsenic	4.51	27.0	29.1	91	80-120
Barium	172	27.0	198	96	80-120
# Beryllium	ND	135	122	90	80-120
Cadmium	0.342J	27.0	26.1	95	80-120
Chromium	50.1	27.0	71.8	80	80-120
Cobalt	14.3	27.0	36.7	83	80-120
# Copper	34.7	135	156	90	80-120
Lead	6.90	27.0	32.0	93	80-120
Molybdenum	0.315J	27.0	27.3	100	80-120
# Nickel	68.0	135	189	90	80-120
Selenium	0.183J	27.0	25.1	92	80-120
Silver	ND	27.0	26.6	98	80-120
Thallium	0.159J	27.0	25.8	95	80-120
Vanadium	53.5	27.0	76.7	86	80-120
Zinc	64.0	54.1	113	91	80-120

J124-01A : Analyzed at DF 4.9 on 10/21/13 16:57 | File ID F6J10055

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J124
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: 9.4
DILUTION FACTOR: 0.980 4.9
SAMPLE ID: 2B-2 2B-2DL
EMAX SAMP ID: J124-01 J124-01J
LAB FILE ID: F6J10048 F6J10049
DATE EXTRACTED: 10/17/1316:30 10/17/1316:30 DATE COLLECTED: 10/07/13
DATE ANALYZED: 10/21/1316:27 10/21/1316:32 DATE RECEIVED: 10/14/13
PREP. BATCH: IMJ031S IMJ031S
CALIB. REF: F6J10040 F6J10040

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SERIAL DIL RSLT (mg/kg)	DIF RSLT %	QC LIMIT (%)
Antimony	0.229J	ND	NA	10
Arsenic	4.51	4.87	8	10
Barium	172	171	1	10
# Beryllium	ND	ND	NA	10
Cadmium	0.342J	ND	NA	10
Chromium	50.1	55.5	11*	10
Cobalt	14.3	16.2	13*	10
# Copper	34.7	40.9	18*	10
Lead	6.90	7.51	9	10
Molybdenum	0.315J	ND	NA	10
# Nickel	68.0	73.5	8	10
Selenium	0.183J	ND	NA	10
Silver	ND	ND	0	10
Thallium	0.159J	ND	NA	10
Vanadium	53.5	59.1	10	10
Zinc	64.0	70.1	9	10

J124-01J : Analyzed at DF 24.5 on 10/21/13 17:05 | File ID F6J10057

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

One(1) soil sample was received on 10/14/13 for Metals DI-WET analysis, Method DI WET/6020A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source. Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for IMJ035WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries were within project QC limits except for results qualified with [*] in J124-01M/J124-01S summary form, most likely due to matrix interference. Check QC summary form for details.

In addition Analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
DI WET METALS BY ICP-MS

Client : URS
Project : DHCCP

SDG NO. : 13J124
Instrument ID : T-IF6

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	LEACHATE		Sample Data FN	Calibration Prep.			Notes
				Analysis DateTime	Extraction DateTime		Data FN	Batch		
MBLK1W	IMJ035WB	1	NA	10/21/1314:15	10/21/1310:00	F6J10018	F6J10016	IMJ035W		Method Blank
LCS1W	IMJ035WL	1	NA	10/21/1314:19	10/21/1310:00	F6J10019	F6J10016	IMJ035W		Lab Control Sample (LCS)
LCD1W	IMJ035WC	1	NA	10/21/1314:24	10/21/1310:00	F6J10020	F6J10016	IMJ035W		LCS Duplicate
MBLK2W	WTJ006SB	1	NA	10/21/1315:15	10/21/1310:00	F6J10031	F6J10028	IMJ035W		Method Blank
2B-2MS	J124-01M	1	NA	10/21/1315:19	10/21/1310:00	F6J10032	F6J10028	IMJ035W		Matrix Spike Sample (MS)
2B-2MSD	J124-01S	1	NA	10/21/1315:24	10/21/1310:00	F6J10033	F6J10028	IMJ035W		MS Duplicate (MSD)
2B-2AS	J124-01A	1	NA	10/21/1315:28	10/21/1310:00	F6J10034	F6J10028	IMJ035W		Analytical Spike Sample
2B-2	J124-01	1	NA	10/21/1315:32	10/21/1310:00	F6J10035	F6J10028	IMJ035W		Field Sample
2B-2DL	J124-01J	5	NA	10/21/1315:36	10/21/1310:00	F6J10036	F6J10028	IMJ035W		Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client	: URS	Date Collected:	10/07/13
Project	: DHCCP	Date Received:	10/14/13
SDG NO.	: 13J124	Date Extracted:	10/21/13 10:00
Sample ID:	2B-2	Date Analyzed:	10/21/13 15:32
Lab Samp ID:	J124-01	Dilution Factor:	1
Lab File ID:	F6J10035	Matrix	: LEACHATE
Ext Btch ID:	IMJ035W	% Moisture	: NA
Calib. Ref.:	F6J10028	Instrument ID	: T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	1.75	1.00	0.500
Arsenic	14.7	1.00	0.200
Barium	62.3	1.00	0.500
Beryllium	0.228J	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	16.9	1.00	0.200
Cobalt	3.19	1.00	0.200
Copper	15.7	1.00	0.500
Lead	4.05	1.00	0.100
Molybdenum	7.08	2.00	0.500
Nickel	14.7	1.00	0.200
Selenium	9.10	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	46.7	1.00	0.500
Zinc	41.2	20.0	10.0

DI EXTRACTION DATE: 10/16/13 12:00

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client	: URS	Date Collected:	NA
Project	: DHCCP	Date Received:	10/21/13
SDG NO.	: 13J124	Date Extracted:	10/21/13 10:00
Sample ID:	MBLK1W	Date Analyzed:	10/21/13 14:15
Lab Samp ID:	IMJ035WB	Dilution Factor:	1
Lab File ID:	F6J10018	Matrix	: WATER
Ext Btch ID:	IMJ035W	% Moisture	: NA
Calib. Ref.:	F6J10016	Instrument ID	: T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	ND	1.00	0.500
Arsenic	ND	1.00	0.200
Barium	ND	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	ND	1.00	0.200
Cobalt	ND	1.00	0.200
Copper	ND	1.00	0.500
Lead	ND	1.00	0.100
Molybdenum	ND	2.00	0.500
Nickel	ND	1.00	0.200
Selenium	ND	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	ND	1.00	0.500
Zinc	ND	20.0	10.0

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client	: URS	Date Collected:	NA
Project	: DHCCP	Date Received:	10/21/13
SDG NO.	: 13J124	Date Extracted:	10/21/13 10:00
Sample ID:	MBLK2W	Date Analyzed:	10/21/13 15:15
Lab Samp ID:	WTJ006SB	Dilution Factor:	1
Lab File ID:	F6J10031	Matrix	: LEACHATE
Ext Btch ID:	IMJ035W	% Moisture	: NA
Calib. Ref.:	F6J10028	Instrument ID	: T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	ND	1.00	0.500
Arsenic	ND	1.00	0.200
Barium	ND	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	ND	1.00	0.200
Cobalt	ND	1.00	0.200
Copper	ND	1.00	0.500
Lead	ND	1.00	0.100
Molybdenum	ND	2.00	0.500
Nickel	ND	1.00	0.200
Selenium	ND	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	ND	1.00	0.500
Zinc	ND	20.0	10.0

DI EXTRACTION DATE: 10/16/13 12:00

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J124
METHOD: METHOD DI WET/6020A

MATRIX: WATER % MOISTURE: NA
DILTN FACTR: 1 1 1
SAMPLE ID: MBLK1W
CONTROL NO.: IMJ035WB IMJ035WL IMJ035WC
LAB FILE ID: F6J10018 F6J10019 F6J10020
DATIME EXTRACTD: 10/21/1310:00 10/21/1310:00 10/21/1310:00 DATE COLLECTED: NA
DATIME ANALYZD: 10/21/1314:15 10/21/1314:19 10/21/1314:24 DATE RECEIVED: 10/21/13
PREP. BATCH: IMJ035W IMJ035W IMJ035W
CALIB. REF: F6J10016 F6J10016 F6J10016

ACCESSION:

PARAMETER	BLNK RSLT ug/L	SPIKE AMT ug/L	BS RSLT ug/L	BS % REC	SPIKE AMT ug/L	BSD RSLT ug/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	25.0	24.5	98	25.0	24.3	97	1	80-120	20
Arsenic	ND	25.0	24.3	97	25.0	24.4	98	0	80-120	20
Barium	ND	25.0	25.2	101	25.0	25.3	101	0	80-120	20
Beryllium	ND	25.0	23.1	92	25.0	23.1	92	0	80-120	20
Cadmium	ND	25.0	24.7	99	25.0	24.8	99	0	80-120	20
Chromium	ND	25.0	24.4	98	25.0	24.3	97	0	80-120	20
Cobalt	ND	25.0	24.8	99	25.0	25.2	101	1	80-120	20
Copper	ND	25.0	25.1	100	25.0	25.0	100	0	80-120	20
Lead	ND	25.0	25.5	102	25.0	25.4	102	0	80-120	20
Molybdenum	ND	25.0	25.0	100	25.0	24.9	100	0	80-120	20
Nickel	ND	25.0	24.4	98	25.0	25.0	100	2	80-120	20
Selenium	ND	25.0	24.6	98	25.0	24.7	99	0	80-120	20
Silver	ND	25.0	25.5	102	25.0	25.3	101	1	80-120	20
Thallium	ND	25.0	26.0	104	25.0	25.6	102	2	80-120	20
Vanadium	ND	25.0	24.8	99	25.0	24.7	99	0	80-120	20
Zinc	ND	50.0	52.8	106	50.0	52.6	105	0	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J124
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILT N FACTR: 1 1 1
SAMPLE ID: 2B-2
CONTROL NO.: J124-01 J124-01M J124-01S
LAB FILE ID: F6J10035 F6J10032 F6J10033
DATE EXTRACTED: 10/21/13 10:00 10/21/13 10:00 10/21/13 10:00 DATE COLLECTED: 10/07/13
DATE ANALYZED: 10/21/13 15:32 10/21/13 15:19 10/21/13 15:24 DATE RECEIVED: 10/14/13
PREP. BATCH: IMJ035W IMJ035W IMJ035W
CALIB. REF: F6J10028 F6J10028 F6J10028

ACCESSION:

PARAMETER	SMPL RSLT ug/L	SPIKE AMT ug/L	MS RSLT ug/L	MS % REC	SPIKE AMT ug/L	MSD RSLT ug/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	1.75	25.0	13.2	46*	25.0	14.9	53*	12	75-125	20
Arsenic	14.7	25.0	38.5	95	25.0	37.7	92	2	75-125	20
Barium	62.3	25.0	86.7	98	25.0	89.7	110	3	75-125	20
Beryllium	0.228J	25.0	22.2	88	25.0	20.9	83	6	75-125	20
Cadmium	ND	25.0	23.8	95	25.0	23.2	93	3	75-125	20
Chromium	16.9	25.0	39.5	90	25.0	42.8	104	8	75-125	20
Cobalt	3.19	25.0	24.4	85	25.0	24.2	84	1	75-125	20
Copper	15.7	25.0	37.2	86	25.0	37.7	88	1	75-125	20
Lead	4.05	25.0	27.2	93	25.0	26.7	91	2	75-125	20
Molybdenum	7.08	25.0	25.3	73*	25.0	26.1	76	3	75-125	20
Nickel	14.7	25.0	36.6	88	25.0	38.6	96	5	75-125	20
Selenium	9.10	25.0	32.9	95	25.0	32.3	93	2	75-125	20
Silver	ND	25.0	22.4	90	25.0	23.0	92	3	75-125	20
Thallium	ND	25.0	23.3	93	25.0	23.1	92	1	75-125	20
Vanadium	46.7	25.0	70.5	95	25.0	74.5	111	6	75-125	20
Zinc	41.2	50.0	86.5	91	50.0	85.5	89	1	75-125	20

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13J124
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILTN FACTR: 1 1
SAMPLE ID: 2B-2
CONTROL NO.: J124-01 J124-01A
LAB FILE ID: F6J10035 F6J10034
DATIME EXTRCTD: 10/21/1310:00 10/21/1310:00 DATE COLLECTED: 10/07/13
DATIME ANALYZD: 10/21/1315:32 10/21/1315:28 DATE RECEIVED: 10/14/13
PREP. BATCH: IMJ035W IMJ035W
CALIB. REF: F6J10028 F6J10028

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	AS RSLT (ug/L)	AS % REC	QC LIMIT (%)
Antimony	1.75	25.0	25.9	97	80-120
Arsenic	14.7	25.0	37.9	93	80-120
Barium	62.3	25.0	88.3	104	80-120
Beryllium	0.228J	25.0	21.9	87	80-120
Cadmium	ND	25.0	24.7	99	80-120
Chromium	16.9	25.0	39.9	92	80-120
Cobalt	3.19	25.0	26.0	91	80-120
Copper	15.7	25.0	38.4	91	80-120
Lead	4.05	25.0	28.8	99	80-120
Molybdenum	7.08	25.0	33.7	106	80-120
Nickel	14.7	25.0	37.2	90	80-120
Selenium	9.10	25.0	32.1	92	80-120
Silver	ND	25.0	25.0	100	80-120
Thallium	ND	25.0	25.1	100	80-120
Vanadium	46.7	25.0	70.8	96	80-120
Zinc	41.2	50.0	98.2	114	80-120

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13J124
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID: 2B-2 2B-2DL
EMAX SAMP ID: J124-01 J124-01J
LAB FILE ID: F6J10035 F6J10036
DATE EXTRACTED: 10/21/1310:00 10/21/1310:00 DATE COLLECTED: 10/07/13
DATE ANALYZED: 10/21/1315:32 10/21/1315:36 DATE RECEIVED: 10/14/13
PREP. BATCH: IMJ035W IMJ035W
CALIB. REF: F6J10028 F6J10028

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SERIAL DIL RSLT (ug/L)	DIF RSLT %	QC LIMIT (%)
Antimony	1.75	ND	NA	10
Arsenic	14.7	15.9	8	10
Barium	62.3	63.6	2	10
Beryllium	0.228J	ND	NA	10
Cadmium	ND	ND	0	10
Chromium	16.9	18.0	6	10
Cobalt	3.19	3.56J	NA	10
Copper	15.7	17.9	14*	10
Lead	4.05	4.34J	NA	10
Molybdenum	7.08	7.06J	NA	10
Nickel	14.7	16.4	11*	10
Selenium	9.10	9.76	7	10
Silver	ND	ND	0	10
Thallium	ND	ND	0	10
Vanadium	46.7	49.6	6	10
Zinc	41.2	53.3J	NA	10

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 7471A
MERCURY BY COLD VAPOR

One(1) soil sample was received on 10/14/13 for Mercury analysis, Method 7471A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HGJ024SL/C were all within QC limits.

Matrix QC Sample

Analytical spike and serial dilution from another SDG were analyzed for matrix evaluation. Results were within method acceptance criteria.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
MERCURY BY COLD VAPOR

Client	: URS	SDG NO.	: 13J124
Project	: DHCCP	Instrument ID	: 47

SOIL									
Client	Laboratory	Dilution	%	Analysis	Extraction	Sample	Calibration	Prep.	
Sample ID	Sample ID	Factor	Moist	DateTime	DateTime	Data FN	Data FN	Batch	Notes
MBLK1S	HGJ024SB	1	NA	10/18/1313:29	10/18/1311:30	M47J017011	M47J017	HGJ024S	Method Blank
LCS1S	HGJ024SL	1	NA	10/18/1313:31	10/18/1311:30	M47J017012	M47J017	HGJ024S	Lab Control Sample (LCS)
LCD1S	HGJ024SC	1	NA	10/18/1313:33	10/18/1311:30	M47J017013	M47J017	HGJ024S	LCS Duplicate
2B-2	J124-01	1	9.4	10/18/1313:46	10/18/1311:30	M47J017019	M47J017	HGJ024S	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 7471A
MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP
Batch No. : 13J124

Matrix : SOIL
InstrumentID : 47

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DIL'N FACTOR (%)	MOIST	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	HGJ024SB	ND	1	NA	0.1	0.02	10/18/1313:29	10/18/1311:30	M47J017011	M47J017	HGJ024S	NA	NA
LCS1S	HGJ024SL	0.430	1	NA	0.1	0.02	10/18/1313:31	10/18/1311:30	M47J017012	M47J017	HGJ024S	NA	NA
LCD1S	HGJ024SC	0.428	1	NA	0.1	0.02	10/18/1313:33	10/18/1311:30	M47J017013	M47J017	HGJ024S	NA	NA
2B-2	J124-01	0.0368J	1	9.4	0.11	0.0221	10/18/1313:46	10/18/1311:30	M47J017019	M47J017	HGJ024S	10/07/1312:00	10/14/13

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : 7471A

MATRIX : SOIL % MOISTURE: N/A
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : HGJ024SB HGJ024SL HGJ024SC
LAB FILE ID : M47J017011 M47J017012 M47J017013
DATE PREPARED : 10/18/1311:30 10/18/1311:30 10/18/1311:30
DATE ANALYZED : 10/18/1313:29 10/18/1313:31 10/18/1313:33
PREP BATCH : HGJ024S HGJ024S HGJ024S
CALIBRATION REF: M47J017 M47J017 M47J017

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	0.417	0.430	103	0.417	0.428	103	0	80-120	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD DI WET/7470A
DI WET MERCURY BY COLD VAPOR

One(1) soil sample was received on 10/14/13 for Mercury by DI WET analysis, Method DI WET/7470A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HGJ025WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for J124-01M/J124-01S are within project QC limits.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

METHOD DI WET/7470A
DI WET MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP
Batch No. : 13J124

Matrix : LEACHATE
InstrumentID : 47

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CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DIL'N FACTOR (%)	MOIST (%)	LOQ (ug/L)	LOD (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HGJ025WB	ND	1	NA	0.5	0.1	10/21/1316:12	10/21/1312:00	M47J018011	M47J018	HGJ025W	NA	NA
LCS1W	HGJ025WL	2.54	1	NA	0.5	0.1	10/21/1316:15	10/21/1312:00	M47J018012	M47J018	HGJ025W	NA	NA
LCD1W	HGJ025WC	2.56	1	NA	0.5	0.1	10/21/1316:17	10/21/1312:00	M47J018013	M47J018	HGJ025W	NA	NA
MBLK2W	WTJ006SB	ND	1	NA	0.5	0.1	10/21/1317:05	10/21/1312:00	M47J018035	M47J018	HGJ025W	NA	NA
2B-2	J124-01	ND	1	NA	0.5	0.1	10/21/1317:09	10/21/1312:00	M47J018037	M47J018	HGJ025W	10/07/1312:00	10/14/13
2B-2MS	J124-01M	2.64	1	NA	0.5	0.1	10/21/1317:14	10/21/1312:00	M47J018039	M47J018	HGJ025W	10/07/1312:00	10/14/13
2B-2MSD	J124-01S	2.73	1	NA	0.5	0.1	10/21/1317:16	10/21/1312:00	M47J018040	M47J018	HGJ025W	10/07/1312:00	10/14/13

DateTime Leached: 10/16/13 12:00

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : DI WET/7470A

MATRIX : WATER % MOISTURE: N/A
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : HGJ025WB HGJ025WL HGJ025WC
LAB FILE ID : M47J018011 M47J018012 M47J018013
DATE PREPARED : 10/21/1312:00 10/21/1312:00 10/21/1312:00
DATE ANALYZED : 10/21/1316:12 10/21/1316:15 10/21/1316:17
PREP BATCH : HGJ025W HGJ025W HGJ025W
CALIBRATION REF: M47J018 M47J018 M47J018

ACCESSION:

PARAMETER	MB RESULT (ug/L)	SPIKE AMT (ug/L)	BS RESULT (ug/L)	BS REC (%)	SPIKE AMT (ug/L)	BSD RESULT (ug/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.54	102	2.50	2.56	102	1	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : DI WET/7470A

MATRIX : LEACHATE % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : 2B-2 2B-2MS 2B-2MSD
LAB SAMPLE ID : J124-01 J124-01M J124-01S
LAB FILE ID : M47J018037 M47J018039 M47J018040
DATE PREPARED : 10/21/1312:00 10/21/1312:00 10/21/1312:00
DATE ANALYZED : 10/21/1317:09 10/21/1317:14 10/21/1317:16
PREP BATCH : HGJ025W HGJ025W HGJ025W
CALIBRATION REF: M47J018 M47J018 M47J018

ACCESSION:

PARAMETER	PARENT RESULT (ug/L)	SPIKE AMT (ug/L)	MS RESULT (ug/L)	MS REC (%)	SPIKE AMT (ug/L)	MSD RESULT (ug/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.64	106	2.50	2.73	109	3	75-125	20

LABORATORY REPORT FOR

URS

DHCCP

WET CHEMICAL
ANALYSES

SDG#: 13J124

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

SM 4500NH3F
AMMONIA (NH3-N)

One(1) soil sample was received on 10/14/13 for Ammonia-N by SM4500-NH3 F analysis, MethodSM 4500NH3F in accordance with Standard Methods for the Examination of Water and Wastewater, 21st Edition.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NHJ008SL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for J124-01M is within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

SM 4500NH3F
AMMONIA (NH3-N)

Client : URS
Project : DHCCP
Batch No. : 13J124

Matrix : SOIL
InstrumentID : 70

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CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	NHJ008SB	ND	1	NA	1	0.6	10/23/1314:43	10/22/1315:05	13NHJ00811	13NHJ008	NHJ008S	NA	NA
LCS1S	NHJ008SL	4.61	1	NA	1	0.6	10/23/1314:44	10/22/1315:05	13NHJ00812	13NHJ008	NHJ008S	NA	NA
LCD1S	NHJ008SC	4.35	1	NA	1	0.6	10/23/1314:44	10/22/1315:05	13NHJ00813	13NHJ008	NHJ008S	NA	NA
2B-2	J124-01	0.797J	0.987	9.4	1.09	0.654	10/23/1314:44	10/22/1315:05	13NHJ00814	13NHJ008	NHJ008S	10/07/1312:00	10/14/13
2B-2DUP	J124-01D	0.831J	0.993	9.4	1.10	0.658	10/23/1314:44	10/22/1315:05	13NHJ00815	13NHJ008	NHJ008S	10/07/1312:00	10/14/13
2B-2MS	J124-01M	5.92	0.971	9.4	1.07	0.643	10/23/1314:44	10/22/1315:05	13NHJ00816	13NHJ008	NHJ008S	10/07/1312:00	10/14/13

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EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : SM 4500NH3F

=====

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : NHJ008SB NHJ008SL NHJ008SC
LAB FILE ID : 13NHJ00811 13NHJ00812 13NHJ00813
DATE PREPARED : 10/22/1315:05 10/22/1315:05 10/22/1315:05
DATE ANALYZED : 10/23/1314:43 10/23/1314:44 10/23/1314:44
PREP BATCH : NHJ008S NHJ008S NHJ008S
CALIBRATION REF: 13NHJ008 13NHJ008 13NHJ008

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ammonia (NH3-N)	ND	5	4.61	92	5	4.35	87	6	80-120	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : SM 4500NH3F

=====

MATRIX : SOIL
DILUTION FACTOR: 0.987 0.993
SAMPLE ID : 2B-2 2B-2DUP
LAB SAMPLE ID : J124-01 J124-01D
LAB FILE ID : 13NHJ00814 13NHJ00815
DATE PREPARED : 10/22/1315:05 10/22/1315:05
DATE ANALYZED : 10/23/1314:44 10/23/1314:44
PREP BATCH : NHJ008S NHJ008S
CALIBRATION REF: 13NHJ008 13NHJ008

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
-----	-----	-----	-----	-----
Ammonia (NH3-N)	0.797J	0.831J	NA	20

EMAX QUALITY CONTROL DATA
MATRIX SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : SM 4500NH3F

=====

MATRIX	: SOIL	% MOISTURE:	9.4
DILUTION FACTOR:	0.987	0.971	
SAMPLE ID	: 2B-2	2B-2MS	
LAB SAMPLE ID	: J124-01	J124-01M	
LAB FILE ID	: 13NHJ00814	13NHJ00816	
DATE PREPARED	: 10/22/1315:05	10/22/1315:05	
DATE ANALYZED	: 10/23/1314:44	10/23/1314:44	
PREP BATCH	: NHJ008S	NHJ008S	
CALIBRATION REF:	13NHJ008	13NHJ008	

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Ammonia (NH3-N)	0.797J	5.36	5.92	96	75-125

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

SM 4500NO3E
NITRATE/NITRITE

One(1) soil sample was received on 10/14/13 for Nitrate/Nitrite as N analysis, MethodSM 4500NO3E in accordance with Standard Methods for the Examination of Water and Wastewater, 21st Edition.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NAJ004SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated for this SDG.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

SM 4500NO3E
NITRATE/NITRITE

Client : URS
Project : DHCCP
Batch No. : 13J124

Matrix : SOIL
InstrumentID : 70

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CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	NAJ004SB	ND	1	NA	0.5	0.2	10/22/1317:42	10/21/1316:48	13NAJ00410	13NAJ004	NAJ004S	NA	NA
LCS1S	NAJ004SL	5.15	1	NA	0.5	0.2	10/22/1317:43	10/21/1316:48	13NAJ00411	13NAJ004	NAJ004S	NA	NA
LCD1S	NAJ004SC	5.02	1	NA	0.5	0.2	10/22/1317:44	10/21/1316:48	13NAJ00412	13NAJ004	NAJ004S	NA	NA
2B-2	J124-01	0.315J	1	9.4	0.552	0.221	10/22/1317:46	10/21/1316:48	13NAJ00413	13NAJ004	NAJ004S	10/07/1312:00	10/14/13

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EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : SM 4500NO3E

=====

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : NAJ004SB NAJ004SL NAJ004SC
LAB FILE ID : 13NAJ00410 13NAJ00411 13NAJ00412
DATE PREPARED : 10/21/1316:48 10/21/1316:48 10/21/1316:48
DATE ANALYZED : 10/22/1317:42 10/22/1317:43 10/22/1317:44
PREP BATCH : NAJ004S NAJ004S NAJ004S
CALIBRATION REF: 13NAJ004 13NAJ004 13NAJ004

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
NITRATE/NITRITE	ND	5	5.15	103	5	5.02	100	3	80-120	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

METHOD 7196A
HEXAVALENT CHROMIUM

One(1) soil sample was received on 10/14/13 for Chromium Hexavalent analysis, Method 7196A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A Lab Control Sample was analyzed with the samples in this SDG. Percent recovery for CSJ002SL (soluble) was within QC limits. Percent recovery for CIJ002SL (insoluble) was within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for J124-01M (soluble and insoluble) is within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit. Analytical spike was analyzed for matrix interference evaluation. Result was within method acceptance criteria.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

METHOD 7196A
HEXAVALENT CHROMIUM

Client : URS
Project : DHCCP
Batch No. : 13J124

Matrix : SOIL
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	CRJ002SB	ND	1	NA	1	0.5	10/21/1316:04	10/17/1311:07	13CRJ00209	13CRJ002	CRJ002S	NA	NA
LCS1S	CSJ002SL	11.3	1	NA	1	0.5	10/21/1316:05	10/17/1311:07	13CRJ00210	13CRJ002	CRJ002S	NA	NA
LCS2S	CIJ002SL	560	50	NA	50	25	10/21/1316:05	10/17/1311:07	13CRJ00211	13CRJ002	CRJ002S	NA	NA
2B-2	J124-01	ND	1	9.4	1.1	0.552	10/21/1316:05	10/17/1311:07	13CRJ00212	13CRJ002	CRJ002S	10/07/1312:00	10/14/13
2B-2DUP	J124-01D	ND	0.998	9.4	1.1	0.551	10/21/1316:05	10/17/1311:07	13CRJ00213	13CRJ002	CRJ002S	10/07/1312:00	10/14/13
2B-2MS	J124-01M	12.6	1	9.4	1.1	0.552	10/21/1316:05	10/17/1311:07	13CRJ00214	13CRJ002	CRJ002S	10/07/1312:00	10/14/13
2B-2MS	J124-01M	694	49.9	9.4	55.1	27.5	10/21/1316:05	10/17/1311:07	13CRJ00215	13CRJ002	CRJ002S	10/07/1312:00	10/14/13
2B-2AS	J124-01A	12.7	1	9.4	1.1	0.552	10/21/1316:06	10/17/1311:07	13CRJ00216	13CRJ002	CRJ002S	10/07/1312:00	10/14/13

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EMAX QUALITY CONTROL DATA
LCS (SOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : METHOD 7196A

MATRIX : SOIL
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1S LCS1S
LAB SAMPLE ID : CRJ002SB CSJ002SL
LAB FILE ID : 13CRJ00209 13CRJ00210
DATE PREPARED : 10/17/1311:07 10/17/1311:07
DATE ANALYZED : 10/21/1316:04 10/21/1316:05
PREP BATCH : CRJ002S CRJ002S
CALIBRATION REF: 13CRJ002 13CRJ002

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	QC LIMIT (%)
Hexavalent Chromium	ND	12	11.3	94	85-115

EMAX QUALITY CONTROL DATA
LCS (INSOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : METHOD 7196A

=====

MATRIX : SOIL
DILUTION FACTOR: 1 50
SAMPLE ID : MBLK1S LCS2S
LAB SAMPLE ID : CRJ002SB CIJ002SL
LAB FILE ID : 13CRJ00209 13CRJ00211
DATE PREPARED : 10/17/1311:07 10/17/1311:07
DATE ANALYZED : 10/21/1316:04 10/21/1316:05
PREP BATCH : CRJ002S CRJ002S
CALIBRATION REF: 13CRJ002 13CRJ002

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	618	560	91	75-125

EMAX QUALITY CONTROL DATA
MATRIX SPIKE (SOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : METHOD 7196A

=====

MATRIX : SOIL % MOISTURE: 9.4
DILUTION FACTOR: 1 1
SAMPLE ID : 2B-2 2B-2MS
LAB SAMPLE ID : J124-01 J124-01M
LAB FILE ID : 13CRJ00212 13CRJ00214
DATE PREPARED : 10/17/1311:07 10/17/1311:07
DATE ANALYZED : 10/21/1316:05 10/21/1316:05
PREP BATCH : CRJ002S CRJ002S
CALIBRATION REF: 13CRJ002 13CRJ002

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	AS RESULT (mg/kg)	AS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	13.3	12.6	95	85-115

EMAX QUALITY CONTROL DATA
MATRIX SPIKE (INSOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : METHOD 7196A

=====

MATRIX	: SOIL	% MOISTURE:	9.4
DILUTION FACTOR:	1	49.9	
SAMPLE ID	: 2B-2	2B-2MS	
LAB SAMPLE ID	: J124-01	J124-01M	
LAB FILE ID	: 13CRJ00212	13CRJ00215	
DATE PREPARED	: 10/17/1311:07	10/17/1311:07	
DATE ANALYZED	: 10/21/1316:05	10/21/1316:05	
PREP BATCH	: CRJ002S	CRJ002S	
CALIBRATION REF:	13CRJ002	13CRJ002	

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	AS RESULT (mg/kg)	AS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	709	694	98	75-125

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : METHOD 7196A

=====

MATRIX : SOIL % MOISTURE: 9.4
PREPxDIL FACTOR: 1 0.998
SAMPLE ID : 2B-2 2B-2DUP
LAB SAMPLE ID : J124-01 J124-01D
LAB FILE ID : 13CRJ00212 13CRJ00213
DATE PREPARED : 10/17/1311:07 10/17/1311:07
DATE ANALYZED : 10/21/1316:05 10/21/1316:05
PREP BATCH : CRJ002S CRJ002S
CALIBRATION REF: 13CRJ002 13CRJ002

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
-----	-----	-----	-----	-----
Hexavalent Chromium	ND	ND	0	20

EMAX QUALITY CONTROL DATA
POST SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : METHOD 7196A

=====

MATRIX : SOIL % MOISTURE: 9.4
DILUTION FACTOR: 1 1
SAMPLE ID : 2B-2 2B-2
LAB SAMPLE ID : J124-01 J124-01A
LAB FILE ID : 13CRJ00212 13CRJ00216
DATE PREPARED : 10/17/1311:07 10/17/1311:07
DATE ANALYZED : 10/21/1316:05 10/21/1316:06
PREP BATCH : CRJ002S CRJ002S
CALIBRATION REF: 13CRJ002 13CRJ002

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	AS RESULT (mg/kg)	AS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	13.3	12.7	95	85-115

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13J124

WALKLEY-BLACK
TOC BY WALKLEY-BLACK METHOD

One(1) soil sample was received on 10/14/13 for Total Organic Carbon analysis, Method WALKLEY-BLACK in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for WBJ002SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated for this SDG.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

WALKLEY-BLACK
TOC BY WALKLEY-BLACK METHOD

=====
Client : URS
Project : DHCCP
Batch No. : 13J124
=====
Matrix : SOIL
InstrumentID : NA
=====

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	PREP. FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	WBJ002SB	ND	1.00	NA	600	600	10/22/1312:30	10/22/1312:30	13WBJ00201	13WBJ002	WBJ002S	NA	NA
LCS1S	WBJ002SL	2290	1.00	NA	600	600	10/22/1312:31	10/22/1312:31	13WBJ00202	13WBJ002	WBJ002S	NA	NA
LCD1S	WBJ002SC	2290	1.00	NA	600	600	10/22/1312:32	10/22/1312:32	13WBJ00203	13WBJ002	WBJ002S	NA	NA
2B-2	J124-01	2090	1.00	9.4	662	662	10/22/1312:34	10/22/1312:34	13WBJ00204	13WBJ002	WBJ002S	10/07/1312:00	10/14/13

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13J124
METHOD : WALKLEY-BLACK

=====

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : WBJ002SB WBJ002SL WBJ002SC
LAB FILE ID : 13WBJ00201 13WBJ00202 13WBJ00203
DATE EXTRACTED : 10/22/1312:34 10/22/1312:34 10/22/1312:34
DATE ANALYZED : 10/22/1312:30 10/22/1312:31 10/22/1312:32
PREP BATCH : WBJ002S WBJ002S WBJ002S
CALIBRATION REF: 13WBJ002 13WBJ002 13WBJ002

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	2000	2290	114	2000	2290	114	0	80-120	20



November 7, 2013

Analytical Report for Service Request No: K1311280

Caspar Pang
Emax Laboratories, Incorporated
1835 W. 205th St.
Torrance, CA 90501

RE: DHCCP/13J124

Dear Caspar:

Enclosed are the results of the samples submitted to our laboratory on October 17, 2013. For your reference, these analyses have been assigned our service request number K1311280.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3364. You may also contact me via Email at Howard.Holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Howard Holmes
Project Manager

HH/mj

Page 1 of _____

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier See case narrative
- # The control limit criteria is not applicable See case narrative
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards
- E The result is an estimate amount because the value exceeded the instrument calibration range
- J The result is an estimated value
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project The detection limit is adjusted for dilution
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference
- X See case narrative
- Q See case narrative One or more quality control criteria was outside the limits
- H The holding time for this test is immediately following sample collection The samples were analyzed as soon as possible after receipt by the laboratory

Metals Data Qualifiers

- # The control limit criteria is not applicable See case narrative
- J The result is an estimated value
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample
- M The duplicate injection precision was not met
- N The Matrix Spike sample recovery is not within control limits See case narrative
- S The reported value was determined by the Method of Standard Additions (MSA)
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project The detection limit is adjusted for dilution
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference
- X See case narrative
- + The correlation coefficient for the MSA is less than 0.995
- Q See case narrative One or more quality control criteria was outside the limits

Organic Data Qualifiers

- * The result is an outlier See case narrative
- # The control limit criteria is not applicable See case narrative
- A A tentatively identified compound, a suspected aldol-condensation product
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data
- D The reported result is from a dilution
- E The result is an estimated value
- J The result is an estimated value
- N The result is presumptive The analyte was tentatively identified, but a confirmation analysis was not performed
- P The GC or HPLC confirmation criteria was exceeded The relative percent difference is greater than 40% between the two analytical results
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project The detection limit is adjusted for dilution
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference
- X See case narrative
- Q See case narrative One or more quality control criteria was outside the limits

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard
- Z The chromatographic fingerprint does not resemble a petroleum product

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjllabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

ALS ENVIRONMENTAL

Client: Emax Laboratories
Project: DHCCP
Sample Matrix: Soil

Service Request No.: K1311280
Date Received: 10/17/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix Spike (MS), and Laboratory Control Sample (LCS).

Sample Receipt

One soil sample was received for analysis at ALS Environmental on 10/17/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Methyl Mercury by EPA 1630M

No anomalies associated with this analysis were observed.

Organotin Compounds**Matrix Spike Recovery Exceptions:**

The control criteria for matrix spike recovery of all analytes for sample batch QC were not applicable. The Batch QC contained a high level on non-target background interferences. The batch QC was not reported due to any reanalysis requiring a dilution such that the added spike concentration was diluted below the reporting limit. No further corrective action was required.

No other anomalies associated with this analysis were observed.

Approved by _____



Tel#: 310-618-8889 FAX#: 310-618-0818
email: info@emaxlabs.com

EMAX CONTROL NO	13J124
PROJECT CODE	URS1311
TURN-AROUND-TIME	STANDARD

SEND REPORT TO:
EMAX LABORATORIES, INC.
1835 W. 205TH ST. CA 90501

CLIENT: URS
PROJECT: DHCCP

SEND SAMPLES TO:

14 Day

ALS
1317 S. 13th Avenue
Kelso, WA 98626
Attn: Howard Holmes.

ATTN: Caspar

EMAX Sample ID	Client Sample ID	Collection Date	Collection Time	Matrix	Method		COMMENTS
J124-01	2B-2	10/7/2013	12:00:00 PM	SOIL	EPA 1630M	Methyl Mercury by 1630M	
J124-01	2B-2	10/7/2013	12:00:00 PM	SOIL	GC-FPD(b)	Tributyl tin(mono-, di-, and trib	

INSTRUCTION: Please log-in using client sample ID.
Level II with standard EDD.

COOLER TEMPERATURE

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<i>Caspar</i>	10/16/13	15:30	David ALS Kelso	10/17/13	09:40



543

DWR-207

PC H2

Cooler Receipt and Preservation Form

Client / Project: Fmax Service Request K13 11280Received: October 17, 13 Opened: 10/17 By: SD Unloaded: 10/17 By: SD

1. Samples were received via? Mail Fed Ex UPS DHL PDX Courier Hand Delivered
2. Samples were received in: (circle) Cooler Box Envelope Other NA
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1-Front
- If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
<u>-0.3</u>	<u>-0.3</u>	<u>1.3</u>	<u>1.3</u>	<u>0.0</u>	<u>333</u>	<u>NA</u>	<u>10919 4917 4393</u>		

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs (Wet Ice) Dry Ice Sleeves
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP
Sample Matrix: Soil

Service Request: K1311280

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
2B-2	K1311280-001	10/07/2013	10/17/2013	10/29/2013	90.1	

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
Sample Matrix: Soil

Service Request: K1311280
Date Collected: 10/07/2013
Date Received: 10/17/2013
Date Analyzed: 10/29/2013

Duplicate Sample Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
2B-2	K1311280-001	90.1	90.4	90.3	<1	

ALS Group USA, Corp.

dba ALS Environmental

Analytical Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
Sample Matrix: Soil

Service Request: K1311280
Date Collected: 10/07/13
Date Received: 10/17/13

Methyl Mercury

Prep Method: ALS SOP
Analysis Method: ALS SOP
Test Notes:

Units: ng/g
Basis: Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2B-2	K1311280-001	0.4	0.04	1	10/22/13	10/23/13	ND	
Method Blank 1	K1311280-MB1	0.4	0.04	1	10/22/13	10/23/13	ND	
Method Blank 2	K1311280-MB2	0.4	0.04	1	10/22/13	10/23/13	ND	
Method Blank 3	K1311280-MB3	0.4	0.04	1	10/22/13	10/23/13	ND	

ALS Group USA, Corp.
dba ALS Environmental
 QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
Sample Matrix: Soil

Service Request: K1311280
Date Collected: 10/07/13
Date Received: 10/17/13
Date Extracted: 10/22/13
Date Analyzed: 10/23/13

Matrix Spike/Duplicate Matrix Spike Summary
 Metals

Sample Name: 2B-2 Units: ng/g
 Lab Code: K1311280-001MS, K1311280-001MSD Basis: Dry
 Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Spike Level		Sample Result	Spike Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
									MS	DMS			
Methyl Mercury	CAS SOP	CAS SOP	0.4	107	111	ND	103	93.5	96	84	65-135	10	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
LCS Matrix: Water

Service Request: K1311280
Date Collected: NA
Date Received: NA
Date Extracted: 10/22/13
Date Analyzed: 10/23/13

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: pg
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Methyl Mercury	CAS SOP	CAS SOP	100	95.1	95	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
LCS Matrix: Water

Service Request: K1311280
Date Collected: NA
Date Received: NA
Date Extracted: 10/22/13
Date Analyzed: 10/23/13

Ongoing Precision and Recovery (OPR) Sample Summary
Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: pg
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Methyl Mercury	CAS SOP	CAS SOP	100	69.5	70	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
LCS Matrix: Soil

Service Request: K1311280
Date Collected: NA
Date Received: NA
Date Extracted: 10/22/13
Date Analyzed: 10/23/13

Quality Control Sample (QCS) Summary
Total Metals

Sample Name: Quality Control Sample

Units: ng/g
Basis: Dry

Source: ERM - CC580 Estuarine Sediment

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Methyl Mercury	CAS SOP	CAS SOP	75.0	59.9	80	67-133	

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J124
Sample Matrix: Soil

Service Request: K1311280
Date Collected: 10/07/2013
Date Received: 10/17/2013

Butyltins (as cation)

Sample Name: 2B-2
Lab Code: K1311280-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.1	0.49	1	10/21/13	11/05/13	KWG1311893	
Tri-n-butyltin Cation	ND	U	1.1	0.48	1	10/21/13	11/05/13	KWG1311893	
Di-n-butyltin Cation	ND	U	1.1	0.21	1	10/21/13	11/05/13	KWG1311893	
n-Butyltin Cation	0.33	J	1.1	0.29	1	10/21/13	11/05/13	KWG1311893	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	96	10-120	11/05/13	Acceptable

Comments: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J124
Sample Matrix: Soil

Service Request: K1311280
Date Collected: NA
Date Received: NA

Butyltins (as cation)

Sample Name: Method Blank
Lab Code: KWG1311893-4
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.98	0.44	1	10/21/13	11/05/13	KWG1311893	
Tri-n-butyltin Cation	2.1		0.98	0.43	1	10/21/13	11/05/13	KWG1311893	
Di-n-butyltin Cation	ND	U	0.98	0.19	1	10/21/13	11/05/13	KWG1311893	
n-Butyltin Cation	ND	U	0.98	0.26	1	10/21/13	11/05/13	KWG1311893	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	77	10-120	11/05/13	Acceptable

Comments: _____

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J124
Sample Matrix: Soil

Service Request: K1311280

Surrogate Recovery Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: Percent
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
2B-2	K1311280-001	96
Method Blank	KWG1311893-4	77
Lab Control Sample	KWG1311893-3	66

Surrogate Recovery Control Limits (%)

Sur1 = Tri-n-propyltin 10-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13J124
Sample Matrix: Soil

Service Request: K1311280
Date Extracted: 10/21/2013
Date Analyzed: 11/05/2013

Lab Control Spike Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1311893

Lab Control Sample
KWG1311893-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Tetra-n-butyltin	14.9	25.0	60	19-130
Tri-n-butyltin Cation	19.6	22.2	88	10-122
Di-n-butyltin Cation	12.7	19.2	66	12-136
n-Butyltin Cation	13.8	15.6	89	10-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

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CLIENT: URS

PROJECT: DHCCP

SDG: 13K014

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LABORATORIES, INC.

1835 W. 205th Street

Torrance, CA 90501

Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 11-22-2013

EMAX Batch No.: 13K014

ATTN: Rob Nixon

URS

2870 Gateway Oak #300

Sacramento, CA 95833

Subject: Laboratory Report

Project: DHCCP

Enclosed is the Laboratory report for samples received on 11/05/13.

The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
3B-2	K014-01	11/04/13	SOIL	MOISTURE CONTENT DETERMINATION TPH-GASOLINE TPH DIESEL METALS DI-WET METALS CAM MERCURY PAH BY 8270C SIM PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS BY GCMS CHROMIUM HEXVALENT CHLORINATED HERBICIDES TRIBUTYL TIN(MONO-, DI-, AND TRIB MERCURY BY DI WET METHYL MERCURY BY 1630M TOTAL ORGANIC CARBON AMMONIA-N BY SM4500-NH3 F NITRATE/NITRITE AS N
3D-2	K014-02	11/04/13	SOIL	MOISTURE CONTENT DETERMINATION

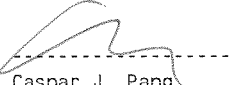
Sample ID	Control #	Col Date	Matrix	Analysis
				TPH-GASOLINE TPH DIESEL METALS DI-WET METALS CAM MERCURY PAH BY 8270C SIM PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS BY GCMS CHROMIUM HEXAVALENT CHLORINATED HERBICIDES TRIBUTYL TIN(MONO-, DI-, AND TRIB MERCURY BY DI WET METHYL MERCURY BY 1630M TOTAL ORGANIC CARBON AMMONIA-N BY SM4500-NH3 F NITRATE/NITRITE AS N
CC-2	K014-03	11/04/13	SOIL	MOISTURE CONTENT DETERMINATION TPH-GASOLINE TPH DIESEL METALS DI-WET METALS CAM MERCURY PAH BY 8270C SIM PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS BY GCMS CHROMIUM HEXAVALENT CHLORINATED HERBICIDES TRIBUTYL TIN(MONO-, DI-, AND TRIB MERCURY BY DI WET METHYL MERCURY BY 1630M TOTAL ORGANIC CARBON AMMONIA-N BY SM4500-NH3 F NITRATE/NITRITE AS N

Methods Methyl Mercury and Tributyl Tin were analyzed by ALS Lab.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,


Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all NELAC & DOD requirements unless noted in the Case Narrative.

NELAC Accredited Certificate Number 02116CA
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing



REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

CASE NARRATIVE

Client : URS

Project : DHCCP

SDG : 13K014

A total of three (3) soil samples were received on 11/05/13 for various analyses.

Sample Receipt Notes:

Samples received at room temperature without thermal preservation, outside of method recommendations. Analyses proceeded based on client instructions. See Sample Receipt Form (SRF) for details.

Analytical Notes:

See each method for details.

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

SDG#: 13K014

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

A total of three (3) soil samples were received on 11/05/13 for Semivolatile Organics by GCMS analysis, Method 3550B/8270C in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Instrument mass ratios as well as DDT breakdown were evaluated. Results were within acceptance criteria. ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for SVK009SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Recoveries of 2-Fluorophenol, Phenol-d5 and 2,4,6-Tribromophenol for sample K014-01 were biased low. The sample was re-extracted and re-analyzed, and the result was confirmed. Only the initial result was reported. Surrogate recoveries of other samples were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

Sample K014-03 was analyzed at dilution due to coloration in extract and to reduce possible matrix interference.

LAB CHRONICLE
SEMI VOLATILE ORGANICS BY GC/MS

Client : URS
Project : DHCCP

SDG NO. : 13K014
Instrument ID : E7

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	SVK009SB	1	NA	11/06/1314:54	11/06/1310:50	RKH107	RJH024	SVK009S	Method Blank
LCS1S	SVK009SL	1	NA	11/06/1315:13	11/06/1310:50	RKH108	RJH024	SVK009S	Lab Control Sample (LCS)
LCD1S	SVK009SC	1	NA	11/06/1315:32	11/06/1310:50	RKH109	RJH024	SVK009S	LCS Duplicate
3B-2	K014-01	1	22.5	11/06/1318:44	11/06/1310:50	RKH119	RJH024	SVK009S	Field Sample
3D-2	K014-02	1	12.0	11/06/1319:03	11/06/1310:50	RKH120	RJH024	SVK009S	Field Sample
CC-2	K014-03	2	16.0	11/06/1319:22	11/06/1310:50	RKH121	RJH024	SVK009S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : URS
Project      : DHCCP
Batch No.    : 13K014
Sample ID    : 3B-2
Lab Samp ID  : K014-01
Lab File ID  : RKH119
Ext Btch ID  : SVK009S
Calib. Ref.  : RJH024

Date Collected: 11/04/13
Date Received:  11/05/13
Date Extracted: 11/06/13 10:50
Date Analyzed:  11/06/13 18:44
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : 22.5
Instrument ID : T-OE7
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
1,2,4-TRICHLOROBENZENE	ND	430	220	
1,2-DICHLOROBENZENE	ND	430	220	
1,3-DICHLOROBENZENE	ND	430	220	
1,4-DICHLOROBENZENE	ND	430	220	
2,4,5-TRICHLOROPHENOL	ND	430	220	
2,4,6-TRICHLOROPHENOL	ND	430	220	
2,4-DICHLOROPHENOL	ND	430	220	
2,4-DIMETHYLPHENOL	ND	430	220	
2,4-DINITROPHENOL	ND	860	220	
2,4-DINITROTOLUENE	ND	430	220	
2,6-DINITROTOLUENE	ND	430	220	
2-CHLORONAPHTHALENE	ND	430	220	
2-CHLOROPHENOL	ND	430	220	
2-METHYLNAPHTHALENE	ND	430	220	
2-METHYLPHENOL	ND	430	220	
2-NITROANILINE	ND	430	220	
2-NITROPHENOL	ND	430	220	
3,3'-DICHLOROBENZIDINE	ND	430	220	
3-NITROANILINE	ND	430	220	
4,6-DINITRO-2-METHYLPHENOL	ND	860	220	
4-BROMOPHENYL-PHENYL ETHER	ND	430	220	
4-CHLORO-3-METHYLPHENOL	ND	430	220	
4-CHLOROANILINE	ND	430	220	
4-CHLOROPHENYL-PHENYL ETHER	ND	430	220	
4-METHYLPHENOL (1)	ND	430	220	
4-NITROANILINE	ND	430	220	
4-NITROPHENOL	ND	860	220	
ACENAPHTHENE	ND	430	220	
ACENAPHTHYLENE	ND	430	220	
ANTHRACENE	ND	430	220	
BENZO(A)ANTHRACENE	ND	430	220	
BENZO(A)PYRENE	ND	430	220	
BENZO(B)FLUORANTHENE	ND	430	220	
BENZO(K)FLUORANTHENE	ND	430	220	
BENZO(G,H,I)PERYLENE	ND	430	220	
BIS(2-CHLOROETHOXY)METHANE	ND	430	220	
BIS(2-CHLOROETHYL)ETHER	ND	430	220	
BIS(2-CHLOROISOPROPYL)ETHER	ND	430	220	
BIS(2-ETHYLHEXYL)PHTHALATE	ND	430	220	
BUTYLBENZYLPHTHALATE	ND	430	220	
CHRYSENE	ND	430	220	
DI-N-BUTYLPHTHALATE	ND	430	220	
DI-N-OCTYLPHTHALATE	ND	430	220	
DIBENZO(A,H)ANTHRACENE	ND	430	220	
DIBENZOFURAN	ND	430	220	
DIETHYLPHTHALATE	ND	430	220	
DIMETHYLPHTHALATE	ND	430	220	
FLUORANTHENE	ND	430	220	
FLUORENE	ND	430	220	
HEXACHLOROBENZENE	ND	430	220	
HEXACHLOROBUTADIENE	ND	430	220	
HEXACHLOROCYCLOPENTADIENE	ND	430	220	
HEXACHLOROETHANE	ND	430	220	
INDENO(1,2,3-CD)PYRENE	ND	430	220	
ISOPHORONE	ND	430	220	
N-NITROSO-DI-N-PROPYLAMINE	ND	430	220	
N-NITROSODIPHENYLAMINE (2)	ND	430	220	
NAPHTHALENE	ND	430	220	
NITROBENZENE	ND	430	220	
PENTACHLOROPHENOL	ND	860	220	
PHENANTHRENE	ND	430	220	
PHENOL	ND	430	220	
PYRENE	ND	430	220	
SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	47.6	2581	1.84*	40-130
2-FLUOROBIPHENYL	494	860.3	57.5	40-130
2-FLUOROPHENOL	139	2581	5.39*	30-130
NITROBENZENE-D5	466	860.3	54.1	30-130
PHENOL-D5	827	2581	32.0*	40-130
TERPHENYL-D14	720	860.3	83.7	60-130

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : URS
Project      : DHCCP
Batch No.    : 13K014
Sample ID    : 3D-2
Lab Samp ID  : K014-02
Lab File ID  : RKH120
Ext Btch ID  : SVK009S
Calib. Ref.  : RJH024
Date Collected: 11/04/13
Date Received: 11/05/13
Date Extracted: 11/06/13 10:50
Date Analyzed: 11/06/13 19:03
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : 12.0
Instrument ID : T-OE7
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	380	190
1,2-DICHLOROBENZENE	ND	380	190
1,3-DICHLOROBENZENE	ND	380	190
1,4-DICHLOROBENZENE	ND	380	190
2,4,5-TRICHLOROPHENOL	ND	380	190
2,4,6-TRICHLOROPHENOL	ND	380	190
2,4-DICHLOROPHENOL	ND	380	190
2,4-DIMETHYLPHENOL	ND	380	190
2,4-DINITROPHENOL	ND	760	190
2,4-DINITROTOLUENE	ND	380	190
2,6-DINITROTOLUENE	ND	380	190
2-CHLORONAPHTHALENE	ND	380	190
2-CHLOROPHENOL	ND	380	190
2-METHYLNAPHTHALENE	ND	380	190
2-METHYLPHENOL	ND	380	190
2-NITROANILINE	ND	380	190
2-NITROPHENOL	ND	380	190
3,3'-DICHLOROBENZIDINE	ND	380	190
3-NITROANILINE	ND	380	190
4,6-DINITRO-2-METHYLPHENOL	ND	760	190
4-BROMOPHENYL-PHENYL ETHER	ND	380	190
4-CHLORO-3-METHYLPHENOL	ND	380	190
4-CHLOROANILINE	ND	380	190
4-CHLOROPHENYL-PHENYL ETHER	ND	380	190
4-METHYLPHENOL (1)	ND	380	190
4-NITROANILINE	ND	380	190
4-NITROPHENOL	ND	760	190
ACENAPHTHENE	ND	380	190
ACENAPHTHYLENE	ND	380	190
ANTHRACENE	ND	380	190
BENZO(A)ANTHRACENE	ND	380	190
BENZO(A)PYRENE	ND	380	190
BENZO(B)FLUORANTHENE	ND	380	190
BENZO(K)FLUORANTHENE	ND	380	190
BENZO(G,H,I)PERYLENE	ND	380	190
BIS(2-CHLOROETHOXY)METHANE	ND	380	190
BIS(2-CHLOROETHYL)ETHER	ND	380	190
BIS(2-CHLOROISOPROPYL)ETHER	ND	380	190
BIS(2-ETHYLHEXYL)PHTHALATE	ND	380	190
BUTYLBENZYLPHTHALATE	ND	380	190
CHRYSENE	ND	380	190
DI-N-BUTYLPHTHALATE	ND	380	190
DI-N-OCTYLPHTHALATE	ND	380	190
DIBENZO(A,H)ANTHRACENE	ND	380	190
DIBENZOFURAN	ND	380	190
DIETHYLPHTHALATE	ND	380	190
DIMETHYLPHTHALATE	ND	380	190
FLUORANTHENE	ND	380	190
FLUORENE	ND	380	190
HEXACHLOROBENZENE	ND	380	190
HEXACHLOROBUTADIENE	ND	380	190
HEXACHLOROCYCLOPENTADIENE	ND	380	190
HEXACHLOROETHANE	ND	380	190
INDENO(1,2,3-CD)PYRENE	ND	380	190
ISOPHORONE	ND	380	190
N-NITROSO-DI-N-PROPYLAMINE	ND	380	190
N-NITROSODIPHENYLAMINE (2)	ND	380	190
NAPHTHALENE	ND	380	190
NITROBENZENE	ND	380	190
PENTACHLOROPHENOL	ND	760	190
PHENANTHRENE	ND	380	190
PHENOL	ND	380	190
PYRENE	ND	380	190

SURROGATE PARAMETERS	RESULTS	SPK AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	2050	2273	90.3	40-130
2-FLUOROBIPHENYL	464	757.6	61.3	40-130
2-FLUOROPHENOL	1480	2273	65.3	30-130
NITROBENZENE-D5	429	757.6	56.6	30-130
PHENOL-D5	1680	2273	74.1	40-130
TERPHENYL-D14	706	757.6	93.2	60-130

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : URS
Project      : DHCCP
Batch No.    : 13K014
Sample ID    : CC-2
Lab Samp ID  : K014-03
Lab File ID  : RKH121
Ext Btch ID  : SVK009S
Calib. Ref.  : RJH024
Date Collected: 11/04/13
Date Received: 11/05/13
Date Extracted: 11/06/13 10:50
Date Analyzed: 11/06/13 19:22
Dilution Factor: 2
Matrix       : SOIL
% Moisture   : 16.0
Instrument ID : T-OE7
=====

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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	790	400
1,2-DICHLOROBENZENE	ND	790	400
1,3-DICHLOROBENZENE	ND	790	400
1,4-DICHLOROBENZENE	ND	790	400
2,4,5-TRICHLOROPHENOL	ND	790	400
2,4,6-TRICHLOROPHENOL	ND	790	400
2,4-DICHLOROPHENOL	ND	790	400
2,4-DIMETHYLPHENOL	ND	790	400
2,4-DINITROPHENOL	ND	1600	400
2,4-DINITROTOLUENE	ND	790	400
2,6-DINITROTOLUENE	ND	790	400
2-CHLORONAPHTHALENE	ND	790	400
2-CHLOROPHENOL	ND	790	400
2-METHYLNAPHTHALENE	ND	790	400
2-METHYLPHENOL	ND	790	400
2-NITROANILINE	ND	790	400
2-NITROPHENOL	ND	790	400
3,3'-DICHLOROBENZIDINE	ND	790	400
3-NITROANILINE	ND	790	400
4,6-DINITRO-2-METHYLPHENOL	ND	1600	400
4-BROMOPHENYL-PHENYL ETHER	ND	790	400
4-CHLORO-3-METHYLPHENOL	ND	790	400
4-CHLOROANILINE	ND	790	400
4-CHLOROPHENYL-PHENYL ETHER	ND	790	400
4-METHYLPHENOL (1)	ND	790	400
4-NITROANILINE	ND	790	400
4-NITROPHENOL	ND	1600	400
ACENAPHTHENE	ND	790	400
ACENAPHTHYLENE	ND	790	400
ANTHRACENE	ND	790	400
BENZO(A)ANTHRACENE	ND	790	400
BENZO(A)PYRENE	ND	790	400
BENZO(B)FLUORANTHENE	ND	790	400
BENZO(K)FLUORANTHENE	ND	790	400
BENZO(G,H,I)PERYLENE	ND	790	400
BIS(2-CHLOROETHOXY)METHANE	ND	790	400
BIS(2-CHLOROETHYL)ETHER	ND	790	400
BIS(2-CHLOROISOPROPYL)ETHER	ND	790	400
BIS(2-ETHYLHEXYL)PHTHALATE	ND	790	400
BUTYLBENZYLPHTHALATE	ND	790	400
CHRYSENE	ND	790	400
DI-N-BUTYLPHTHALATE	ND	790	400
DI-N-OCTYLPHTHALATE	ND	790	400
DIBENZO(A,H)ANTHRACENE	ND	790	400
DIBENZOFURAN	ND	790	400
DIETHYLPHTHALATE	ND	790	400
DIMETHYLPHTHALATE	ND	790	400
FLUORANTHENE	ND	790	400
FLUORENE	ND	790	400
HEXACHLOROBENZENE	ND	790	400
HEXACHLOROBUTADIENE	ND	790	400
HEXACHLOROCYCLOPENTADIENE	ND	790	400
HEXACHLOROETHANE	ND	790	400
INDENO(1,2,3-CD)PYRENE	ND	790	400
ISOPHORONE	ND	790	400
N-NITROSO-DI-N-PROPYLAMINE	ND	790	400
N-NITROSODIPHENYLAMINE (2)	ND	790	400
NAPHTHALENE	ND	790	400
NITROBENZENE	ND	790	400
PENTACHLOROPHENOL	ND	1600	400
PHENANTHRENE	ND	790	400
PHENOL	ND	790	400
PYRENE	ND	790	400

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	2100	2381	88.0	40-130
2-FLUOROBIPHENYL	559	793.7	70.5	40-130
2-FLUOROPHENOL	1790	2381	75.4	30-130
NITROBENZENE-D5	532	793.7	67.0	30-130
PHENOL-D5	1910	2381	80.4	40-130
TERPHENYL-D14	669	793.7	84.3	60-130

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

QC SUMMARIES

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : URS
Project      : DHCCP
Batch No.    : 13K014
Sample ID    : MBLK1S
Lab Samp ID  : SVK009SB
Lab File ID  : RKH107
Ext Btch ID  : SVK009S
Calib. Ref.  : RJH024
Date Collected: NA
Date Received: 11/06/13
Date Extracted: 11/06/13 10:50
Date Analyzed: 11/06/13 14:54
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : NA
Instrument ID : T-OE7
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
1,2,4-TRICHLOROBENZENE	ND	330	170	
1,2-DICHLOROBENZENE	ND	330	170	
1,3-DICHLOROBENZENE	ND	330	170	
1,4-DICHLOROBENZENE	ND	330	170	
2,4,5-TRICHLOROPHENOL	ND	330	170	
2,4,6-TRICHLOROPHENOL	ND	330	170	
2,4-DICHLOROPHENOL	ND	330	170	
2,4-DIMETHYLPHENOL	ND	330	170	
2,4-DINITROPHENOL	ND	670	170	
2,4-DINITROTOLUENE	ND	330	170	
2,6-DINITROTOLUENE	ND	330	170	
2-CHLORONAPHTHALENE	ND	330	170	
2-CHLOROPHENOL	ND	330	170	
2-METHYLNAPHTHALENE	ND	330	170	
2-METHYLPHENOL	ND	330	170	
2-NITROANILINE	ND	330	170	
2-NITROPHENOL	ND	330	170	
3,3'-DICHLOROBENZIDINE	ND	330	170	
3-NITROANILINE	ND	330	170	
4,6-DINITRO-2-METHYLPHENOL	ND	670	170	
4-BROMOPHENYL-PHENYL ETHER	ND	330	170	
4-CHLORO-3-METHYLPHENOL	ND	330	170	
4-CHLOROANILINE	ND	330	170	
4-CHLOROPHENYL-PHENYL ETHER	ND	330	170	
4-METHYLPHENOL (1)	ND	330	170	
4-NITROANILINE	ND	330	170	
4-NITROPHENOL	ND	670	170	
ACENAPHTHENE	ND	330	170	
ACENAPHTHYLENE	ND	330	170	
ANTHRACENE	ND	330	170	
BENZO(A)ANTHRACENE	ND	330	170	
BENZO(A)PYRENE	ND	330	170	
BENZO(B)FLUORANTHENE	ND	330	170	
BENZO(K)FLUORANTHENE	ND	330	170	
BENZO(G,H,I)PERYLENE	ND	330	170	
BIS(2-CHLOROETHOXY)METHANE	ND	330	170	
BIS(2-CHLOROETHYL)ETHER	ND	330	170	
BIS(2-CHLOROISOPROPYL)ETHER	ND	330	170	
BIS(2-ETHYLHEXYL)PHTHALATE	ND	330	170	
BUTYLBENZYLPHTHALATE	ND	330	170	
CHRYSENE	ND	330	170	
DI-N-BUTYLPHTHALATE	ND	330	170	
DI-N-OCTYLPHTHALATE	ND	330	170	
DIBENZO(A,H)ANTHRACENE	ND	330	170	
DIBENZOFURAN	ND	330	170	
DIETHYLPHTHALATE	ND	330	170	
DIMETHYLPHTHALATE	ND	330	170	
FLUORANTHENE	ND	330	170	
FLUORENE	ND	330	170	
HEXACHLOROBENZENE	ND	330	170	
HEXACHLOROBUTADIENE	ND	330	170	
HEXACHLOROCYCLOPENTADIENE	ND	330	170	
HEXACHLOROETHANE	ND	330	170	
INDENO(1,2,3-CD)PYRENE	ND	330	170	
ISOPHORONE	ND	330	170	
N-NITROSO-DI-N-PROPYLAMINE	ND	330	170	
N-NITROSODIPHENYLAMINE (2)	ND	330	170	
NAPHTHALENE	ND	330	170	
NITROBENZENE	ND	330	170	
PENTACHLOROPHENOL	ND	670	170	
PHENANTHRENE	ND	330	170	
PHENOL	ND	330	170	
PYRENE	ND	330	170	
SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	1630	2000	81.5	30-140
2-FLUOROBIPHENYL	503	666.7	75.5	30-130
2-FLUOROPHENOL	1570	2000	78.3	40-130
NITROBENZENE-D5	473	666.7	70.9	40-130
PHENOL-D5	1680	2000	83.8	40-130
TERPHENYL-D14	608	666.7	91.1	40-140

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13K014
METHOD: METHOD 3550B/8270C

MATRIX: SOIL
DILUTION FACTOR: 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: SVK009SL SVK009SC
LAB FILE ID: RKH107 RKH108 RKH109
DATE EXTRACTED: 11/06/1310:50 11/06/1310:50 11/06/1310:50 DATE COLLECTED: NA
DATE ANALYZED: 11/06/1314:54 11/06/1315:13 11/06/1315:32 DATE RECEIVED: 11/06/13
PREP. BATCH: SVK009S SVK009S SVK009S
CALIB. REF: RJH024 RJH024 RJH024

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,2,4-Trichlorobenzene	ND	1330	1160	87	1330	1170	88	1	40-130	50
1,2-Dichlorobenzene	ND	1330	1100	83	1330	1130	85	3	50-130	50
1,3-Dichlorobenzene	ND	1330	1090	81	1330	1130	84	3	50-130	50
1,4-Dichlorobenzene	ND	1330	1110	84	1330	1110	83	0	40-130	50
2,4,5-Trichlorophenol	ND	1330	1260	95	1330	1270	95	0	40-130	50
2,4,6-Trichlorophenol	ND	1330	970	73	1330	977	73	1	40-130	50
2,4-Dichlorophenol	ND	1330	1100	82	1330	1080	81	2	50-130	50
2,4-Dimethylphenol	ND	1330	1160	87	1330	1140	85	2	50-130	50
2,4-Dinitrophenol	ND	1330	904	68	1330	905	68	0	20-130	50
2,4-Dinitrotoluene	ND	1330	1480	111	1330	1380	103	8	50-140	50
2,6-Dinitrotoluene	ND	1330	1320	99	1330	1270	95	4	40-130	50
2-Chloronaphthalene	ND	1330	1180	89	1330	1170	88	1	50-130	50
2-Chlorophenol	ND	1330	1040	78	1330	1030	77	1	40-130	50
2-Methylnaphthalene	ND	1330	1040	78	1330	1020	76	2	50-130	50
2-Methylphenol	ND	1330	1080	81	1330	1030	77	5	40-130	50
2-Nitroaniline	ND	1330	1310	98	1330	1270	96	3	40-130	50
2-Nitrophenol	ND	1330	1100	82	1330	1090	82	1	50-130	50
3,3'-Dichlorobenzidine	ND	1330	1300	98	1330	1220	91	7	40-130	50
3-Nitroaniline	ND	1330	1300	97	1330	1250	93	4	40-130	50
4,6-Dinitro-2-Methylphenol	ND	1330	1320	99	1330	1240	93	6	30-130	50
4-Bromophenyl-phenyl ether	ND	1330	1120	84	1330	1100	82	2	40-130	50
4-Chloro-3-Methylphenol	ND	1330	1240	93	1330	1200	90	4	50-130	50
4-Chloroaniline	ND	1330	1050	79	1330	1010	76	4	40-130	50
4-Chlorophenyl-phenyl ether	ND	1330	1200	90	1330	1180	88	2	50-130	50
4-Methylphenol	ND	1330	1100	82	1330	1090	81	1	50-130	50
4-Nitroaniline	ND	1330	1470	110	1330	1510	113	3	50-130	50
4-Nitrophenol	ND	1330	1510	113	1330	1420	107	6	30-130	50
Acenaphthene	ND	1330	1140	85	1330	1100	83	3	50-130	50
Acenaphthylene	ND	1330	1200	90	1330	1170	88	3	40-130	50
Anthracene	ND	1330	1240	93	1330	1190	89	4	40-130	50
Benzo(a)anthracene	ND	1330	1260	94	1330	1200	90	5	50-130	50
Benzo(a)pyrene	ND	1330	1270	96	1330	1200	90	6	50-130	50
Benzo(b)fluoranthene	ND	1330	1300	98	1330	1230	93	5	50-130	50
Benzo(k)fluoranthene	ND	1330	1290	97	1330	1240	93	4	50-130	50
Benzo(g,h,i)perylene	ND	1330	1280	96	1330	1220	92	5	50-130	50
bis(2-Chloroethoxy)methane	ND	1330	1080	81	1330	1110	83	3	50-130	50
bis(2-Chloroethyl)ether	ND	1330	1030	77	1330	1040	78	0	50-130	50
bis(2-Chloroisopropyl)ether	ND	1330	983	74	1330	975	73	1	40-130	50
bis(2-Ethylhexyl)phthalate	ND	1330	1290	97	1330	1260	95	2	50-130	50
Butylbenzylphthalate	ND	1330	1340	101	1330	1310	98	2	50-130	50
Chrysene	ND	1330	1260	94	1330	1170	88	7	50-130	50
Di-n-butylphthalate	ND	1330	1310	98	1330	1290	97	2	50-130	50
Di-n-octylphthalate	ND	1330	1380	104	1330	1380	103	0	40-140	50
Dibenzo(a,h)anthracene	ND	1330	1290	97	1330	1240	93	4	50-130	50
Dibenzofuran	ND	1330	1270	95	1330	1230	93	3	40-130	50
Diethylphthalate	ND	1330	1380	103	1330	1290	97	6	50-130	50
Dimethylphthalate	ND	1330	1330	100	1330	1260	94	6	50-130	50
Fluoranthene	ND	1330	1340	100	1330	1260	94	6	50-130	50
Fluorene	ND	1330	1240	93	1330	1190	89	4	50-130	50
Hexachlorobenzene	ND	1330	1080	81	1330	1030	77	4	40-130	50
Hexachlorobutadiene	ND	1330	1200	90	1330	1240	93	4	40-130	50
Hexachlorocyclopentadiene	ND	1330	856	64	1330	889	67	4	20-130	50
Hexachloroethane	ND	1330	1130	85	1330	1140	86	1	50-130	50
Indeno(1,2,3-cd)pyrene	ND	1330	1300	98	1330	1230	93	5	50-130	50
Isophorone	ND	1330	1370	103	1330	1340	100	2	50-130	50
n-Nitroso-di-n-propylamine	ND	1330	1110	84	1330	1100	83	1	40-130	50
n-Nitrosodiphenylamine	ND	1330	924	69	1330	874	66	6	30-130	50
Naphthalene	ND	1330	1140	85	1330	1120	84	2	50-130	50
Nitrobenzene	ND	1330	1280	96	1330	1240	93	3	50-130	50
Pentachlorophenol	ND	1330	1090	81	1330	1070	80	1	40-130	50
Phenanthrene	ND	1330	1280	96	1330	1230	92	4	50-130	50
Phenol	ND	1330	1100	83	1330	1060	80	4	50-130	50
Pyrene	ND	1330	1200	90	1330	1170	88	3	50-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2,4,6-Tribromophenol	2000	1750	88	2000	1880	94	30-140
2-Fluorobiphenyl	667	463	69	667	478	72	30-130
2-Fluorophenol	2000	1480	74	2000	1530	76	40-130
Nitrobenzene-d5	667	441	66	667	452	68	40-130
Phenol-d5	2000	1600	80	2000	1610	81	40-130
Terphenyl-d14	667	535	80	667	548	82	40-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8270C SIM
PAH BY GC/MS

SDG#: 13K014

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 3550B/8270C SIM
PAHS BY GC/MS

A total of three (3) soil samples were received on 11/05/13 for PAH BY 8270C SIM analysis, Method 3550B/8270C SIM in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Instrument mass ratios were evaluated and results were within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for SVK009SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
PAHS BY GC/MS

Client : URS
Project : DHCCP

SDG NO. : 13K014
Instrument ID : E7

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	SVK009SB	1	NA	11/06/1314:54	11/06/1310:50	RKH107	RJH024	SVK009S	Method Blank
LCS1S	SVK009SL	1	NA	11/06/1315:13	11/06/1310:50	RKH108	RJH024	SVK009S	Lab Control Sample (LCS)
LCD1S	SVK009SC	1	NA	11/06/1315:32	11/06/1310:50	RKH109	RJH024	SVK009S	LCS Duplicate
3B-2	K014-01	1	22.5	11/06/1318:44	11/06/1310:50	RKH119	RJH024	SVK009S	Field Sample
3D-2	K014-02	1	12.0	11/06/1319:03	11/06/1310:50	RKH120	RJH024	SVK009S	Field Sample
CC-2	K014-03	2	16.0	11/06/1319:22	11/06/1310:50	RKH121	RJH024	SVK009S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8270C SIM
PAHS BY GC/MS

```

=====
Client       : URS                      Date Collected: 11/04/13
Project      : DHCCP                   Date Received: 11/05/13
Batch No.    : 13K014                  Date Extracted: 11/06/13 10:50
Sample ID:   3B-2                      Date Analyzed: 11/06/13 18:44
Lab Samp ID: K014-01                  Dilution Factor: 1
Lab File ID: RKH119                   Matrix          : SOIL
Ext Btch ID: SVK009S                  % Moisture       : 22.5
Calib. Ref.: RJH024                   Instrument ID    : T-OE7
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	13	3.2
ACENAPHTHYLENE	ND	13	3.2
ANTHRACENE	ND	13	3.2
BENZO(A)ANTHRACENE	ND	13	3.2
BENZO(A)PYRENE	ND	13	3.2
BENZO(B)FLUORANTHENE	ND	13	3.2
BENZO(K)FLUORANTHENE	ND	13	3.2
BENZO(G,H,I)PERYLENE	ND	13	3.2
CHRYSENE	ND	13	3.2
DIBENZO(A,H)ANTHRACENE	ND	13	3.2
FLUORANTHENE	ND	13	3.2
FLUORENE	ND	13	3.2
INDENO(1,2,3-CD)PYRENE	ND	13	3.2
NAPHTHALENE	ND	13	3.2
PHENANTHRENE	ND	13	3.2
PYRENE	ND	13	3.2

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	480	860.3	55.8	30-160
NITROBENZENE-D5	509	860.3	59.2	30-160
TERPHENYL-D14	754	860.3	87.6	40-150

METHOD 3550B/8270C SIM
PAHS BY GC/MS

```

=====
Client       : URS                      Date Collected: 11/04/13
Project      : DHCCP                   Date Received: 11/05/13
Batch No.    : 13K014                  Date Extracted: 11/06/13 10:50
Sample ID:   3D-2                      Date Analyzed: 11/06/13 19:03
Lab Samp ID: K014-02                   Dilution Factor: 1
Lab File ID: RKH120                    Matrix       : SOIL
Ext Btch ID: SVK009S                   % Moisture    : 12.0
Calib. Ref.: RJH024                    Instrument ID  : T-OE7
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	11	2.8
ACENAPHTHYLENE	ND	11	2.8
ANTHRACENE	ND	11	2.8
BENZO(A)ANTHRACENE	ND	11	2.8
BENZO(A)PYRENE	ND	11	2.8
BENZO(B)FLUORANTHENE	ND	11	2.8
BENZO(K)FLUORANTHENE	ND	11	2.8
BENZO(G,H,I)PERYLENE	ND	11	2.8
CHRYSENE	ND	11	2.8
DIBENZO(A,H)ANTHRACENE	ND	11	2.8
FLUORANTHENE	ND	11	2.8
FLUORENE	ND	11	2.8
INDENO(1,2,3-CD)PYRENE	ND	11	2.8
NAPHTHALENE	ND	11	2.8
PHENANTHRENE	ND	11	2.8
PYRENE	ND	11	2.8

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	481	757.6	63.5	30-160
NITROBENZENE-D5	487	757.6	64.3	30-160
TERPHENYL-D14	677	757.6	89.3	40-150

METHOD 3550B/8270C SIM
PAHS BY GC/MS

```

=====
Client       : URS                      Date Collected: 11/04/13
Project      : DHCCP                   Date Received: 11/05/13
Batch No.    : 13K014                 Date Extracted: 11/06/13 10:50
Sample ID    : CC-2                   Date Analyzed: 11/06/13 19:22
Lab Samp ID  : K014-03                Dilution Factor: 2
Lab File ID  : RKH121                 Matrix       : SOIL
Ext Btch ID  : SVK009S                % Moisture   : 16.0
Calib. Ref.  : RJH024                Instrument ID : T-OE7
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	24	6.0
ACENAPHTHYLENE	ND	24	6.0
ANTHRACENE	ND	24	6.0
BENZO(A)ANTHRACENE	ND	24	6.0
BENZO(A)PYRENE	ND	24	6.0
BENZO(B)FLUORANTHENE	ND	24	6.0
BENZO(K)FLUORANTHENE	ND	24	6.0
BENZO(G,H,I)PERYLENE	ND	24	6.0
CHRYSENE	ND	24	6.0
DIBENZO(A,H)ANTHRACENE	ND	24	6.0
FLUORANTHENE	ND	24	6.0
FLUORENE	ND	24	6.0
INDENO(1,2,3-CD)PYRENE	ND	24	6.0
NAPHTHALENE	ND	24	6.0
PHENANTHRENE	ND	24	6.0
PYRENE	ND	24	6.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	570	793.7	71.9	30-160
NITROBENZENE-D5	593	793.7	74.7	30-160
TERPHENYL-D14	697	793.7	87.8	40-150

QC SUMMARIES

METHOD 3550B/8270C SIM
PAHS BY GC/MS

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=====
Client       : URS                      Date Collected: NA
Project      : DHCCP                   Date Received: 11/06/13
Batch No.    : 13K014                  Date Extracted: 11/06/13 10:50
Sample ID    : MBLK1S                  Date Analyzed: 11/06/13 14:54
Lab Samp ID  : SVK009SB                Dilution Factor: 1
Lab File ID  : RKH107                  Matrix       : SOIL
Ext Btch ID  : SVK009S                 % Moisture   : NA
Calib. Ref.  : RJH024                  Instrument ID : T-OE7
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	10	2.5
ACENAPHTHYLENE	ND	10	2.5
ANTHRACENE	ND	10	2.5
BENZO(A)ANTHRACENE	ND	10	2.5
BENZO(A)PYRENE	ND	10	2.5
BENZO(B)FLUORANTHENE	ND	10	2.5
BENZO(K)FLUORANTHENE	ND	10	2.5
BENZO(G,H,I)PERYLENE	ND	10	2.5
CHRYSENE	ND	10	2.5
DIBENZO(A,H)ANTHRACENE	ND	10	2.5
FLUORANTHENE	ND	10	2.5
FLUORENE	ND	10	2.5
INDENO(1,2,3-CD)PYRENE	ND	10	2.5
NAPHTHALENE	ND	10	2.5
PHENANTHRENE	ND	10	2.5
PYRENE	ND	10	2.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2-FLUOROBIPHENYL	500	666.7	75.1	30-130
NITROBENZENE-D5	526	666.7	78.8	40-130
TERPHENYL-D14	597	666.7	89.5	40-140

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13K014
METHOD: METHOD 3550B/8270C SIM

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: SVK009SB SVK009SL SVK009SC
LAB FILE ID: RKH107 RKH108 RKH109
DATE EXTRACTED: 11/06/1310:50 11/06/1310:50 11/06/1310:50 DATE COLLECTED: NA
DATE ANALYZED: 11/06/1314:54 11/06/1315:13 11/06/1315:32 DATE RECEIVED: 11/06/13
PREP. BATCH: SVK009S SVK009S SVK009S
CALIB. REF: RJH024 RJH024 RJH024

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Acenaphthene	ND	1330	1290	97	1330	1220	91	6	50-130	50
Acenaphthylene	ND	1330	1350	101	1330	1260	94	7	40-130	50
Anthracene	ND	1330	1180	88	1330	1130	84	5	40-130	50
Benzo(a)anthracene	ND	1330	1450	109	1330	1310	98	10	50-130	50
Benzo(a)pyrene	ND	1330	1310	98	1330	1250	94	5	50-130	50
Benzo(b)fluoranthene	ND	1330	1360	102	1330	1300	97	4	50-130	50
Benzo(k)fluoranthene	ND	1330	1320	99	1330	1260	95	4	50-130	50
Benzo(g,h,i)perylene	ND	1330	1340	101	1330	1280	96	4	50-130	50
Chrysene	ND	1330	1360	102	1330	1230	93	9	50-130	50
Dibenzo(a,h)anthracene	ND	1330	1350	102	1330	1290	97	5	50-130	50
Fluoranthene	ND	1330	1280	96	1330	1200	90	6	50-130	50
Fluorene	ND	1330	1290	97	1330	1190	89	8	50-130	50
Indeno(1,2,3-cd)pyrene	ND	1330	1340	100	1330	1280	96	5	50-130	50
Naphthalene	ND	1330	1150	86	1330	1110	83	4	50-130	50
Phenanthrene	ND	1330	1170	88	1330	1130	85	4	50-130	50
Pyrene	ND	1330	1350	101	1330	1260	94	7	50-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2-Fluorobiphenyl	667	479	72	667	476	71	30-130
Nitrobenzene-d5	667	490	74	667	490	73	40-130
Terphenyl-d14	667	600	90	667	587	88	40-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND
TRAP

SDG#: 13K014

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

A total of three (3) soil samples were received on 11/05/13 for TPH-Gasoline analysis, Method 5030B/8015B in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for GMK002SL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated in this SDG.

Surrogate
Surrogate was added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                                     SDG NO.       : 13K014
Project     : DHCCP                                Instrument ID  : GCT039
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	GMK002SB	1	NA	11/08/1307:43	11/08/1307:43	EK07034A	EK07030A	GMK002S	Method Blank
LCS1S	GMK002SL	1	NA	11/08/1306:25	11/08/1306:25	EK07032A	EK07030A	GMK002S	Lab Control Sample (LCS)
LCD1S	GMK002SC	1	NA	11/08/1307:04	11/08/1307:04	EK07033A	EK07030A	GMK002S	LCS Duplicate
3B-2	K014-01	0.97	22.5	11/08/1308:21	11/08/1308:21	EK07035A	EK07030A	GMK002S	Field Sample
3D-2	K014-02	0.99	12.0	11/08/1309:00	11/08/1309:00	EK07036A	EK07030A	GMK002S	Field Sample
CC-2	K014-03	0.93	16.0	11/08/1309:38	11/08/1309:38	EK07037A	EK07030A	GMK002S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/08/13 08:21
Sample ID   : 3B-2                   Date Analyzed: 11/08/13 08:21
Lab Samp ID : K014-01                Dilution Factor: 0.97
Lab File ID : EK07035A               Matrix          : SOIL
Ext Btch ID : GMK002S                % Moisture       : 22.5
Calib. Ref. : EK07030A               Instrument ID    : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
GASOLINE	ND	1.3	0.63

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	2.01	2.503	80.5	10-160

Parameter	H-C Range
Gasoline	C6-C10

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/08/13 09:00
Sample ID   : 3D-2                   Date Analyzed: 11/08/13 09:00
Lab Samp ID : K014-02                Dilution Factor: 0.99
Lab File ID : EK07036A               Matrix          : SOIL
Ext Btch ID : GMK002S                % Moisture       : 12.0
Calib. Ref. : EK07030A               Instrument ID    : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
GASOLINE	ND	1.1	0.56

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	1.81	2.250	80.4	10-160

Parameter	H-C Range
Gasoline	C6-C10

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/08/13 09:38
Sample ID   : CC-2                   Date Analyzed: 11/08/13 09:38
Lab Samp ID : K014-03                Dilution Factor: 0.93
Lab File ID : EK07037A               Matrix          : SOIL
Ext Btch ID : GMK002S                % Moisture       : 16.0
Calib. Ref. : EK07030A               Instrument ID    : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
GASOLINE	ND	1.1	0.55

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	1.94	2.214	87.8	10-160

Parameter	H-C Range
Gasoline	C6-C10

QC SUMMARIES

METHOD 5030B/8015B

TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```
=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 11/08/13
Batch No.   : 13K014                 Date Extracted: 11/08/13 07:43
Sample ID   : MBLK1S                 Date Analyzed: 11/08/13 07:43
Lab Samp ID : GMK002SB               Dilution Factor: 1
Lab File ID : EK07034A              Matrix       : SOIL
Ext Btch ID : GMK002S              % Moisture    : NA
Calib. Ref. : EK07030A             Instrument ID : GCT039
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
GASOLINE	ND	1.0	0.50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	1.82	2.000	91.2	70-140

Parameter	H-C Range
Gasoline	C6-C10

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13K014
METHOD: METHOD 5030B/8015B

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: GMK002SB GMK002SL GMK002SC
LAB FILE ID: EK07034A EK07032A EK07033A
DATE EXTRACTED: 11/08/1307:43 11/08/1306:25 11/08/1307:04 DATE COLLECTED: NA
DATE ANALYZED: 11/08/1307:43 11/08/1306:25 11/08/1307:04 DATE RECEIVED: 11/08/13
PREP. BATCH: GMK002S GMK002S GMK002S
CALIB. REF: EK07030A EK07030A EK07030A

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Gasoline	ND	25.0	22.3	89	25.0	22.9	92	2	60-130	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Bromofluorobenzene	2.00	2.04	102	2.00	2.06	103	70-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 13K014

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

A total of three (3) soil samples were received on 11/05/13 for TPH Diesel analysis, Method 3550B/8015B in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for DSK003SL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated in this SDG.

Surrogate
Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.
Samples K014-01 and -02 displayed mix hydrocarbons.

LAB CHRONICLE
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      SDG NO.       : 13K014
Project     : DHCCP                   Instrument ID  : GCT105
=====
```

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	SOIL		Sample Data FN	Calibration Prep.		Notes
				Analysis DateTime	Extraction DateTime		Data FN	Batch	
MBLK1S	DSK003SB	1	NA	11/05/1319:39	11/05/1314:55	LK05025A	LK05015A	DSK003S	Method Blank
LCS1S	DSK003SL	1	NA	11/05/1319:05	11/05/1314:55	LK05023A	LK05015A	DSK003S	Lab Control Sample (LCS)
LCD1S	DSK003SC	1	NA	11/05/1319:22	11/05/1314:55	LK05024A	LK05015A	DSK003S	LCS Duplicate
3B-2	K014-01	1	22.5	11/05/1320:47	11/05/1314:55	LK05029A	LK05027A	DSK003S	Field Sample
3D-2	K014-02	1	12.0	11/05/1321:04	11/05/1314:55	LK05030A	LK05027A	DSK003S	Field Sample
CC-2	K014-03	1	16.0	11/05/1319:56	11/05/1314:55	LK05026A	LK05015A	DSK003S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/05/13 14:55
Sample ID   : 3B-2                   Date Analyzed: 11/05/13 20:47
Lab Samp ID : K014-01                Dilution Factor: 1
Lab File ID : LK05029A               Matrix      : SOIL
Ext Btch ID : DSK003S                % Moisture   : 22.5
Calib. Ref. : LK05027A               Instrument ID : GCT105
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	24	13	6.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	106	129.0	82.0	50-130
HEXACOSANE	25.4	32.26	78.8	40-160

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/05/13 14:55
Sample ID   : 3D-2                   Date Analyzed: 11/05/13 21:04
Lab Samp ID : K014-02                 Dilution Factor: 1
Lab File ID : LK05030A               Matrix          : SOIL
Ext Btch ID : DSK003S                % Moisture       : 12.0
Calib. Ref. : LK05027A               Instrument ID    : GCT105
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	27	11	5.7

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	95.9	113.6	84.4	50-130
HEXACOSANE	22.7	28.41	80.0	40-160

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/05/13 14:55
Sample ID   : CC-2                   Date Analyzed: 11/05/13 19:56
Lab Samp ID : K014-03                Dilution Factor: 1
Lab File ID : LK05026A               Matrix          : SOIL
Ext Btch ID : DSK003S                % Moisture       : 16.0
Calib. Ref. : LK05015A               Instrument ID    : GCT105
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	12	6.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	98.9	119.0	83.0	50-130
HEXACOSANE	21.6	29.76	72.5	40-160

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

QC SUMMARIES

METHOD 3550B/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/05/13 14:55
Sample ID   : MBLK1S                 Date Analyzed: 11/05/13 19:39
Lab Samp ID : DSK003SB               Dilution Factor: 1
Lab File ID : LK05025A               Matrix          : SOIL
Ext Btch ID : DSK003S                % Moisture       : NA
Calib. Ref. : LK05015A               Instrument ID    : GCT105
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	86.5	100.0	86.5	50-130
HEXACOSANE	18.1	25.00	72.6	60-130

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13K014
METHOD: METHOD 3550B/8015B

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: DSK003SB DSK003SL DSK003SC
LAB FILE ID: LK05025A LK05023A LK05024A
DATE EXTRACTED: 11/05/1314:55 11/05/1314:55 11/05/1314:55 DATE COLLECTED: NA
DATE ANALYZED: 11/05/1319:39 11/05/1319:05 11/05/1319:22 DATE RECEIVED: 11/05/13
PREP. BATCH: DSK003S DSK003S DSK003S
CALIB. REF: LK05015A LK05015A LK05015A

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	500	411	82	500	411	82	0	60-130	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Bromobenzene	100	91.6	92	100	92.2	92	50-130
Hexacosane	25.0	20.6	82	25.0	20.6	82	60-130

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8081A
PESTICIDES

SDG#: 13K014

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 3550B/8081A
PESTICIDES

A total of three (3) soil samples were received on 11/05/13 for Pesticides Organochlorine analysis, Method 3550B/8081A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument performance was checked prior to calibration. DDT and Endrin breakdown were within specification. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for CPK003SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter. Positive sample results were confirmed by a second column. Relative percentage difference (RPD) between the two results was evaluated. If RPD is less than 40% and peaks are well defined the higher result is reported. Where RPD is greater than 40% the chromatogram is checked for anomalies and results are selected based on processed knowledge. If there is no evidence of any chromatographic ambiguity, the higher result is reported.

LAB CHRONICLE
PESTICIDES

```
=====
Client      : URS                      SDG NO.       : 13K014
Project     : DHCCP                  Instrument ID  : E8
=====
```

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	CPK003SB	1	NA	11/07/1314:13	11/06/1310:51	MK06050A	MK06048A	CPK003S	Method Blank
LCS1S	CPK003SL	1	NA	11/07/1314:33	11/06/1310:51	MK06051A	MK06048A	CPK003S	Lab Control Sample (LCS)
LCD1S	CPK003SC	1	NA	11/07/1314:53	11/06/1310:51	MK06052A	MK06048A	CPK003S	LCS Duplicate
3B-2	K014-01	1	22.5	11/07/1315:33	11/06/1310:51	MK06054A	MK06048A	CPK003S	Field Sample
3D-2	K014-02	1	12.0	11/07/1315:53	11/06/1310:51	MK06055A	MK06048A	CPK003S	Field Sample
CC-2	K014-03	1	16.0	11/07/1318:25	11/06/1310:51	MK06062A	MK06058A	CPK003S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8081A
PESTICIDES

```

=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/06/13 10:51
Sample ID   : 3B-2                   Date Analyzed: 11/07/13 15:33
Lab Samp ID : K014-01                Dilution Factor: 1
Lab File ID : MK06054A               Matrix          : SOIL
Ext Btch ID : CPK003S                % Moisture       : 22.5
Calib. Ref.: MK06048A               Instrument ID    : GCE8
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
ALPHA-BHC	(ND) ND	2.6	0.52	0.52
GAMMA-BHC (LINDANE)	(ND) ND	2.6	0.52	0.52
BETA-BHC	(ND) 2.5J	2.6	0.52	0.52
HEPTACHLOR	(ND) 2.4J	2.6	0.52	0.52
DELTA-BHC	(ND) ND	2.6	0.52	0.52
ALDRIN	(ND) ND	2.6	0.52	0.52
HEPTACHLOR EPOXIDE	(ND) ND	2.6	0.52	0.52
GAMMA-CHLORDANE	(ND) ND	2.6	0.52	0.52
ALPHA-CHLORDANE	(ND) ND	2.6	0.52	0.52
ENDOSULFAN I	(ND) ND	2.6	0.52	0.52
4,4'-DDE	(ND) ND	2.6	0.52	0.52
DIELDRIN	(ND) ND	2.6	0.52	0.52
ENDRIN	(ND) ND	2.6	0.52	0.52
4,4'-DDD	(ND) ND	2.6	0.52	0.52
ENDOSULFAN II	(ND) ND	2.6	0.52	0.52
4,4'-DDT	(ND) ND	2.6	0.52	0.52
ENDRIN ALDEHYDE	(ND) ND	2.6	0.52	0.52
ENDOSULFAN SULFATE	(ND) 1.1J	2.6	0.52	0.52
ENDRIN KETONE	(ND) ND	2.6	0.52	0.52
METHOXYCHLOR	(ND) ND	13	5.2	5.2
TOXAPHENE	(ND) ND	65	13	13
SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(22.28) 18.24	17.20	(130) 106	50-140
DECACHLOROBIPHENYL	16.40 (17.45)	17.20	95.4 (101)	10-160

RL : Reporting limit

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

```

=====
Client       : URS                      Date Collected: 11/04/13
Project      : DHCCP                   Date Received: 11/05/13
Batch No.    : 13K014                  Date Extracted: 11/06/13 10:51
Sample ID    : 3D-2                    Date Analyzed: 11/07/13 15:53
Lab Samp ID  : K014-02                 Dilution Factor: 1
Lab File ID  : MK06055A                Matrix       : SOIL
Ext Btch ID  : CPK003S                 % Moisture    : 12.0
Calib. Ref.  : MK06048A                Instrument ID  : GCE8
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.3	0.45 0.45
GAMMA-BHC (LINDANE)	(ND) ND	2.3	0.45 0.45
BETA-BHC	(ND) ND	2.3	0.45 0.45
HEPTACHLOR	(ND) ND	2.3	0.45 0.45
DELTA-BHC	(ND) ND	2.3	0.45 0.45
ALDRIN	(ND) ND	2.3	0.45 0.45
HEPTACHLOR EPOXIDE	(ND) ND	2.3	0.45 0.45
GAMMA-CHLORDANE	(ND) ND	2.3	0.45 0.45
ALPHA-CHLORDANE	(ND) ND	2.3	0.45 0.45
ENDOSULFAN I	(ND) ND	2.3	0.45 0.45
4,4'-DDE	(ND) ND	2.3	0.45 0.45
DIELDRIN	(ND) ND	2.3	0.45 0.45
ENDRIN	(ND) ND	2.3	0.45 0.45
4,4'-DDD	(ND) ND	2.3	0.45 0.45
ENDOSULFAN II	(ND) ND	2.3	0.45 0.45
4,4'-DDT	(ND) ND	2.3	0.45 0.45
ENDRIN ALDEHYDE	3.5 (ND)	2.3	0.45 0.45
ENDOSULFAN SULFATE	(ND) 0.95J	2.3	0.45 0.45
ENDRIN KETONE	(ND) ND	2.3	0.45 0.45
METHOXYCHLOR	(ND) 6.2J	11	4.5 4.5
TOXAPHENE	(ND) ND	57	11 11

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(18.41) 16.41	15.15	(122) 108	50-140
DECACHLOROBIPHENYL	(14.84) 14.70	15.15	(98.0) 97.0	10-160

RL : Reporting limit

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

```

=====
Client       : URS                      Date Collected: 11/04/13
Project      : DHCCP                   Date Received: 11/05/13
Batch No.    : 13K014                  Date Extracted: 11/06/13 10:51
Sample ID    : CC-2                    Date Analyzed: 11/07/13 18:25
Lab Samp ID  : K014-03                 Dilution Factor: 1
Lab File ID  : MK06062A               Matrix       : SOIL
Ext Btch ID  : CPK003S                % Moisture    : 16.0
Calib. Ref.  : MK06058A               Instrument ID : GCE8
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) 0.55J	2.4	0.48 0.48
GAMMA-BHC (LINDANE)	(ND) ND	2.4	0.48 0.48
BETA-BHC	(ND) ND	2.4	0.48 0.48
HEPTACHLOR	(ND) ND	2.4	0.48 0.48
DELTA-BHC	(ND) ND	2.4	0.48 0.48
ALDRIN	(ND) ND	2.4	0.48 0.48
HEPTACHLOR EPOXIDE	(ND) ND	2.4	0.48 0.48
GAMMA-CHLORDANE	(ND) ND	2.4	0.48 0.48
ALPHA-CHLORDANE	(ND) ND	2.4	0.48 0.48
ENDOSULFAN I	(ND) ND	2.4	0.48 0.48
4,4'-DDE	(0.75J) 0.73J	2.4	0.48 0.48
DIELDRIN	(ND) ND	2.4	0.48 0.48
ENDRIN	(ND) ND	2.4	0.48 0.48
4,4'-DDD	(ND) ND	2.4	0.48 0.48
ENDOSULFAN II	(ND) ND	2.4	0.48 0.48
4,4'-DDT	(ND) ND	2.4	0.48 0.48
ENDRIN ALDEHYDE	0.71J (ND)	2.4	0.48 0.48
ENDOSULFAN SULFATE	(ND) ND	2.4	0.48 0.48
ENDRIN KETONE	(ND) ND	2.4	0.48 0.48
METHOXYCHLOR	(ND) ND	12	4.8 4.8
TOXAPHENE	(ND) ND	60	12 12

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(17.25) 16.21	15.87	(109) 102	50-140
DECACHLOROBIPHENYL	13.15 (15.64)	15.87	82.9 (98.5)	10-160

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

QC SUMMARIES

METHOD 3550B/8081A
PESTICIDES

```

=====
Client       : URS                               Date Collected: NA
Project      : DHCCP                             Date Received: 11/06/13
Batch No.    : 13K014                           Date Extracted: 11/06/13 10:51
Sample ID    : MBLK1S                           Date Analyzed: 11/07/13 14:13
Lab Samp ID  : CPK003SB                         Dilution Factor: 1
Lab File ID  : MK06050A                        Matrix       : SOIL
Ext Btch ID  : CPK003S                         % Moisture    : NA
Calib. Ref.: MK06048A                         Instrument ID  : GCE8
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.0	0.40 0.40
GAMMA-BHC (LINDANE)	(ND) ND	2.0	0.40 0.40
BETA-BHC	(ND) ND	2.0	0.40 0.40
HEPTACHLOR	(ND) ND	2.0	0.40 0.40
DELTA-BHC	(ND) ND	2.0	0.40 0.40
ALDRIN	(ND) ND	2.0	0.40 0.40
HEPTACHLOR EPOXIDE	(ND) ND	2.0	0.40 0.40
GAMMA-CHLORDANE	(ND) ND	2.0	0.40 0.40
ALPHA-CHLORDANE	(ND) ND	2.0	0.40 0.40
ENDOSULFAN I	(ND) ND	2.0	0.40 0.40
4,4'-DDE	(ND) ND	2.0	0.40 0.40
DIELDRIN	(ND) ND	2.0	0.40 0.40
ENDRIN	(ND) ND	2.0	0.40 0.40
4,4'-DDD	(ND) ND	2.0	0.40 0.40
ENDOSULFAN II	(ND) ND	2.0	0.40 0.40
4,4'-DDT	(ND) ND	2.0	0.40 0.40
ENDRIN ALDEHYDE	(ND) ND	2.0	0.40 0.40
ENDOSULFAN SULFATE	(ND) ND	2.0	0.40 0.40
ENDRIN KETONE	(ND) ND	2.0	0.40 0.40
METHOXYCHLOR	(ND) ND	10	4.0 4.0
TOXAPHENE	(ND) ND	50	10 10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	13.68 (14.77)	13.33	103 (111)	60-130
DECACHLOROBIPHENYL	13.24 (13.69)	13.33	99.3 (103)	60-140

RL : Reporting limit

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13K014
METHOD: SW3550B/8081A

609

MATRIX: SOIL
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: CPK003SB CPK003SL CPK003SC
LAB FILE ID: MK06050A MK06051A MK06052A
DATE EXTRACTED: 11/06/1310:51 11/06/1310:51 11/06/1310:51 DATE COLLECTED: NA
DATE ANALYZED: 11/07/1314:13 11/07/1314:33 11/07/1314:53 DATE RECEIVED: 11/06/13
PREP. BATCH: CPK003S CPK003S CPK003S
CALIB. REF: MK06048A MK06048A MK06048A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
alpha-BHC	(ND) ND	6.67	(7.52) 8.30	(113) 124	6.67	(7.67) 8.34	(115) 125	(2) 1	50-140	50
gamma-BHC (Lindane)	(ND) ND	6.67	(7.21) 7.76	(108) 116	6.67	(7.21) 7.84	(108) 118	(0) 1	60-130	50
beta-BHC	(ND) ND	6.67	(7.99) 8.14	(120) 122	6.67	(7.98) 8.21	(120) 123	(0) 1	50-130	50
Heptachlor	(ND) ND	6.67	7.06 (7.32)	106 (110)	6.67	7.08 (7.44)	106 (112)	0 (2)	50-140	50
delta-BHC	(ND) ND	6.67	8.02 (8.36)	120 (125)	6.67	7.96 (8.33)	119 (125)	1 (0)	50-150	50
Aldrin	(ND) ND	6.67	7.20 (7.76)	108 (116)	6.67	7.24 (7.84)	109 (118)	1 (1)	60-140	50
Heptachlor Epoxide	(ND) ND	6.67	7.22 (8.12)	108 (122)	6.67	7.23 (8.15)	108 (122)	0 (0)	70-130	50
gamma-Chlordane	(ND) ND	6.67	7.53 (8.08)	113 (121)	6.67	7.39 (7.96)	111 (119)	2 (1)	70-130	50
alpha-Chlordane	(ND) ND	6.67	7.22 (7.66)	108 (115)	6.67	7.19 (7.64)	108 (115)	0 (0)	70-130	50
Endosulfan I	(ND) ND	6.67	6.87 (8.05)	103 (121)	6.67	6.86 (8.02)	103 (120)	0 (0)	60-130	50
4,4'-DDE	(ND) ND	6.67	6.89 (7.82)	103 (117)	6.67	6.86 (7.82)	103 (117)	0 (0)	70-140	50
Dieldrin	(ND) ND	6.67	7.03 (8.12)	105 (122)	6.67	6.94 (8.08)	104 (121)	1 (0)	70-140	50
Endrin	(ND) ND	6.67	6.86 (7.69)	103 (115)	6.67	6.75 (7.58)	101 (114)	2 (1)	70-150	50
4,4'-DDD	(ND) ND	6.67	6.59 (7.83)	99 (117)	6.67	6.55 (7.70)	98 (115)	1 (2)	70-140	50
Endosulfan II	(ND) ND	6.67	7.13 (7.92)	107 (119)	6.67	7.02 (7.81)	105 (117)	2 (1)	70-130	50
4,4'-DDT	(ND) ND	6.67	(7.82) 7.53	(117) 113	6.67	(7.72) 7.48	(116) 112	(1) 1	70-150	50
Endrin aldehyde	(ND) ND	6.67	7.52 (8.39)	113 (126)	6.67	6.99 (7.85)	105 (118)	7 (7)	70-130	50
Endosulfan Sulfate	(ND) ND	6.67	7.38 (8.13)	111 (122)	6.67	7.21 (8.00)	108 (120)	2 (2)	70-150	50
Endrin Ketone	(ND) ND	6.67	6.88 (7.69)	103 (115)	6.67	6.71 (7.53)	101 (113)	3 (2)	70-140	50
Methoxychlor	(ND) ND	66.7	70.9 (74.7)	106 (112)	66.7	69.8 (73.8)	105 (111)	2 (1)	70-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	13.33	13.79 (14.55)	103 (109)	13.33	14.47 (15.13)	109 (113)	60-130
Decachlorobiphenyl	13.33	(13.59) 13.24	(102) 99.3	13.33	13.71 (13.92)	103 (104)	60-140

DWR-207

LABORATORY REPORT FOR

URS

DHCCP

METHOD 3550B/8081A
PCBS

SDG#: 13K014

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 3550B/8082
PCBS

A total of three (3) soil samples were received on 11/05/13 for Polychlorinated Biphenyls (PCBs) analysis, Method 3550B/8082 in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for 60K003SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter. Sample extracts subjected to appropriate cleanup technique to reduce matrix interference are recorded in extraction log.

LAB CHRONICLE
PCBs

Client : URS SDG NO. : 13K014
Project : DHCCP Instrument ID : 71

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	60K003SB	1	NA	11/06/1316:05	11/06/1310:51	KK05039A	KK05036A	CPK003S	Method Blank
LCS1S	60K003SL	1	NA	11/06/1316:29	11/06/1310:51	KK05040A	KK05036A	CPK003S	Lab Control Sample (LCS)
LCD1S	60K003SC	1	NA	11/06/1316:53	11/06/1310:51	KK05041A	KK05036A	CPK003S	LCS Duplicate
3B-2	K014-01	1	22.5	11/06/1317:42	11/06/1310:51	KK05043A	KK05036A	CPK003S	Field Sample
3D-2	K014-02	1	12.0	11/06/1318:06	11/06/1310:51	KK05044A	KK05036A	CPK003S	Field Sample
CC-2	K014-03	1	16.0	11/06/1318:30	11/06/1310:51	KK05045A	KK05036A	CPK003S	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3550B/8082
PCBs

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=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/06/13 10:51
Sample ID   : 3B-2                   Date Analyzed: 11/06/13 17:42
Lab Samp ID: K014-01                Dilution Factor: 1
Lab File ID: KK05043A               Matrix       : SOIL
Ext Btch ID: CPK003S                % Moisture    : 22.5
Calib. Ref.: KK05036A              Instrument ID : GCT071
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	65	22 22
PCB-1221	(ND) ND	65	22 22
PCB-1232	(ND) ND	65	22 22
PCB-1242	(ND) ND	65	22 22
PCB-1248	(ND) ND	65	22 22
PCB-1254	(ND) ND	65	22 22
PCB-1260	(ND) ND	65	22 22

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(17.93) 17.19	17.20	(104) 100	50-130
DECACHLOROBIPHENYL	(17.88) 17.29	17.20	(104) 101	50-150

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

METHOD 3550B/8082
PCBs

```

=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/06/13 10:51
Sample ID: 3D-2                     Date Analyzed: 11/06/13 18:06
Lab Samp ID: K014-02                Dilution Factor: 1
Lab File ID: KK05044A              Matrix      : SOIL
Ext Btch ID: CPK003S               % Moisture   : 12.0
Calib. Ref.: KK05036A             Instrument ID : GCT071
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
PCB-1016	(ND) ND	57	19 19	
PCB-1221	(ND) ND	57	19 19	
PCB-1232	(ND) ND	57	19 19	
PCB-1242	(ND) ND	57	19 19	
PCB-1248	(ND) ND	57	19 19	
PCB-1254	(ND) ND	57	19 19	
PCB-1260	(ND) ND	57	19 19	

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(15.67) 15.15	15.15	(103) 100	50-130
DECACHLOROBIPHENYL	(15.79) 15.62	15.15	(104) 103	50-150

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

METHOD 3550B/8082
PCBs

```

=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/06/13 10:51
Sample ID:  CC-2                     Date Analyzed: 11/06/13 18:30
Lab Samp ID: K014-03                 Dilution Factor: 1
Lab File ID: KK05045A               Matrix      : SOIL
Ext Btch ID: CPK003S                % Moisture   : 16.0
Calib. Ref.: KK05036A              Instrument ID : GCT071
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)	
PCB-1016	(ND) ND	60	20 20	
PCB-1221	(ND) ND	60	20 20	
PCB-1232	(ND) ND	60	20 20	
PCB-1242	(ND) ND	60	20 20	
PCB-1248	(ND) ND	60	20 20	
PCB-1254	(ND) ND	60	20 20	
PCB-1260	(ND) ND	60	20 20	

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(15.91) 15.27	15.87	(100) 96.2	50-130
DECACHLOROBIPHENYL	(15.92) 15.82	15.87	(100) 99.7	50-150

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

QC SUMMARIES

METHOD 3550B/8082
PCBs

```

=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 11/06/13
Batch No.   : 13K014                  Date Extracted: 11/06/13 10:51
Sample ID:  MBLK1S                    Date Analyzed: 11/06/13 16:05
Lab Samp ID: 60K003SB                 Dilution Factor: 1
Lab File ID: KK05039A                 Matrix       : SOIL
Ext Btch ID: CPK003S                  % Moisture    : NA
Calib. Ref.: KK05036A                 Instrument ID : GCT071
=====

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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	50	17 17
PCB-1221	(ND) ND	50	17 17
PCB-1232	(ND) ND	50	17 17
PCB-1242	(ND) ND	50	17 17
PCB-1248	(ND) ND	50	17 17
PCB-1254	(ND) ND	50	17 17
PCB-1260	(ND) ND	50	17 17

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(12.75) 12.21	13.33	(95.7) 91.6	60-130
DECACHLOROBIPHENYL	13.97 (14.00)	13.33	105 (105)	70-140

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13K014
METHOD: METHOD 3550B/8082

MATRIX: SOIL
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: 60K003SB 60K003SL 60K003SC
LAB FILE ID: KK05039A KK05040A KK05041A
DATE EXTRACTED: 11/06/1310:51 11/06/1310:51 11/06/1310:51
DATE ANALYZED: 11/06/1316:05 11/06/1316:29 11/06/1316:53
PREP. BATCH: CPK003S CPK003S CPK003S
CALIB. REF: KK05036A KK05036A KK05036A

% MOISTURE: NA
DATE COLLECTED: NA
DATE RECEIVED: 11/06/13

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
PCB-1016	(ND)ND	167	(176)172	(106)103	167	(167)163	(100)98	(5)5	70-140	50
PCB-1260	(ND)ND	167	181(183)	109(110)	167	172(173)	103(104)	5(6)	70-140	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	13.33	(13.77)13.40	(103)100	13.33	(13.55)13.14	(102)98.6	60-130
Decachlorobiphenyl	13.33	(14.43)14.36	(108)108	13.33	(13.89)13.84	(104)104	70-140

LABORATORY REPORT FOR

URS

DHCCP

METHOD 8151A
HERBICIDES

SDG#: 13K014

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 8151A
HERBICIDES

A total of three (3) soil samples were received on 11/05/13 for Chlorinated Herbicides analysis, Method 8151A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HEK001SL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated in this SDG.

Surrogate
Surrogate was added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
HERBICIDES

Client : URS
Project : DHCCP

SDG NO. : 13K014
Instrument ID : 16

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	HEK001SB	1	NA	11/07/1310:47	11/06/1315:03	WK07004A	WK07002A	HEK001S	Method Blank
LCS1S	HEK001SL	1	NA	11/07/1311:15	11/06/1315:03	WK07005A	WK07002A	HEK001S	Lab Control Sample (LCS)
LCD1S	HEK001SC	1	NA	11/07/1311:42	11/06/1315:03	WK07006A	WK07002A	HEK001S	LCS Duplicate
3B-2	K014-01	1	22.5	11/07/1312:10	11/06/1315:03	WK07007A	WK07002A	HEK001S	Field Sample
3D-2	K014-02	1	12.0	11/07/1312:37	11/06/1315:03	WK07008A	WK07002A	HEK001S	Field Sample
CC-2	K014-03	1	16.0	11/07/1313:05	11/06/1315:03	WK07009A	WK07002A	HEK001S	Field Sample

FN - Filename
% Moist - Percent Moisture

"

SAMPLE RESULTS

METHOD 8151A
HERBICIDES

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=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/06/13 15:03
Sample ID: 3B-2                     Date Analyzed: 11/07/13 12:10
Lab Samp ID: K014-01                Dilution Factor: 1
Lab File ID: WK07007A              Matrix      : SOIL
Ext Btch ID: HEK001S               % Moisture   : 22.5
Calib. Ref.: WK07002A              Instrument ID : GCT016
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) ND	13	6.5 6.5
2,4-DB	(ND) 16	13	6.5 6.5
2,4,5-T	(ND) ND	13	6.5 6.5
2,4,5-TP(SILVEX)	(ND) ND	13	6.5 6.5
DALAPON	(ND) ND	13	6.5 6.5
DICAMBA	(ND) ND	13	6.5 6.5
DICHLOROPROP	(ND) ND	13	6.5 6.5
DINOSEB	(ND) ND	13	6.5 6.5
MCPA	(ND) ND	2600	1300 1300
MCP	(ND) 2700	2600	1300 1300

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	(612.7) 604.4	645.2	(95.0) 93.7	20-150

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

METHOD 8151A
HERBICIDES

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=====
Client       : URS                      Date Collected: 11/04/13
Project      : DHCCP                   Date Received: 11/05/13
Batch No.    : 13K014                 Date Extracted: 11/06/13 15:03
Sample ID    : 3D-2                   Date Analyzed: 11/07/13 12:37
Lab Samp ID  : K014-02                Dilution Factor: 1
Lab File ID  : WK07008A               Matrix       : SOIL
Ext Btch ID  : HEK001S                % Moisture    : 12.0
Calib. Ref.: WK07002A                Instrument ID : GCT016
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) ND	11	5.7 5.7
2,4-DB	(ND) 12	11	5.7 5.7
2,4,5-T	(ND) ND	11	5.7 5.7
2,4,5-TP(SILVEX)	(ND) ND	11	5.7 5.7
DALAPON	(ND) ND	11	5.7 5.7
DICAMBA	(ND) ND	11	5.7 5.7
DICHLOROPROP	(ND) ND	11	5.7 5.7
DINOSEB	(ND) ND	11	5.7 5.7
MCPA	(ND) ND	2300	1100 1100
MCP	(ND) ND	2300	1100 1100

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	563.1 (570.6)	568.2	99.1 (100)	20-150

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

METHOD 8151A
HERBICIDES

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=====
Client      : URS                      Date Collected: 11/04/13
Project     : DHCCP                   Date Received: 11/05/13
Batch No.   : 13K014                 Date Extracted: 11/06/13 15:03
Sample ID:  CC-2                     Date Analyzed: 11/07/13 13:05
Lab Samp ID: K014-03                 Dilution Factor: 1
Lab File ID: WK07009A               Matrix      : SOIL
Ext Btch ID: HEK001S                % Moisture   : 16.0
Calib. Ref.: WK07002A              Instrument ID : GCT016
=====

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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) ND	12	6.0 6.0
2,4-DB	(ND) ND	12	6.0 6.0
2,4,5-T	(ND) ND	12	6.0 6.0
2,4,5-TP(SILVEX)	(ND) ND	12	6.0 6.0
DALAPON	(ND) ND	12	6.0 6.0
DICAMBA	(ND) ND	12	6.0 6.0
DICHLOROPROP	(ND) 7.8J	12	6.0 6.0
DINOSEB	(ND) ND	12	6.0 6.0
MCPA	(ND) ND	2400	1200 1200
MCP	(ND) ND	2400	1200 1200

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	577.2 (582.1)	595.2	97.0 (97.8)	20-150

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

QC SUMMARIES

METHOD 8151A
HERBICIDES

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=====
Client      : URS                      Date Collected: NA
Project     : DHCCP                   Date Received: 11/06/13
Batch No.   : 13K014                 Date Extracted: 11/06/13 15:03
Sample ID   : MBLK1S                 Date Analyzed: 11/07/13 10:47
Lab Samp ID: HEK001SB                Dilution Factor: 1
Lab File ID: WK07004A               Matrix       : SOIL
Ext Btch ID: HEK001S                % Moisture    : NA
Calib. Ref.: WK07002A              Instrument ID : GCT016
=====

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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
2,4-D	(ND) ND	10	5.0 5.0
2,4-DB	(ND) ND	10	5.0 5.0
2,4,5-T	(ND) ND	10	5.0 5.0
2,4,5-TP(SILVEX)	(ND) ND	10	5.0 5.0
DALAPON	(ND) ND	10	5.0 5.0
DICAMBA	(ND) ND	10	5.0 5.0
DICHLOROPROP	(ND) ND	10	5.0 5.0
DINOSEB	(ND) ND	10	5.0 5.0
MCPA	(ND) ND	2000	1000 1000
MCP	(ND) ND	2000	1000 1000

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
2,4-DCPAA	(438.3) 434.9	500.0	(87.7) 87.0	60-140

Left of | is related to first column; Right of | related to second column
Final result indicated by ()

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13K014
METHOD: METHOD 8151A

629

MATRIX: SOIL
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: HEK001SB HEK001SL HEK001SC
LAB FILE ID: WK07004A WK07005A WK07006A
DATE EXTRACTED: 11/06/1315:03 11/06/1315:03 11/06/1315:03 DATE COLLECTED: NA
DATE ANALYZED: 11/07/1310:47 11/07/1311:15 11/07/1311:42 DATE RECEIVED: 11/06/13
PREP. BATCH: HEK001S HEK001S HEK001S
CALIB. REF: WK07002A WK07002A WK07002A

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
2,4-D	(ND) ND	50.0	(50.8) 47.9	(102) 96	50.0	(52.1) 48.8	(104) 98	(3) 2	60-150	50
2,4-DB	(ND) ND	50.0	(52.5) 42.4	(105) 85	50.0	(50.3) 44.4	(101) 89	(4) 5	60-140	50
2,4,5-T	(ND) ND	50.0	48.4 (57.9)	97 (116)	50.0	49.8 (57.5)	100 (115)	3 (1)	60-140	50
2,4,5-TP(Silvex)	(ND) ND	50.0	(52.0) 50.1	(104) 100	50.0	(52.3) 51.6	(105) 103	(1) 3	50-150	50
Dalapon	(ND) ND	50.0	(33.7) 32.0	(67) 64	50.0	34.7 (35.0)	69 (70)	3 (9)	10-160	50
Dicamba	(ND) ND	50.0	48.6 (48.9)	97 (98)	50.0	49.9 (50.7)	100 (101)	3 (4)	30-130	50
Dichloroprop	(ND) ND	50.0	(53.2) 53.2	(106) 106	50.0	(54.4) 52.5	(109) 105	(2) 1	30-130	50
Dinoseb	(ND) ND	50.0	(42.9) 38.0	(86) 76	50.0	(40.5) 37.1	(81) 74	(6) 2	30-130	50
MCPA	(ND) ND	2500	(2330) 2230	(93) 89	2500	1970J (2290)	79 (92)	17 (3)	30-130	50
MCPP	(ND) ND	2500	(2350) 2130	(94) 85	2500	(2440) 2160	(98) 86	(4) 1	30-130	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
2,4-DCPAA	500.0	(485.4) 480.7	(97.1) 96.1	500.0	492.6 (493.5)	98.5 (98.7)	60-140

DWR-207

LABORATORY REPORT FOR

URS

DHCCP

METALS/MERCURY

SDG#: 13K014

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 6020A
METALS BY ICP-MS

A total of three (3) soil samples were received on 11/05/13 for Metals CAM analysis, Method 6020A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source. Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for IMK012SL/C were all within QC limits.

Matrix QC Sample

Analytical spike and serial dilution from another SDG were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
METALS BY ICP-MS

Client : URS
Project : DHCCP

SDG NO. : 13K014
Instrument ID : T-I98

SOIL									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	IMK012SB	1	NA	11/08/1313:34	11/07/1310:15	98K06019	98K06017	IMK012S	Method Blank
LCS1S	IMK012SL	1	NA	11/08/1313:39	11/07/1310:15	98K06020	98K06017	IMK012S	Lab Control Sample (LCS)
LCD1S	IMK012SC	1	NA	11/08/1313:43	11/07/1310:15	98K06021	98K06017	IMK012S	LCS Duplicate
BSBS1045S003AS	K018-23A	0.976	9.2	11/08/1314:59	11/07/1310:15	98K06037	98K06035	IMK012S	Analytical Spike Sample
BSBS1045S003	K018-23	0.976	9.2	11/08/1315:03	11/07/1310:15	98K06038	98K06035	IMK012S	Field Sample
BSBS1045S003DL	K018-23J	4.88	9.2	11/08/1315:07	11/07/1310:15	98K06039	98K06035	IMK012S	Diluted Sample
3B-2	K014-01	1.00	22.5	11/08/1315:12	11/07/1310:15	98K06040	98K06035	IMK012S	Field Sample
3D-2	K014-02	0.995	12.0	11/08/1315:16	11/07/1310:15	98K06041	98K06035	IMK012S	Field Sample
CC-2	K014-03	0.980	16.0	11/08/1315:20	11/07/1310:15	98K06042	98K06035	IMK012S	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 6020A
METALS BY ICP-MS

Client : URS	Date Collected: 11/04/13
Project : DHCCP	Date Received: 11/05/13
SDG NO. : 13K014	Date Extracted: 11/07/13 10:15
Sample ID: 3B-2	Date Analyzed: 11/08/13 15:12
Lab Samp ID: K014-01	Dilution Factor: 1.00
Lab File ID: 98K06040	Matrix : SOIL
Ext Btch ID: IMK012S	% Moisture : 22.5
Calib. Ref.: 98K06035	Instrument ID : T-I98

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	0.262J	0.645	0.258
Arsenic	4.03	0.645	0.129
Barium	188	0.645	0.129
Beryllium	0.519J	0.645	0.129
Cadmium	0.466J	0.645	0.129
Chromium	54.3	0.645	0.129
Cobalt	14.3	0.645	0.129
Copper	29.1	0.645	0.258
Lead	7.11	0.645	0.129
Molybdenum	0.439J	0.645	0.258
Nickel	60.8	0.645	0.129
Selenium	0.190J	0.645	0.129
Silver	ND	0.645	0.129
Thallium	0.161J	0.645	0.129
Vanadium	63.2	0.645	0.323
Zinc	62.6	2.58	1.29

METHOD 6020A
METALS BY ICP-MS

Client : URS	Date Collected: 11/04/13
Project : DHCCP	Date Received: 11/05/13
SDG NO. : 13K014	Date Extracted: 11/07/13 10:15
Sample ID: 3D-2	Date Analyzed: 11/08/13 15:16
Lab Samp ID: K014-02	Dilution Factor: 0.995
Lab File ID: 98K06041	Matrix : SOIL
Ext Btch ID: IMK012S	% Moisture : 12.0
Calib. Ref.: 98K06035	Instrument ID : T-I98

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	0.270J	0.565	0.226
Arsenic	4.23	0.565	0.113
Barium	197	0.565	0.113
Beryllium	0.538J	0.565	0.113
Cadmium	0.439J	0.565	0.113
Chromium	56.6	0.565	0.113
Cobalt	15.0	0.565	0.113
Copper	31.5	0.565	0.226
Lead	8.03	0.565	0.113
Molybdenum	0.384J	0.565	0.226
Nickel	66.0	0.565	0.113
Selenium	0.175J	0.565	0.113
Silver	0.139J	0.565	0.113
Thallium	0.169J	0.565	0.113
Vanadium	60.8	0.565	0.283
Zinc	66.9	2.26	1.13

METHOD 6020A
METALS BY ICP-MS

Client : URS	Date Collected: 11/04/13
Project : DHCCP	Date Received: 11/05/13
SDG NO. : 13K014	Date Extracted: 11/07/13 10:15
Sample ID: CC-2	Date Analyzed: 11/08/13 15:20
Lab Samp ID: K014-03	Dilution Factor: 0.980
Lab File ID: 98K06042	Matrix : SOIL
Ext Btch ID: IMK012S	% Moisture : 16.0
Calib. Ref.: 98K06035	Instrument ID : T-I98

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	0.583	0.233
Arsenic	4.37	0.583	0.117
Barium	133	0.583	0.117
Beryllium	0.360J	0.583	0.117
Cadmium	0.313J	0.583	0.117
Chromium	32.9	0.583	0.117
Cobalt	10.7	0.583	0.117
Copper	18.4	0.583	0.233
Lead	6.31	0.583	0.117
Molybdenum	0.427J	0.583	0.233
Nickel	36.4	0.583	0.117
Selenium	0.182J	0.583	0.117
Silver	ND	0.583	0.117
Thallium	0.170J	0.583	0.117
Vanadium	44.0	0.583	0.292
Zinc	62.8	2.33	1.17

METHOD 6020A
METALS BY ICP-MS

Client : URS	Date Collected: NA
Project : DHCCP	Date Received: 11/07/13
SDG NO. : 13K014	Date Extracted: 11/07/13 10:15
Sample ID: MBLK1S	Date Analyzed: 11/08/13 13:34
Lab Samp ID: IMK012SB	Dilution Factor: 1
Lab File ID: 98K06019	Matrix : SOIL
Ext Btch ID: IMK012S	% Moisture : NA
Calib. Ref.: 98K06017	Instrument ID : T-198

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	0.500	0.200
Arsenic	ND	0.500	0.100
Barium	ND	0.500	0.100
Beryllium	ND	0.500	0.100
Cadmium	ND	0.500	0.100
Chromium	ND	0.500	0.100
Cobalt	ND	0.500	0.100
Copper	ND	0.500	0.200
Lead	ND	0.500	0.100
Molybdenum	ND	0.500	0.200
Nickel	ND	0.500	0.100
Selenium	ND	0.500	0.100
Silver	ND	0.500	0.100
Thallium	ND	0.500	0.100
Vanadium	ND	0.500	0.250
Zinc	ND	2.00	1.00

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13K014
METHOD: METHOD 6020A

MATRIX: SOIL % MOISTURE: NA
DILT N FACTR: 1 1 1
SAMPLE ID: MBLK1S
CONTROL NO.: IMK012SB IMK012SL IMK012SC
LAB FILE ID: 98K06019 98K06020 98K06021
DATE EXTRACTED: 11/07/1310:15 11/07/1310:15 11/07/1310:15 DATE COLLECTED: NA
DATE ANALYZED: 11/08/1313:34 11/08/1313:39 11/08/1313:43 DATE RECEIVED: 11/07/13
PREP. BATCH: IMK012S IMK012S IMK012S
CALIB. REF: 98K06017 98K06017 98K06017

ACCESSION:

PARAMETER	BLNK RSLT mg/kg	SPIKE AMT mg/kg	BS RSLT mg/kg	BS % REC	SPIKE AMT mg/kg	BSD RSLT mg/kg	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	25.0	24.0	96	25.0	23.8	95	1	80-120	20
Arsenic	ND	25.0	24.2	97	25.0	24.2	97	0	80-120	20
Barium	ND	25.0	25.0	100	25.0	24.5	98	2	80-120	20
Beryllium	ND	25.0	26.3	105	25.0	26.7	107	1	80-120	20
Cadmium	ND	25.0	24.0	96	25.0	23.7	95	1	80-120	20
Chromium	ND	25.0	24.3	97	25.0	24.1	96	1	80-120	20
Cobalt	ND	25.0	24.8	99	25.0	24.7	99	0	80-120	20
Copper	ND	25.0	24.6	98	25.0	24.4	98	1	80-120	20
Lead	ND	25.0	25.3	101	25.0	25.0	100	1	80-120	20
Molybdenum	ND	25.0	24.7	99	25.0	24.2	97	2	80-120	20
Nickel	ND	25.0	24.5	98	25.0	24.1	96	2	80-120	20
Selenium	ND	25.0	24.3	97	25.0	24.2	97	0	80-120	20
Silver	ND	25.0	24.9	100	25.0	24.2	97	3	80-120	20
Thallium	ND	25.0	25.1	100	25.0	24.8	99	1	80-120	20
Vanadium	ND	25.0	24.7	99	25.0	24.6	98	1	80-120	20
Zinc	ND	50.0	47.4	95	50.0	48.2	96	2	80-120	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 7471A
MERCURY BY COLD VAPOR

A total of three (3) soil samples were received on 11/05/13 for Mercury analysis, Method 7471A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HGK007SL/C were all within QC limits.

Matrix QC Sample

Analytical spike and serial dilution from another SDG were analyzed for matrix evaluation. Results were within method acceptance criteria.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP

SDG NO. : 13K014
Instrument ID : 47

SOIL

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	HGK007SB	1	NA	11/13/1317:43	11/13/1314:30	M47K005042	M47K005	HGK007S	Method Blank
LCS1S	HGK007SL	1	NA	11/13/1317:45	11/13/1314:30	M47K005043	M47K005	HGK007S	Lab Control Sample (LCS)
LCD1S	HGK007SC	1	NA	11/13/1317:47	11/13/1314:30	M47K005044	M47K005	HGK007S	LCS Duplicate
3B-2	K014-01	1	22.5	11/13/1318:52	11/13/1314:30	M47K005072	M47K005	HGK007S	Field Sample
3D-2	K014-02	1	12.0	11/13/1318:54	11/13/1314:30	M47K005073	M47K005	HGK007S	Field Sample
CC-2	K014-03	1	16.0	11/13/1318:56	11/13/1314:30	M47K005074	M47K005	HGK007S	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 7471A
MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP
Batch No. : 13K014

Matrix : SOIL
InstrumentID : 47

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DIL'N FACTOR (%)	MOIST	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	HGK007SB	ND	1	NA	0.1	0.02	11/13/1317:43	11/13/1314:30	M47K005042	M47K005	HGK007S	NA	NA
LCS1S	HGK007SL	0.415	1	NA	0.1	0.02	11/13/1317:45	11/13/1314:30	M47K005043	M47K005	HGK007S	NA	NA
LCD1S	HGK007SC	0.405	1	NA	0.1	0.02	11/13/1317:47	11/13/1314:30	M47K005044	M47K005	HGK007S	NA	NA
3B-2	K014-01	ND	1	22.5	0.129	0.0258	11/13/1318:52	11/13/1314:30	M47K005072	M47K005	HGK007S	11/04/1312:00	11/05/13
3D-2	K014-02	0.0246J	1	12.0	0.114	0.0227	11/13/1318:54	11/13/1314:30	M47K005073	M47K005	HGK007S	11/04/1312:00	11/05/13
CC-2	K014-03	ND	1	16.0	0.117	0.0234	11/13/1318:56	11/13/1314:30	M47K005074	M47K005	HGK007S	11/04/1312:00	11/05/13

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : 7471A

MATRIX : SOIL % MOISTURE: N/A
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : HGK007SB HGK007SL HGK007SC
LAB FILE ID : M47K005042 M47K005043 M47K005044
DATE PREPARED : 11/13/1314:30 11/13/1314:30 11/13/1314:30
DATE ANALYZED : 11/13/1317:43 11/13/1317:45 11/13/1317:47
PREP BATCH : HGK007S HGK007S HGK007S
CALIBRATION REF: M47K005 M47K005 M47K005

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	0.417	0.415	100	0.417	0.405	97	2	80-120	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

A total of three (3) leachate samples were received on 11/05/13 for Metals DI-WET analysis, Method DI WET/6020A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source. Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were less than reporting limit, except Barium in extraction blank (MBLK2W) was detected above reporting limit. No corrective action was taken since all associated samples were detected at least 14 times higher than the extraction blank level. Refer to QC result summary forms for details.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for IMK020WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries were within project QC limits except for results qualified with [*] in K014-01M/S summary form, most likely due to matrix interference and low spike level as compared to concentration of parent sample. Bias low of zinc and copper were confirmed in MSD. RPD were within limits, suggesting deficiencies potentially due to matrix contribution. In addition, analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria. Check QC summary form for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met with the aforementioned exceptions.

LAB CHRONICLE
DI WET METALS BY ICP-MS

Client : URS
Project : DHCCP

SDG NO. : 13K014
Instrument ID : T-IF6

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	LEACHATE		Sample Data FN	Calibration		Prep. Batch	Notes
				Analysis DateTime	Extraction DateTime		Data FN			
MBLK1W	IMK020WB	1	NA	11/14/1315:13	11/14/1311:08	F6K08017	F6K08015		IMK020W	Method Blank
LCS1W	IMK020WL	1	NA	11/14/1315:17	11/14/1311:08	F6K08018	F6K08015		IMK020W	Lab Control Sample (LCS)
LCD1W	IMK020WC	1	NA	11/14/1315:21	11/14/1311:08	F6K08019	F6K08015		IMK020W	LCS Duplicate
MBLK2W	WTK002SB	1	NA	11/14/1315:26	11/14/1311:08	F6K08020	F6K08015		IMK020W	Method Blank
3B-2MS	K014-01M	1	NA	11/14/1315:30	11/14/1311:08	F6K08021	F6K08015		IMK020W	Matrix Spike Sample (MS)
3B-2MSD	K014-01S	1	NA	11/14/1315:34	11/14/1311:08	F6K08022	F6K08015		IMK020W	MS Duplicate (MSD)
3B-2	K014-01	1	NA	11/14/1315:43	11/14/1311:08	F6K08024	F6K08015		IMK020W	Field Sample
3B-2DL	K014-01J	5	NA	11/14/1315:47	11/14/1311:08	F6K08025	F6K08015		IMK020W	Diluted Sample
3B-2AS	K014-01A	1	NA	11/14/1316:20	11/14/1311:08	F6K08030	F6K08027		IMK020W	Analytical Spike Sample
3D-2	K014-02	1	NA	11/14/1316:24	11/14/1311:08	F6K08031	F6K08027		IMK020W	Field Sample
CC-2	K014-03	1	NA	11/14/1316:29	11/14/1311:08	F6K08032	F6K08027		IMK020W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client : URS	Date Collected: 11/04/13
Project : DHCCP	Date Received: 11/05/13
SDG NO. : 13K014	Date Extracted: 11/14/13 11:08
Sample ID: 3B-2	Date Analyzed: 11/14/13 15:43
Lab Samp ID: K014-01	Dilution Factor: 1
Lab File ID: F6K08024	Matrix : LEACHATE
Ext Btch ID: IMK020W	% Moisture : NA
Calib. Ref.: F6K08015	Instrument ID : T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	ND	1.00	0.500
Arsenic	0.435J	1.00	0.200
Barium	295	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	12.5	1.00	0.200
Cobalt	0.610J	1.00	0.200
Copper	11.8	1.00	0.500
Lead	0.199J	1.00	0.100
Molybdenum	8.33	2.00	0.500
Nickel	0.568J	1.00	0.200
Selenium	3.34	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	4.29	1.00	0.500
Zinc	14.1J	20.0	10.0

DI WET EXTRACTION DATE: 11/06/13 11:15

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client : URS	Date Collected: 11/04/13
Project : DHCCP	Date Received: 11/05/13
SDG NO. : 13K014	Date Extracted: 11/14/13 11:08
Sample ID: 3D-2	Date Analyzed: 11/14/13 16:24
Lab Samp ID: K014-02	Dilution Factor: 1
Lab File ID: F6K08031	Matrix : LEACHATE
Ext Btch ID: IMK020W	% Moisture : NA
Calib. Ref.: F6K08027	Instrument ID : T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	1.59	1.00	0.500
Arsenic	11.3	1.00	0.200
Barium	78.7	1.00	0.500
Beryllium	0.109J	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	7.98	1.00	0.200
Cobalt	1.14	1.00	0.200
Copper	7.92	1.00	0.500
Lead	2.65	1.00	0.100
Molybdenum	5.93	2.00	0.500
Nickel	6.35	1.00	0.200
Selenium	8.38	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	26.4	1.00	0.500
Zinc	16.7J	20.0	10.0

DI WET EXTRACTION DATE: 11/06/13 11:15

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client : URS	Date Collected: 11/04/13
Project : DHCCP	Date Received: 11/05/13
SDG NO. : 13K014	Date Extracted: 11/14/13 11:08
Sample ID: CC-2	Date Analyzed: 11/14/13 16:29
Lab Samp ID: K014-03	Dilution Factor: 1
Lab File ID: F6K08032	Matrix : LEACHATE
Ext Btch ID: IMK020W	% Moisture : NA
Calib. Ref.: F6K08027	Instrument ID : T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	1.05	1.00	0.500
Arsenic	2.27	1.00	0.200
Barium	96.1	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	7.42	1.00	0.200
Cobalt	0.939J	1.00	0.200
Copper	5.09	1.00	0.500
Lead	1.46	1.00	0.100
Molybdenum	3.98	2.00	0.500
Nickel	5.60	1.00	0.200
Selenium	3.56	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	13.2	1.00	0.500
Zinc	12.9J	20.0	10.0

DI WET EXTRACTION DATE: 11/06/13 11:15

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client	: URS	Date Collected:	NA
Project	: DHCCP	Date Received:	11/14/13
SDG NO.	: 13K014	Date Extracted:	11/14/13 11:08
Sample ID:	MBLK1W	Date Analyzed:	11/14/13 15:13
Lab Samp ID:	IMK020WB	Dilution Factor:	1
Lab File ID:	F6K08017	Matrix	: WATER
Ext Btch ID:	IMK020W	% Moisture	: NA
Calib. Ref.:	F6K08015	Instrument ID	: T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	ND	1.00	0.500
Arsenic	ND	1.00	0.200
Barium	ND	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	ND	1.00	0.200
Cobalt	ND	1.00	0.200
Copper	ND	1.00	0.500
Lead	ND	1.00	0.100
Molybdenum	ND	2.00	0.500
Nickel	0.326J	1.00	0.200
Selenium	ND	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	ND	1.00	0.500
Zinc	ND	20.0	10.0

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13K014
METHOD: METHOD DI WET/6020A

MATRIX: WATER % MOISTURE: NA
DILT N FACTR: 1 1 1
SAMPLE ID: MBLK1W
CONTROL NO.: IMK020WB IMK020WL IMK020WC
LAB FILE ID: F6K08017 F6K08018 F6K08019
DATE TIME EXTRCTD: 11/14/1311:08 11/14/1311:08 11/14/1311:08 DATE COLLECTED: NA
DATE TIME ANALYZD: 11/14/1315:13 11/14/1315:17 11/14/1315:21 DATE RECEIVED: 11/14/13
PREP. BATCH: IMK020W IMK020W IMK020W
CALIB. REF: F6K08015 F6K08015 F6K08015

ACCESSION:

PARAMETER	BLNK RSLT ug/L	SPIKE AMT ug/L	BS RSLT ug/L	BS % REC	SPIKE AMT ug/L	BSD RSLT ug/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	25.0	25.1	100	25.0	25.1	100	0	80-120	20
Arsenic	ND	25.0	24.7	99	25.0	25.3	101	3	80-120	20
Barium	ND	25.0	26.5	106	25.0	26.1	104	2	80-120	20
Beryllium	ND	25.0	24.9	100	25.0	25.0	100	0	80-120	20
Cadmium	ND	25.0	25.2	101	25.0	25.0	100	1	80-120	20
Chromium	ND	25.0	25.5	102	25.0	25.4	102	0	80-120	20
Cobalt	ND	25.0	25.5	102	25.0	25.5	102	0	80-120	20
Copper	ND	25.0	26.4	106	25.0	26.1	104	1	80-120	20
Lead	ND	25.0	25.9	104	25.0	25.7	103	1	80-120	20
Molybdenum	ND	25.0	25.3	101	25.0	25.0	100	1	80-120	20
Nickel	0.326J	25.0	25.9	104	25.0	25.5	102	1	80-120	20
Selenium	ND	25.0	25.5	102	25.0	25.5	102	0	80-120	20
Silver	ND	25.0	25.9	104	25.0	25.7	103	1	80-120	20
Thallium	ND	25.0	26.0	104	25.0	25.6	102	1	80-120	20
Vanadium	ND	25.0	25.7	103	25.0	25.7	103	0	80-120	20
Zinc	ND	50.0	53.3	107	50.0	55.3	111	4	80-120	20

METHOD DI WET/6020A
DI WET METALS BY ICP-MS

Client	: URS	Date Collected:	NA
Project	: DHCCP	Date Received:	11/14/13
SDG NO.	: 13K014	Date Extracted:	11/14/13 11:08
Sample ID:	MBLK2W	Date Analyzed:	11/14/13 15:26
Lab Samp ID:	WTK002SB	Dilution Factor:	1
Lab File ID:	F6K08020	Matrix	: LEACHATE
Ext Btch ID:	IMK020W	% Moisture	: NA
Calib. Ref.:	F6K08015	Instrument ID	: T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Antimony	ND	1.00	0.500
Arsenic	ND	1.00	0.200
Barium	5.39	1.00	0.500
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.200
Chromium	ND	1.00	0.200
Cobalt	ND	1.00	0.200
Copper	ND	1.00	0.500
Lead	0.142J	1.00	0.100
Molybdenum	ND	2.00	0.500
Nickel	ND	1.00	0.200
Selenium	ND	1.00	0.300
Silver	ND	1.00	0.200
Thallium	ND	1.00	0.200
Vanadium	ND	1.00	0.500
Zinc	ND	20.0	10.0

DI WET EXTRACTION DATE: 11/06/13 11:15

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13K014
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILT N FACTR: 1 1 1
SAMPLE ID: 3B-2
CONTROL NO.: K014-01 K014-01M K014-01S
LAB FILE ID: F6K08024 F6K08021 F6K08022
DATE EXTRACTED: 11/14/13 11:08 11/14/13 11:08 DATE COLLECTED: 11/04/13
DATE ANALYZED: 11/14/13 15:43 11/14/13 15:30 11/14/13 15:34 DATE RECEIVED: 11/05/13
PREP. BATCH: IMK020W IMK020W IMK020W
CALIB. REF: F6K08015 F6K08015 F6K08015

ACCESSION:

PARAMETER	SMPL RSLT ug/L	SPIKE AMT ug/L	MS RSLT ug/L	MS % REC	SPIKE AMT ug/L	MSD RSLT ug/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	25.0	23.4	94	25.0	23.3	93	0	75-125	20
Arsenic	0.435J	25.0	24.3	95	25.0	25.0	98	3	75-125	20
Barium	295	25.0	585	1160*	25.0	584	1156*	0	75-125	20
Beryllium	ND	25.0	22.5	90	25.0	23.6	94	5	75-125	20
Cadmium	ND	25.0	22.1	88	25.0	22.3	89	1	75-125	20
Chromium	12.5	25.0	32.8	81	25.0	33.4	84	2	75-125	20
Cobalt	0.610J	25.0	22.9	89	25.0	22.8	89	0	75-125	20
Copper	11.8	25.0	29.6	71*	25.0	29.8	72*	1	75-125	20
Lead	0.199J	25.0	23.0	91	25.0	23.0	91	0	75-125	20
Molybdenum	8.33	25.0	32.4	96	25.0	32.4	96	0	75-125	20
Nickel	0.568J	25.0	21.8	85	25.0	22.2	87	2	75-125	20
Selenium	3.34	25.0	26.9	94	25.0	26.8	94	0	75-125	20
Silver	ND	25.0	22.7	91	25.0	20.9	84	8	75-125	20
Thallium	ND	25.0	24.1	96	25.0	24.1	96	0	75-125	20
Vanadium	4.29	25.0	26.9	90	25.0	27.2	92	1	75-125	20
Zinc	14.1J	50.0	48.7	69*	50.0	46.6	65*	4	75-125	20

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: URS
PROJECT: DHCCP
SDG NO.: 13K014
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILT N FACTR: 1 1
SAMPLE ID: 3B-2
CONTROL NO.: K014-01 K014-01A
LAB FILE ID: F6K08024 F6K08030
DATE TIME EXTRACTED: 11/14/13 11:08 11/14/13 11:08 DATE COLLECTED: 11/04/13
DATE TIME ANALYZED: 11/14/13 15:43 11/14/13 16:20 DATE RECEIVED: 11/05/13
PREP. BATCH: IMK020W IMK020W
CALIB. REF: F6K08015 F6K08027

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	AS RSLT (ug/L)	AS % REC	QC LIMIT (%)
Antimony	ND	25.0	23.7	95	80-120
Arsenic	0.435J	25.0	24.7	97	80-120
Barium	295	25.0	325	120	80-120
Beryllium	ND	25.0	24.4	98	80-120
Cadmium	ND	25.0	23.7	95	80-120
Chromium	12.5	25.0	36.2	95	80-120
Cobalt	0.610J	25.0	24.8	97	80-120
Copper	11.8	25.0	32.8	84	80-120
Lead	0.199J	25.0	25.2	100	80-120
Molybdenum	8.33	25.0	34.9	106	80-120
Nickel	0.568J	25.0	22.8	89	80-120
Selenium	3.34	25.0	25.9	90	80-120
Silver	ND	25.0	24.2	97	80-120
Thallium	ND	25.0	25.4	102	80-120
Vanadium	4.29	25.0	29.1	99	80-120
Zinc	14.1J	50.0	59.9	92	80-120

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 13K014
METHOD: METHOD DI WET/6020A

MATRIX: LEACHATE % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID: 3B-2 3B-2DL
EMAX SAMP ID: K014-01 K014-01J
LAB FILE ID: F6K08024 F6K08025
DATE EXTRACTED: 11/14/1311:08 11/14/1311:08 DATE COLLECTED: 11/04/13
DATE ANALYZED: 11/14/1315:43 11/14/1315:47 DATE RECEIVED: 11/05/13
PREP. BATCH: IMK020W IMK020W
CALIB. REF: F6K08015 F6K08015

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SERIAL DIL RSLT (ug/L)	DIF RSLT %	QC LIMIT (%)
Antimony	ND	ND	0	10
Arsenic	0.435J	ND	NA	10
Barium	295	307	4	10
Beryllium	ND	ND	0	10
Cadmium	ND	ND	0	10
Chromium	12.5	12.8	3	10
Cobalt	0.610J	ND	NA	10
Copper	11.8	13.5	15*	10
Lead	0.199J	ND	NA	10
Molybdenum	8.33	8.43J	NA	10
Nickel	0.568J	ND	NA	10
Selenium	3.34	3.64J	NA	10
Silver	ND	ND	0	10
Thallium	ND	ND	0	10
Vanadium	4.29	4.34J	NA	10
Zinc	14.1J	ND	NA	10

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD DI WET/7470A
DI WET MERCURY BY COLD VAPOR

A total of three (3) soil samples were received on 11/05/13 for Mercury by DI WET analysis, Method DI WET/7470A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for HGK005WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for K014-01M/K014-01S are within project QC limits. In addition Analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
DI WET MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP

SDG NO. : 13K014
Instrument ID : 47

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	LEACHATE		Sample Data FN	Calibration Prep.		Notes
				Analysis DateTime	Extraction DateTime		Data FN	Batch	
MBLK1W	HGK005WB	1	NA	11/12/1320:10	11/12/1313:15	M47K004041	M47K004	HGK005W	Method Blank
LCS1W	HGK005WL	1	NA	11/12/1320:12	11/12/1313:15	M47K004042	M47K004	HGK005W	Lab Control Sample (LCS)
LCD1W	HGK005WC	1	NA	11/12/1320:14	11/12/1313:15	M47K004043	M47K004	HGK005W	LCS Duplicate
MBLK2W	WTK002SB	1	NA	11/12/1320:16	11/12/1313:15	M47K004044	M47K004	HGK005W	Method Blank
3B-2	K014-01A	1	NA	11/12/1320:23	11/12/1313:15	M47K004047	M47K004	HGK005W	Analytical Spike Sample
3B-2	K014-01	1	NA	11/12/1320:25	11/12/1313:15	M47K004048	M47K004	HGK005W	Field Sample
3B-2	K014-01J	5	NA	11/12/1320:27	11/12/1313:15	M47K004049	M47K004	HGK005W	Diluted Sample
3B-2MS	K014-01M	1	NA	11/12/1320:30	11/12/1313:15	M47K004050	M47K004	HGK005W	Matrix Spike Sample (MS)
3B-2MSD	K014-01S	1	NA	11/12/1320:32	11/12/1313:15	M47K004051	M47K004	HGK005W	MS Duplicate (MSD)
3D-2	K014-02	1	NA	11/12/1320:35	11/12/1313:15	M47K004052	M47K004	HGK005W	Field Sample
CC-2	K014-03	1	NA	11/12/1320:37	11/12/1313:15	M47K004053	M47K004	HGK005W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD DI WET/7470A
DI WET MERCURY BY COLD VAPOR

Client : URS
Project : DHCCP
Batch No. : 13K014

Matrix : LEACHATE
InstrumentID : 47

655

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DIL 'N FACTOR	MOIST (%)	LOQ (ug/L)	LOD (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HGK005WB	ND	1	NA	0.5	0.1	11/12/1320:10	11/12/1313:15	M47K004041	M47K004	HGK005W	NA	NA
LCS1W	HGK005WL	2.35	1	NA	0.5	0.1	11/12/1320:12	11/12/1313:15	M47K004042	M47K004	HGK005W	NA	NA
LCD1W	HGK005WC	2.36	1	NA	0.5	0.1	11/12/1320:14	11/12/1313:15	M47K004043	M47K004	HGK005W	NA	NA
MBLK2W	WTK002SB	ND	1	NA	0.5	0.1	11/12/1320:16	11/12/1313:15	M47K004044	M47K004	HGK005W	NA	NA
3B-2	K014-01A	3.17	1	NA	0.5	0.1	11/12/1320:23	11/12/1313:15	M47K004047	M47K004	HGK005W	11/04/1312:00	11/05/13
3B-2	K014-01	ND	1	NA	0.5	0.1	11/12/1320:25	11/12/1313:15	M47K004048	M47K004	HGK005W	11/04/1312:00	11/05/13
3B-2	K014-01J	ND	5	NA	2.5	0.5	11/12/1320:27	11/12/1313:15	M47K004049	M47K004	HGK005W	11/04/1312:00	11/05/13
3B-2MS	K014-01M	2.11	1	NA	0.5	0.1	11/12/1320:30	11/12/1313:15	M47K004050	M47K004	HGK005W	11/04/1312:00	11/05/13
3B-2MSD	K014-01S	1.95	1	NA	0.5	0.1	11/12/1320:32	11/12/1313:15	M47K004051	M47K004	HGK005W	11/04/1312:00	11/05/13
3D-2	K014-02	ND	1	NA	0.5	0.1	11/12/1320:35	11/12/1313:15	M47K004052	M47K004	HGK005W	11/04/1312:00	11/05/13
CC-2	K014-03	ND	1	NA	0.5	0.1	11/12/1320:37	11/12/1313:15	M47K004053	M47K004	HGK005W	11/04/1312:00	11/05/13

DateTime Leached: 11/06/13 11:15

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : DI WET/7470A

MATRIX : WATER % MOISTURE: N/A
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : HGK005WB HGK005WL HGK005WC
LAB FILE ID : M47K004041 M47K004042 M47K004043
DATE PREPARED : 11/12/1313:15 11/12/1313:15 11/12/1313:15
DATE ANALYZED : 11/12/1320:10 11/12/1320:12 11/12/1320:14
PREP BATCH : HGK005W HGK005W HGK005W
CALIBRATION REF: M47K004 M47K004 M47K004

ACCESSION:

PARAMETER	MB RESULT (ug/L)	SPIKE AMT (ug/L)	BS RESULT (ug/L)	BS REC (%)	SPIKE AMT (ug/L)	BSD RESULT (ug/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.35	94	2.50	2.36	94	0	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : DI WET/7470A

MATRIX : LEACHATE % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : 3B-2 3B-2MS 3B-2MSD
LAB SAMPLE ID : K014-01 K014-01M K014-01S
LAB FILE ID : M47K004048 M47K004050 M47K004051
DATE PREPARED : 11/12/1313:15 11/12/1313:15 11/12/1313:15
DATE ANALYZED : 11/12/1320:25 11/12/1320:30 11/12/1320:32
PREP BATCH : HGK005W HGK005W HGK005W
CALIBRATION REF: M47K004 M47K004 M47K004

ACCESSION:

PARAMETER	PARENT RESULT (ug/L)	SPIKE AMT (ug/L)	MS RESULT (ug/L)	MS REC (%)	SPIKE AMT (ug/L)	MSD RESULT (ug/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.11	84	2.50	1.95	78	8	75-125	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : DI WET/7470A

MATRIX : LEACHATE % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID : 3B-2 3B-2
LAB SAMPLE ID : K014-01 K014-01J
LAB FILE ID : M47K004048 M47K004049
DATE PREPARED : 11/12/1313:15 11/12/1313:15
DATE ANALYZED : 11/12/1320:25 11/12/1320:27
PREP BATCH : HGK005W HGK005W
CALIBRATION REF: M47K004 M47K004

ACCESSION:

PARAMETER	PARENT RESULT (ug/L)	DUP RESULT (ug/L)	RPD (%)	MAX RPD (%)
Mercury	ND	ND	0	10

EMAX QUALITY CONTROL DATA
POST SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : DI WET/7470A

MATRIX : LEACHATE % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID : 3B-2 3B-2
LAB SAMPLE ID : K014-01 K014-01A
LAB FILE ID : M47K004048 M47K004047
DATE PREPARED : 11/12/1313:15 11/12/1313:15
DATE ANALYZED : 11/12/1320:25 11/12/1320:23
PREP BATCH : HGK005W HGK005W
CALIBRATION REF: M47K004 M47K004

ACCESSION:

PARAMETER	PARENT RESULT (ug/L)	SPIKE AMT (ug/L)	MS RESULT (ug/L)	MS REC (%)	QC LIMIT (%)
Mercury	ND	3.00	3.17	106	75-125

LABORATORY REPORT FOR

URS

DHCCP

WET CHEMICAL
ANALYSES

SDG#: 13K014

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

SM 4500NH3F
AMMONIA (NH3-N)

A total of three (3) soil samples were received on 11/05/13 for Ammonia-N by SM4500-NH3 F analysis, Method SM 4500NH3F in accordance with Standard Methods for the Examination of Water and Wastewater, 21st Edition.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NHK004SL/C were all within QC limits.

Matrix QC Sample
Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for K014-02M is within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

SM 4500NH3F
AMMONIA (NH3-N)

Client : URS
Project : DHCCP
Batch No. : 13K014

Matrix : SOIL
InstrumentID : 70

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CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	NHK004SB	ND	1	NA	1	0.6	11/14/1314:02	11/13/1314:30	13NHK00411	13NHK004	NHK004S	NA	NA
LCS1S	NHK004SL	4.36	1	NA	1	0.6	11/14/1314:02	11/13/1314:30	13NHK00412	13NHK004	NHK004S	NA	NA
LCD1S	NHK004SC	4.58	1	NA	1	0.6	11/14/1314:03	11/13/1314:30	13NHK00413	13NHK004	NHK004S	NA	NA
3B-2	K014-01	2.31	0.989	22.5	1.28	0.766	11/14/1314:03	11/13/1314:30	13NHK00414	13NHK004	NHK004S	11/04/1312:00	11/05/13
3D-2	K014-02	ND	1.01	12.0	1.15	0.689	11/14/1314:03	11/13/1314:30	13NHK00415	13NHK004	NHK004S	11/04/1312:00	11/05/13
3D-2DUP	K014-02D	ND	0.98	12.0	1.11	0.668	11/14/1314:04	11/13/1314:30	13NHK00416	13NHK004	NHK004S	11/04/1312:00	11/05/13
3D-2MS	K014-02M	5.36	0.994	12.0	1.13	0.678	11/14/1314:04	11/13/1314:30	13NHK00417	13NHK004	NHK004S	11/04/1312:00	11/05/13
CC-2	K014-03I	16.0	4.87	16.0	5.80	3.48	11/14/1314:05	11/13/1314:30	13NHK00421	13NHK004	NHK004S	11/04/1312:00	11/05/13

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : SM 4500NH3F

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : NHK004SB NHK004SL NHK004SC
LAB FILE ID : 13NHK00411 13NHK00412 13NHK00413
DATE PREPARED : 11/13/1314:30 11/13/1314:30 11/13/1314:30
DATE ANALYZED : 11/14/1314:02 11/14/1314:02 11/14/1314:03
PREP BATCH : NHK004S NHK004S NHK004S
CALIBRATION REF: 13NHK004 13NHK004 13NHK004

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ammonia (NH3-N)	ND	5	4.36	87	5	4.58	92	5	80-120	20

EMAX QUALITY CONTROL DATA
MATRIX SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : SM 4500NH3F

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MATRIX	: SOIL	% MOISTURE:	16.0
DILUTION FACTOR:	1.01	0.994	
SAMPLE ID	: 3D-2	3D-2MS	
LAB SAMPLE ID	: K014-02	K014-02M	
LAB FILE ID	: 13NHK00415	13NHK00417	
DATE PREPARED	: 11/13/1314:30	11/13/1314:30	
DATE ANALYZED	: 11/14/1314:03	11/14/1314:04	
PREP BATCH	: NHK004S	NHK004S	
CALIBRATION REF:	13NHK004	13NHK004	

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Ammonia (NH3-N)	ND	5.65	5.36	95	75-125

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : SM 4500NH3F

=====

MATRIX : SOIL
DILUTION FACTOR: 1.01 0.98
SAMPLE ID : 3D-2 3D-2DUP
LAB SAMPLE ID : K014-02 K014-02D
LAB FILE ID : 13NHK00415 13NHK00416
DATE PREPARED : 11/13/1314:30 11/13/1314:30
DATE ANALYZED : 11/14/1314:03 11/14/1314:04
PREP BATCH : NHK004S NHK004S
CALIBRATION REF: 13NHK004 13NHK004

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
-----	-----	-----	-----	-----
Ammonia (NH3-N)	ND	ND	0	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

SM 4500NO3E
NITRATE/NITRITE

A total of three (3) soil samples were received on 11/05/13 for Nitrate/Nitrite as N analysis, Method SM 4500NO3E in accordance with Standard Methods for the Examination of Water and Wastewater, 21st Edition.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NAK003SL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project.

Percent recoveries for K014-01M is within project QC limits.

Sample duplicate was also analyzed with the samples. RPD was within project limit.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

SM 4500N03E
NITRATE/NITRITE

Client : URS
Project : DHCCP
Batch No. : 13K014

Matrix : SOIL
InstrumentID : 70

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CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	NAK003SB	ND	1	NA	0.5	0.2	11/08/1316:37	11/08/1311:08	13NAK00310	13NAK003	NAK003S	NA	NA
LCS1S	NAK003SL	5.25	1	NA	0.5	0.2	11/08/1316:38	11/08/1311:08	13NAK00311	13NAK003	NAK003S	NA	NA
LCD1S	NAK003SC	5.17	1	NA	0.5	0.2	11/08/1316:38	11/08/1311:08	13NAK00312	13NAK003	NAK003S	NA	NA
3B-2	K014-01	ND	1	22.5	0.645	0.258	11/08/1316:38	11/08/1311:08	13NAK00314	13NAK003	NAK003S	11/04/1312:00	11/05/13
3B-2DUP	K014-01D	ND	1	22.5	0.645	0.258	11/08/1316:39	11/08/1311:08	13NAK00315	13NAK003	NAK003S	11/04/1312:00	11/05/13
3B-2MS	K014-01M	6.58	1	22.5	0.645	0.258	11/08/1316:39	11/08/1311:08	13NAK00316	13NAK003	NAK003S	11/04/1312:00	11/05/13
3D-2	K014-02	0.315J	0.998	12.0	0.567	0.227	11/08/1316:39	11/08/1311:08	13NAK00317	13NAK003	NAK003S	11/04/1312:00	11/05/13
CC-2	K014-03I	12.3	2	16.0	1.19	0.476	11/08/1316:39	11/08/1311:08	13NAK00319	13NAK003	NAK003S	11/04/1312:00	11/05/13

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : SM 4500NO3E

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MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : NAK003SB NAK003SL NAK003SC
LAB FILE ID : 13NAK00310 13NAK00311 13NAK00312
DATE PREPARED : 11/08/1311:08 11/08/1311:08 11/08/1311:08
DATE ANALYZED : 11/08/1316:37 11/08/1316:38 11/08/1316:38
PREP BATCH : NAK003S NAK003S NAK003S
CALIBRATION REF: 13NAK003 13NAK003 13NAK003

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
NITRATE/NITRITE	ND	5	5.25	105	5	5.17	103	2	80-120	20

EMAX QUALITY CONTROL DATA
MATRIX SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : SM 4500NO3E

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MATRIX : SOIL % MOISTURE: 22.5
DILUTION FACTOR: 1 1
SAMPLE ID : 3B-2 3B-2MS
LAB SAMPLE ID : K014-01 K014-01M
LAB FILE ID : 13NAK00314 13NAK00316
DATE PREPARED : 11/08/1311:08 11/08/1311:08
DATE ANALYZED : 11/08/1316:38 11/08/1316:39
PREP BATCH : NAK003S NAK003S
CALIBRATION REF: 13NAK003 13NAK003

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
NITRATE/NITRITE	ND	6.46	6.58	102	75-125

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : SM 4500NO3E

=====

MATRIX : SOIL
DILUTION FACTOR: 1 1
SAMPLE ID : 3B-2 3B-2DUP
LAB SAMPLE ID : K014-01 K014-01D
LAB FILE ID : 13NAK00314 13NAK00315
DATE PREPARED : 11/08/1311:08 11/08/1311:08
DATE ANALYZED : 11/08/1316:38 11/08/1316:39
PREP BATCH : NAK003S NAK003S
CALIBRATION REF: 13NAK003 13NAK003

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
-----	-----	-----	-----	-----
NITRATE/NITRITE	ND	ND	0	20

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

METHOD 7196A
HEXAVALENT CHROMIUM

A total of three (3) soil samples were received on 11/05/13 for Chromium Hexavalent analysis, Method 7196A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

Two (2) Lab Control Samples were analyzed with the samples in this SDG. Percent recovery for CSK005SL (soluble) was within QC limits. Percent recovery for CIK005SL (insoluble) was within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries for K014-01M/M (soluble and insoluble) were within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit. Analytical spike was analyzed for matrix interference evaluation. Result was within method acceptance criteria.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

METHOD 7196A
HEXAVALENT CHROMIUM

Client : URS
Project : DHCCP
Batch No. : 13K014

Matrix : SOIL
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	CRK005SB	ND	1	NA	1	0.5	11/13/1316:56	11/08/1311:51	13CRK00509	13CRK005	CRK005S	NA	NA
LCS1S	CSK005SL	10.9	1	NA	1	0.5	11/13/1316:56	11/08/1311:51	13CRK00510	13CRK005	CRK005S	NA	NA
LCS2S	CIK005SL	565	50	NA	50	25	11/13/1316:56	11/08/1311:51	13CRK00511	13CRK005	CRK005S	NA	NA
3B-2	K014-01	ND	0.999	22.5	1.29	0.645	11/13/1316:57	11/08/1311:51	13CRK00512	13CRK005	CRK005S	11/04/1312:00	11/05/13
3B-2DUP	K014-01D	ND	0.99	22.5	1.28	0.639	11/13/1316:57	11/08/1311:51	13CRK00513	13CRK005	CRK005S	11/04/1312:00	11/05/13
3B-2MS	K014-01M	14.0	0.994	22.5	1.28	0.641	11/13/1316:57	11/08/1311:51	13CRK00514	13CRK005	CRK005S	11/04/1312:00	11/05/13
3B-2MS	K014-01M	746	50.2	22.5	64.8	32.4	11/13/1316:57	11/08/1311:51	13CRK00515	13CRK005	CRK005S	11/04/1312:00	11/05/13
3B-2AS	K014-01A	14.7	0.999	22.5	1.29	0.645	11/13/1316:58	11/08/1311:51	13CRK00516	13CRK005	CRK005S	11/04/1312:00	11/05/13
3D-2	K014-02	ND	1	12.0	1.14	0.568	11/13/1316:58	11/08/1311:51	13CRK00517	13CRK005	CRK005S	11/04/1312:00	11/05/13
CC-2	K014-03	ND	0.998	16.0	1.19	0.594	11/13/1316:58	11/08/1311:51	13CRK00518	13CRK005	CRK005S	11/04/1312:00	11/05/13

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DWR-207

EMAX QUALITY CONTROL DATA
LCS (SOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : METHOD 7196A

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MATRIX : SOIL
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1S LCS1S
LAB SAMPLE ID : CRK005SB CSK005SL
LAB FILE ID : 13CRK00509 13CRK00510
DATE PREPARED : 11/08/1311:51 11/08/1311:51
DATE ANALYZED : 11/13/1316:56 11/13/1316:56
PREP BATCH : CRK005S CRK005S
CALIBRATION REF: 13CRK005 13CRK005

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	QC LIMIT (%)
Hexavalent Chromium	ND	12	10.9	91	85-115

EMAX QUALITY CONTROL DATA
LCS (INSOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : METHOD 7196A

MATRIX : SOIL
DILUTION FACTOR: 1 50
SAMPLE ID : MBLK1S LCS2S
LAB SAMPLE ID : CRK005SB CIK005SL
LAB FILE ID : 13CRK00509 13CRK00511
DATE PREPARED : 11/08/1311:51 11/08/1311:51
DATE ANALYZED : 11/13/1316:56 11/13/1316:56
PREP BATCH : CRK005S CRK005S
CALIBRATION REF: 13CRK005 13CRK005

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	QC LIMIT (%)
Hexavalent Chromium	ND	622	565	91	75-125

EMAX QUALITY CONTROL DATA
MATRIX SPIKE (SOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : METHOD 7196A

MATRIX : SOIL % MOISTURE: 22.5
DILUTION FACTOR: 0.999 0.994
SAMPLE ID : 3B-2 3B-2MS
LAB SAMPLE ID : K014-01 K014-01M
LAB FILE ID : 13CRK00512 13CRK00514
DATE PREPARED : 11/08/1311:51 11/08/1311:51
DATE ANALYZED : 11/13/1316:57 11/13/1316:57
PREP BATCH : CRK005S CRK005S
CALIBRATION REF: 13CRK005 13CRK005

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
Hexavalent Chromium	ND	15.4	14.0	91	85-115

EMAX QUALITY CONTROL DATA
MATRIX SPIKE (INSOLUBLE) ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : METHOD 7196A

MATRIX : SOIL % MOISTURE: 22.5
DILUTION FACTOR: 0.999 50.2
SAMPLE ID : 3B-2 3B-2MS
LAB SAMPLE ID : K014-01 K014-01M
LAB FILE ID : 13CRK00512 13CRK00515
DATE PREPARED : 11/08/1311:51 11/08/1311:51
DATE ANALYZED : 11/13/1316:57 11/13/1316:57
PREP BATCH : CRK005S CRK005S
CALIBRATION REF: 13CRK005 13CRK005

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	MS RESULT (mg/kg)	MS REC (%)	QC LIMIT (%)
Hexavalent Chromium	ND	849	746	88	75-125

EMAX QUALITY CONTROL DATA
POST SPIKE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : METHOD 7196A

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MATRIX : SOIL % MOISTURE: 22.5
DILUTION FACTOR: 0.999 0.999
SAMPLE ID : 3B-2 3B-2
LAB SAMPLE ID : K014-01 K014-01A
LAB FILE ID : 13CRK00512 13CRK00516
DATE PREPARED : 11/08/1311:51 11/08/1311:51
DATE ANALYZED : 11/13/1316:57 11/13/1316:58
PREP BATCH : CRK005S CRK005S
CALIBRATION REF: 13CRK005 13CRK005

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	SPIKE AMT (mg/kg)	AS RESULT (mg/kg)	AS REC (%)	QC LIMIT (%)
-----	-----	-----	-----	-----	-----
Hexavalent Chromium	ND	15.5	14.7	95	85-115

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 13K014

WALKLEY-BLACK
TOC BY WALKLEY-BLACK METHOD

A total of three (3) soil samples were received on 11/05/13 for Total Organic Carbon analysis, Method WALKLEY-BLACK in accordance with Walkley-Black Procedure (Walkley, 1946; Peech et al., 1947; Greweling & Peech, 1960).

Holding Time
Samples were analyzed within the prescribed holding time.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for WBK001SL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated for this SDG. However, sample duplicate was analyzed with the samples. RPD was within project limit.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

WALKLEY-BLACK
TOC BY WALKLEY-BLACK METHOD

Client : URS
Project : DHCCP
Batch No. : 13K014

Matrix : SOIL
InstrumentID : NA

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	PREP. FACTOR	MOIST (%)	LOQ (mg/kg)	LOD (mg/kg)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1S	WBK001SB	ND	1.00	NA	600	600	11/08/1315:55	11/08/1315:55	13WBK00101	13WBK001	WBK001S	NA	NA
LCS1S	WBK001SL	2300	1.00	NA	600	600	11/08/1315:57	11/08/1315:57	13WBK00102	13WBK001	WBK001S	NA	NA
LCD1S	WBK001SC	2300	1.00	NA	600	600	11/08/1315:59	11/08/1315:59	13WBK00103	13WBK001	WBK001S	NA	NA
3B-2	K014-01	1270	0.966	22.5	748	748	11/08/1316:06	11/08/1316:06	13WBK00107	13WBK001	WBK001S	11/04/1312:00	11/05/13
3B-2DUP	K014-01D	1380	0.959	22.5	742	742	11/08/1316:09	11/08/1316:09	13WBK00108	13WBK001	WBK001S	11/04/1312:00	11/05/13
3D-2	K014-02	1150	0.989	12.0	674	674	11/08/1316:11	11/08/1316:11	13WBK00109	13WBK001	WBK001S	11/04/1312:00	11/05/13
CC-2	K014-03	2620	0.955	16.0	682	682	11/08/1316:12	11/08/1316:12	13WBK00110	13WBK001	WBK001S	11/04/1312:00	11/05/13

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : WALKLEY-BLACK

MATRIX : SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1S LCS1S LCD1S
LAB SAMPLE ID : WBK001SB WBK001SL WBK001SC
LAB FILE ID : 13WBK00101 13WBK00102 13WBK00103
DATE EXTRACTED : 11/08/1316:12 11/08/1316:12 11/08/1316:12
DATE ANALYZED : 11/08/1315:55 11/08/1315:57 11/08/1315:59
PREP BATCH : WBK001S WBK001S WBK001S
CALIBRATION REF: 13WBK001 13WBK001 13WBK001

ACCESSION:

PARAMETER	MB RESULT (mg/kg)	SPIKE AMT (mg/kg)	BS RESULT (mg/kg)	BS REC (%)	SPIKE AMT (mg/kg)	BSD RESULT (mg/kg)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	2000	2300	115	2000	2300	115	0	80-120	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : URS
PROJECT : DHCCP
BATCH NO. : 13K014
METHOD : WALKLEY-BLACK

MATRIX : SOIL MOISTURE: 22.5
DILUTION FACTOR: 0.966 0.959
SAMPLE ID : 3B-2 3B-2DUP
LAB SAMPLE ID : K014-01 K014-01D
LAB FILE ID : 13WBK00107 13WBK00108
DATE PREPARED : 11/08/1316:06 11/08/1316:09
DATE ANALYZED : 11/08/1316:06 11/08/1316:09
PREP BATCH : WBK001S WBK001S
CALIBRATION REF: 13WBK001 13WBK001

ACCESSION:

PARAMETER	PARENT RESULT (mg/kg)	DUP RESULT (mg/kg)	RPD (%)	MAX RPD (%)
TOC	1270	1380	8	20

LABORATORY REPORT FOR

URS

DHCCP

SUBCONTRACTED ANALYSES (ALS-KELSO)

BUTYLTINS
METHYL MERCURY

SDG#: 13K014



November 22, 2013

Analytical Report for Service Request No: K1312129

Caspar Pang
Emax Laboratories, Incorporated
1835 W. 205th St.
Torrance, CA 90501

RE: DHCCP/13K014

Dear Caspar:

Enclosed are the results of the samples submitted to our laboratory on November 07, 2013. For your reference, these analyses have been assigned our service request number K1312129.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3364. You may also contact me via Email at Howard.Holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Howard Holmes
Project Manager

HH/mj

Page 1 of _____

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier See case narrative
- # The control limit criteria is not applicable See case narrative
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards
- E The result is an estimate amount because the value exceeded the instrument calibration range
- J The result is an estimated value
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project The detection limit is adjusted for dilution
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference
- X See case narrative
- Q See case narrative One or more quality control criteria was outside the limits
- H The holding time for this test is immediately following sample collection The samples were analyzed as soon as possible after receipt by the laboratory

Metals Data Qualifiers

- # The control limit criteria is not applicable See case narrative
- J The result is an estimated value
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample
- M The duplicate injection precision was not met
- N The Matrix Spike sample recovery is not within control limits See case narrative
- S The reported value was determined by the Method of Standard Additions (MSA)
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project The detection limit is adjusted for dilution
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference
- X See case narrative
- + The correlation coefficient for the MSA is less than 0.995
- Q See case narrative One or more quality control criteria was outside the limits

Organic Data Qualifiers

- * The result is an outlier See case narrative
- # The control limit criteria is not applicable See case narrative
- A A tentatively identified compound, a suspected aldol-condensation product
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data
- D The reported result is from a dilution
- E The result is an estimated value
- J The result is an estimated value
- N The result is presumptive The analyte was tentatively identified, but a confirmation analysis was not performed
- P The GC or HPLC confirmation criteria was exceeded The relative percent difference is greater than 40% between the two analytical results
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project The detection limit is adjusted for dilution
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference
- X See case narrative
- Q See case narrative One or more quality control criteria was outside the limits

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard
- Z The chromatographic fingerprint does not resemble a petroleum product

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses**

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjllabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

ALS ENVIRONMENTAL

Client: Emax Laboratories
Project: DHCCP
Sample Matrix: Soil

Service Request No.: K1312129
Date Received: 11/7/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), and Laboratory Control Sample (LCS).

Sample Receipt

Three soil samples were received for analysis at ALS Environmental on 11/7/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Methyl Mercury by EPA 1630M

No anomalies associated with this analysis were observed.

Organotin Compounds**Relative Percent Difference Exceptions:**

The Relative Percent Difference (RPD) for n-Butyltin Cation in the replicate matrix spike analyses of Batch QC was outside control criteria. In general, the RPD was relatively high for all spiked compounds, which indicates a potential bias in the Matrix Spike (MS)/Matrix Spike Duplicate (MSD). All spike recoveries in the MS, DMS, and associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

No other anomalies associated with this analysis were observed.

Approved by _____

CHAIN OF CUSTODY

K1313179
DWR-207

Tel#: 310-618-8889 FAX#: 310-618-0818
email: info@emaxlabs.com

EMAX CONTROL NO	13K014
PROJECT CODE	URS1311
TURN-AROUND-TIME	14 DAYS

SEND REPORT TO:
EMAX LABORATORIES, INC.
1835 W. 205TH ST. CA 90501

CLIENT: URS
PROJECT: DHCCP

SEND SAMPLES TO:

CAS-Columbia Lab
1317 S. 13th Avenue
Kelso, WA 98626

ATTN: Caspar

EMAX Sample ID	Client Sample ID	Collection Date	CollectionTime	Matrix	Method		COMMENTS
K014-01	3B-2	11/4/2013	12:00:00 PM	SOIL	EPA 1630M	Methyl Mercury by 1630M	
K014-01	3B-2	11/4/2013	12:00:00 PM	SOIL	GC-FPD(b)	Tributyl tin(mono-, di-,and trib	
K014-02	3D-2	11/4/2013	12:00:00 PM	SOIL	EPA 1630M	Methyl Mercury by 1630M	
K014-02	3D-2	11/4/2013	12:00:00 PM	SOIL	GC-FPD(b)	Tributyl tin(mono-, di-,and trib	
K014-03	CC-2	11/4/2013	12:00:00 PM	SOIL	EPA 1630M	Methyl Mercury by 1630M	
K014-03	CC-2	11/4/2013	12:00:00 PM	SOIL	GC-FPD(b)	Tributyl tin(mono-, di-,and trib	

INSTRUCTION:

Please login using Client Sample ID and report as level 2 with standard EDD.

COOLER TEMPERATURE

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<i>J. J. Bates</i>	11/6/13	1345	<i>James J. Bates</i>	11/7/13	1720

Cooler Receipt and Preservation Form

Client / Project: EMAX Service Request K13 12129
Received: Nov 7, 2013 Opened: 11/7 By: SD Unloaded: 11/7 By: SD

- Samples were received via? Mail Fed Ex UPS DHL PDX Courier Hand Delivered
- Samples were received in: (circle) Cooler Box Envelope Other NA
- Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 - front 1 - back
If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
<u>1.5</u>	<u>0.3</u>	<u>1.5</u>	<u>1.5</u>	<u>0.0</u>	<u>316</u>	<u>NA</u>	<u>691949173083</u>		

- Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves
- Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
- Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
- Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
- Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
- Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
- Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below.* (NA) Y N
- Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
- Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project:
Sample Matrix: Soil

Service Request: K1312129

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
3B-2	K1312129-001	11/04/2013	11/07/2013	11/18/2013	77.4	
3D-2	K1312129-002	11/04/2013	11/07/2013	11/18/2013	87.9	
CC-2	K1312129-003	11/04/2013	11/07/2013	11/18/2013	80.5	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
Sample Matrix: Soil

Service Request: K1312129
Date Collected: 11/04/13
Date Received: 11/07/13

Methyl Mercury

Prep Method: ALS SOP
Analysis Method: ALS SOP
Test Notes:

Units: ng/g
Basis: Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
3B-2	K1312129-001	0.5	0.05	1	11/13/13	11/14/13	ND	
3D-2	K1312129-002	0.4	0.04	1	11/13/13	11/14/13	ND	
CC-2	K1312129-003	0.5	0.05	1	11/13/13	11/14/13	ND	
Method Blank 1	K1312129-MB1	0.4	0.04	1	11/13/13	11/14/13	ND	
Method Blank 2	K1312129-MB2	0.4	0.04	1	11/13/13	11/14/13	ND	
Method Blank 3	K1312129-MB3	0.4	0.04	1	11/13/13	11/14/13	ND	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
Sample Matrix: Soil

Service Request: K1312129
Date Collected: 11/04/13
Date Received: 11/07/13
Date Extracted: 11/13/13
Date Analyzed: 11/14/13

Matrix Spike/Duplicate Matrix Spike Summary
 Metals

Sample Name: CC-2 Units: ng/g
 Lab Code: K1312129-003MS, K1312129-003MSD Basis: Dry
 Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Spike Level		Sample Result	Spike Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Methyl Mercury	CAS SOP	CAS SOP	2.5	122	123	ND	112	104	92	85	65-135	7	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
LCS Matrix: Water

Service Request: K1312129
Date Collected: NA
Date Received: NA
Date Extracted: 11/13/13
Date Analyzed: 11/14/13

Ongoing Precision and Recovery (OPR) Sample Summary
 Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: pg
 Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery	Result Notes
						Acceptance Limits	
Methyl Mercury	CAS SOP	CAS SOP	100	79.7	80	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
LCS Matrix: Water

Service Request: K1312129
Date Collected: NA
Date Received: NA
Date Extracted: 11/13/13
Date Analyzed: 11/14/13

Ongoing Precision and Recovery (OPR) Sample Summary
 Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: pg
 Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery	Result Notes
						Acceptance Limits	
Methyl Mercury	CAS SOP	CAS SOP	100	76.5	76	67-133	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP
LCS Matrix: Soil

Service Request: K1312129
Date Collected: NA
Date Received: NA
Date Extracted: 11/13/13
Date Analyzed: 11/14/13

Quality Control Sample (QCS) Summary
 Total Metals

Sample Name: Quality Control Sample

Units: ng/g
Basis: Dry

Source: ERM - CC580 Estuarine Sediment

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Methyl Mercury	CAS SOP	CAS SOP	75.0	64.4	86	67-133	

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13K014
Sample Matrix: Soil

Service Request: K1312129
Date Collected: 11/04/2013
Date Received: 11/07/2013

Butyltins (as cation)

Sample Name: 3B-2
Lab Code: K1312129-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.99	0.44	1	11/12/13	11/14/13	KWG1312702	
Tri-n-butyltin Cation	ND	U	0.99	0.43	1	11/12/13	11/14/13	KWG1312702	
Di-n-butyltin Cation	ND	U	0.99	0.19	1	11/12/13	11/14/13	KWG1312702	
n-Butyltin Cation	ND	U	0.99	0.26	1	11/12/13	11/14/13	KWG1312702	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	73	10-120	11/14/13	Acceptable

Comments: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13K014
Sample Matrix: Soil

Service Request: K1312129
Date Collected: 11/04/2013
Date Received: 11/07/2013

Butyltins (as cation)

Sample Name: 3D-2
Lab Code: K1312129-002
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.99	0.44	1	11/12/13	11/14/13	KWG1312702	
Tri-n-butyltin Cation	ND	U	0.99	0.43	1	11/12/13	11/14/13	KWG1312702	
Di-n-butyltin Cation	0.28	J	0.99	0.19	1	11/12/13	11/14/13	KWG1312702	
n-Butyltin Cation	0.32	J	0.99	0.26	1	11/12/13	11/14/13	KWG1312702	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	86	10-120	11/14/13	Acceptable

Comments: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13K014
Sample Matrix: Soil

Service Request: K1312129
Date Collected: 11/04/2013
Date Received: 11/07/2013

Butyltins (as cation)

Sample Name: CC-2
Lab Code: K1312129-003
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.99	0.44	1	11/12/13	11/14/13	KWG1312702	
Tri-n-butyltin Cation	ND	U	0.99	0.43	1	11/12/13	11/14/13	KWG1312702	
Di-n-butyltin Cation	0.31	J	0.99	0.19	1	11/12/13	11/14/13	KWG1312702	
n-Butyltin Cation	0.57	J	0.99	0.26	1	11/12/13	11/14/13	KWG1312702	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	67	10-120	11/14/13	Acceptable

Comments: _____

Analytical Results

Client: Emax Laboratories, Incorporated
Project: DHCCP/13K014
Sample Matrix: Soil

Service Request: K1312129
Date Collected: NA
Date Received: NA

Butyltins (as cation)

Sample Name: Method Blank
Lab Code: KWG1312702-4
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.99	0.44	1	11/12/13	11/14/13	KWG1312702	
Tri-n-butyltin Cation	ND	U	0.99	0.43	1	11/12/13	11/14/13	KWG1312702	
Di-n-butyltin Cation	ND	U	0.99	0.19	1	11/12/13	11/14/13	KWG1312702	
n-Butyltin Cation	ND	U	0.99	0.26	1	11/12/13	11/14/13	KWG1312702	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	81	10-120	11/14/13	Acceptable

Comments: _____

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13K014
Sample Matrix: Sediment

Service Request: K1312129

Surrogate Recovery Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: Percent
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
Batch QC	K1311240-002	54 D
3B-2	K1312129-001	73
3D-2	K1312129-002	86
CC-2	K1312129-003	67
Method Blank	KWG1312702-4	81
Batch QCMS	KWG1312702-1	86 D
Batch QCDMS	KWG1312702-2	83 D
Lab Control Sample	KWG1312702-3	62

Surrogate Recovery Control Limits (%)

Sur1 = Tri-n-propyltin 10-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13K014
Sample Matrix: Sediment

Service Request: K1312129
Date Extracted: 11/12/2013
Date Analyzed: 11/15/2013

Matrix Spike/Duplicate Matrix Spike Summary
Butyltins (as cation)

Sample Name: Batch QC
Lab Code: K1311240-002
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1312702

Analyte Name	Sample Result	Batch QCMS KWG1312702-1 Matrix Spike			Batch QCDMS KWG1312702-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Tetra-n-butyltin	ND	26.7	37.0	72	22.9	37.0	62	16-126	15	40
Tri-n-butyltin Cation	3.5	36.2	32.9	100	34.1	32.9	93	10-115	6	40
Di-n-butyltin Cation	6.0	39.4	28.4	117	27.6	28.4	76	10-133	35	40
n-Butyltin Cation	3.0	31.5	23.1	123	14.9	23.1	52	10-124	71 *	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

QA/QC Report

Client: Emax Laboratories, Incorporated
Project: DHCCP/13K014
Sample Matrix: Soil

Service Request: K1312129
Date Extracted: 11/12/2013
Date Analyzed: 11/14/2013

Lab Control Spike Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1312702

Lab Control Sample
KWG1312702-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Tetra-n-butyltin	13.2	25.0	53	19-130
Tri-n-butyltin Cation	18.8	22.2	85	10-122
Di-n-butyltin Cation	12.6	19.2	65	12-136
n-Butyltin Cation	8.97	15.6	58	10-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

CASE NARRATIVE

Client : URS
Project : DHCCP
SDG : 14B108

SW 3550B/8270C SIM
1,4-DIOXANE BY GC/MS SIM

One(1) soil sample was received on 02/19/14 for 1,4-Dioxane by 8270 SIM analysis, Method SW 3550B/8270C SIM in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

The sample was analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Instrument mass ratios were evaluated and results were within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for SVB030SL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated in this SDG.

Surrogate

Surrogate was added on QC and field samples. Surrogate recoveries were within project QC limits. Refer to sample result forms for details.

Sample Analysis

The sample was analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
1,4-Dioxane BY GC/MS SIM

```
=====
Client      : URS                                     SDG NO.       : 14B108
Project     : DHCCP                                   Instrument ID  : T-052
=====
```

```

                                SOIL
Client      Laboratory Dilution   %      Analysis      Extraction      Sample      Calibration Prep.
Sample ID   Sample ID   Factor   Moist   DateTime        DateTime        Data FN      Data FN      Batch      Notes
-----
MBLK1S      SVB030SB      1        NA    02/21/1410:27    02/20/1414:11    RBK042      RFK007      SVB030S    Method Blank
LCS1S      SVB030SL      1        NA    02/21/1410:45    02/20/1414:11    RBK043      RFK007      SVB030S    Lab Control Sample (LCS)
LCD1S      SVB030SC      1        NA    02/21/1411:04    02/20/1414:11    RBK044      RFK007      SVB030S    LCS Duplicate
3B-3       B108-01      1       14.0   02/21/1411:22    02/20/1414:11    RBK045      RFK007      SVB030S    Field Sample
```

FN - Filename

% Moist - Percent Moisture

SAMPLE RESULTS

SW 3550B/8270C SIM
1,4-Dioxane BY GC/MS SIM

```
=====
Client      : URS                      Date Collected: 02/18/14
Project     : DHCCP                   Date Received: 02/19/14
Batch No.   : 14B108                 Date Extracted: 02/20/14 14:11
Sample ID   : 3B-3                   Date Analyzed: 02/21/14 11:22
Lab Samp ID : B108-01                Dilution Factor: 1
Lab File ID : RBK045                 Matrix       : SOIL
Ext Btch ID : SVB030S                % Moisture    : 14.0
Calib. Ref. : RFK007                 Instrument ID : T-052
=====
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,4-DIOXANE	ND	120	58

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	1250	1550	80.4	40-150

RL: Reporting Limit

QC SUMMARIES

SW 3550B/8270C SIM
1,4-Dioxane BY GC/MS SIM

```
=====
Client      : URS
Project     : DHCCP
Batch No.   : 14B108
Sample ID   : MBLK1S
Lab Samp ID : SVB030SB
Lab File ID : RBK042
Ext Btch ID : SVB030S
Calib. Ref.: RFK007

Date Collected: NA
Date Received: 02/20/14
Date Extracted: 02/20/14 14:11
Date Analyzed: 02/21/14 10:27
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : NA
Instrument ID : T-052
=====
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,4-DIOXANE	ND	100	50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	1070	1333	80.6	40-150

RL: Reporting Limit

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: URS
PROJECT: DHCCP
BATCH NO.: 14B108
METHOD: SW 3550B/8270C SIM

=====

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: SVB030SB SVB030SL SVB030SC
LAB FILE ID: RBK042 RBK043 RBK044
DATE EXTRACTED: 02/20/1414:11 02/20/1414:11 02/20/1414:11 DATE COLLECTED: NA
DATE ANALYZED: 02/21/1410:27 02/21/1410:45 02/21/1411:04 DATE RECEIVED: 02/20/14
PREP. BATCH: SVB030S SVB030S SVB030S
CALIB. REF: RFK007 RFK007 RFK007

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,4-Dioxane	ND	1330	923	69	1330	1010	76	9	40-150	50

=====

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
Bromobenzene	1330	1050	79	1330	1120	84	40-150

APPENDIX E

Planting Suitability Properties Testing Data

WALLACE LABORATORIES, LLC**365 Coral Circle****El Segundo, CA 90245****phone (310) 615-0116 fax (310) 640-6863**

August 9, 2013

rob.nixon@urs.com, chris.hargreaves@urs.com

URS

2870 Gateway Oaks Drive, Suite 150

Sacramento, CA 95833

RE: DHCCP Testing, Job No. WBS014.7

Dear Rob & Chris,

<u>Our ID No.</u>	<u>Sample</u>
13-220-1	1A-1
13-220-2	2A-1
13-220-3	3A-1

These three samples have moderate alkalinity. The pH values range from 7.86 to 7.92. Salinity is moderate and ranges from 1.33 millimho/cm to 1.84 millimho/cm.

Nitrogen is modest. Phosphorus is low. Potassium, sulfur, iron, manganese and copper are sufficient. Zinc is low. Boron is modest. Magnesium is high. Total available sodium is moderately high. SAR (sodium adsorption ratio) ranges from 4.3 to 4.4.

The concentrations of non-essential heavy metals are low. A low amount of plant-available lead and vanadium are present.

Cation Exchange Capacity ranges from 23.4 to 26.3 milliequivalents per 100 grams. Exchangeable potassium is modest at 1 and 2%. Exchangeable magnesium is high and ranges from 27% to 28%. High magnesium limits the uptake of potassium and calcium. Exchangeable calcium is modest and ranges from 58% to 61%. Exchangeable sodium is slightly high at 5%.

The rates of water percolation are moderately slow and range from 0.22 to 0.34 inches per hour. Excess sodium reduces soil porosity and decreases the rate of drainage.

The soil textures are clay loam.

Recommendations

General soil preparation on a square foot basis for a 6-inch lift. Broadcast the following materials uniformly. The rates are per 1,000 square feet. Incorporate them homogeneously 6 inches deep:

Potassium sulfate (0-0-50) - 6 pounds

Triple superphosphate (0-45-0) – 4 pounds

agricultural gypsum - 40 pounds

Organic soil amendment – about 3 cubic yards, sufficient for 3% to 6% soil organic matter on a dry weight basis

For the preparation on a volume basis, homogeneously blend the following materials into clean soil. Rates are expressed per cubic yard:

Potassium sulfate (0-0-50) - 1/4 pound

Triple superphosphate (0-45-0) – 1/4 pound

agricultural gypsum – 2 pounds

Organic soil amendment – about 15% by volume, sufficient for 3% to 6% soil organic matter on a dry weight basis

Organic soil amendment:

1. Humus material shall have an acid-soluble ash content of no less than 6% and no more than 20%. Organic matter shall be at least 50% on a dry weight basis.
2. The pH of the material shall be between 6 and 7.5.
3. The salt content shall be less than 10 millimho/cm @ 25° C. in a saturated paste extract.
4. Boron content of the saturated extract shall be less than 1.0 part per million.
5. Silicon content (acid-insoluble ash) shall be less than 50%.
6. Calcium carbonate shall not be present if to be applied on alkaline soils.
7. Types of acceptable products are composts, manures, mushroom composts, straw, alfalfa, peat mosses etc. low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.
8. Composted wood products are conditionally acceptable [stable humus must be present]. Wood based products are not acceptable which are based on red wood or cedar.
9. Sludge-based materials are not acceptable.
10. Carbon:nitrogen ratio is less than 25:1.
11. The compost shall be aerobic without malodorous presence of decomposition products.
12. The maximum particle size shall be 0.5 inch, 80% or more shall pass a No. 4 screen for soil amending.

Maximum total permissible pollutant concentrations in amendment in parts per million on a dry weight basis:

arsenic	20	copper	150	selenium	50
cadmium	15	lead	200	silver	10
chromium	300	mercury	10	vanadium	500
cobalt	50	molybdenum	20	zinc	300
		nickel	100		

For site maintenance, apply ammonium sulfate (21-0-0) at 5 pounds per 1,000 square feet about once per quarter. Apply gypsum at 10 pounds per 1,000 square feet several times a year or as needed to reduce the effects of high exchangeable magnesium. Monitor the site with periodic soil testing. Adjust the fertility program as needed.

Sincerely,

Garn A. Wallace, Ph. D.
GAW:n

Elements are expressed as mg/kg dry soil or mg/l for saturation extract.
pH and ECe are measured in a saturation paste extract. nd means not detected.
Analytical data determined on soil fraction passing a 2 mm sieve.

WALLACE LABORATORIES, LLC**365 Coral Circle****El Segundo, CA 90245****phone (310) 615-0116 fax (310) 640-6863**

October 17, 2013

rob.nixon@urs.com, chris.hargreaves@urs.com

URS

2870 Gateway Oaks Drive, Suite 150

Sacramento, CA 95833

RE: DHCCP Testing, Job No. WBS014.7

Revised

Dear Rob & Chris,

<u>Our ID No.</u>	<u>Sample</u>
13-281-12	1C-1
13-287-15	2B-1

These two samples have moderate alkalinity. The pH values are 7.75 and 7.87, respectively. Salinity is moderate at 1.72 and 2.14 millimho/cm, respectively.

Nitrogen is modest. Phosphorus is low. Potassium, sulfur, iron, manganese and copper are sufficient. Zinc is high at 56 parts per million in sample 1C-1. The high concentration of zinc may be from the Hobart blender. Boron is moderate in 1C-1 and is low in sample 2B-1. Magnesium is high. Total available sodium is moderately high. SAR (sodium adsorption ratio) is 4.6 and 5.2, respectively.

The optimal level for zinc is several parts per million. Sensitive plants such as woody plants need plant available zinc below about 30 parts per million. Herbaceous plants need plant available zinc below about 50 parts per million. Excessive zinc causes poor growth, stunting, dieback and discoloration. It interferes with root functions. High zinc restricts the uptake of potassium and other micronutrients. Grasses are fairly tolerant of high zinc. Since heavy metals do not normally migrate through the soil profile, deeper soil is expected to be more suitable. Over time growth may improve as plants root into deeper soil with lower levels of heavy metals.

The concentrations of non-essential heavy metals are low. A low amount of plant-available lead and vanadium are present.

Cation Exchange Capacity are 25.71 and 24.44 milliequivalents per 100 grams, respectively. Exchangeable potassium is modest at 1%. Exchangeable magnesium is high at 27%. High magnesium limits the uptake of potassium and calcium. Exchangeable calcium is modest and ranges from 62% to 56%, respectively. Exchangeable sodium is slightly high at 6%.

The rates are water percolation is moderately slow at inches per hour for sample 1C-1 and is slow at 0.08 inches per hour for sample 2B-1. Excess sodium reduces soil porosity and decreases the rate of drainage.

The soil textures are clay loam.

Recommendations

Use zinc-tolerant plants for sample 1C-1 or a more suitable soil. Evaluate clean soil and the possible contamination from the Hobart blender.

General soil preparation on a square foot basis for a 6-inch lift. Broadcast the following materials uniformly. The rates are per 1,000 square feet. Incorporate them homogeneously 6 inches deep:

Potassium sulfate (0-0-50) - 6 pounds

Triple superphosphate (0-45-0) – 4 pounds

agricultural gypsum - 50 pounds

Organic soil amendment – about 3 cubic yards, sufficient for 3% to 6% soil organic matter on a dry weight basis

For the preparation on a volume basis, homogeneously blend the following materials into clean soil. Rates are expressed per cubic yard:

Potassium sulfate (0-0-50) - 1/4 pound

Triple superphosphate (0-45-0) – 1/4 pound

agricultural gypsum – 2.5 pounds

Organic soil amendment – about 15% by volume, sufficient for 3% to 6% soil organic matter on a dry weight basis

Organic soil amendment:

1. Humus material shall have an acid-soluble ash content of no less than 6% and no more than 20%. Organic matter shall be at least 50% on a dry weight basis.
2. The pH of the material shall be between 6 and 7.5.
3. The salt content shall be less than 10 millimho/cm @ 25° C. in a saturated paste extract.
4. Boron content of the saturated extract shall be less than 1.0 part per million.
5. Silicon content (acid-insoluble ash) shall be less than 50%.
6. Calcium carbonate shall not be present if to be applied on alkaline soils.
7. Types of acceptable products are composts, manures, mushroom composts, straw, alfalfa, peat mosses etc. low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.
8. Composted wood products are conditionally acceptable [stable humus must be present]. Wood based products are not acceptable which are based on red wood or cedar.
9. Sludge-based materials are not acceptable.
10. Carbon:nitrogen ratio is less than 25:1.
11. The compost shall be aerobic without malodorous presence of decomposition products.
12. The maximum particle size shall be 0.5 inch, 80% or more shall pass a No. 4 screen for soil amending.

Maximum total permissible pollutant concentrations in amendment in parts per million on a dry weight basis:

arsenic	20	copper	100	selenium	50
cadmium	15	lead	200	silver	10
chromium	300	mercury	10	vanadium	500
cobalt	50	molybdenum	20	zinc	200
		nickel	100		

The soil physical properties are expected to improve with deep irrigation and leaching of sodium. Apply ammonium sulfate (21-0-0) at 5 pounds per 1,000 square feet afterwards.

For site maintenance, apply ammonium sulfate (21-0-0) at 5 pounds per 1,000 square feet about once per quarter. Apply gypsum at 10 pounds per 1,000 square feet several times a year or as needed to reduce the effects of high exchangeable magnesium. Monitor the site with periodic soil testing. Adjust the fertility program as needed.

Suitable Import, Borrow Topsoil or Reclaimed soil

General - Topsoil shall be free of roots, clods, stones larger than 1-inch in the greatest dimension, pockets of coarse sand, noxious weeds, sticks, lumber, brush and other litter. It shall not be infested with nematodes or other undesirable disease-causing organisms such as insects and plant pathogens.

Topsoil shall be friable and have sufficient structure in order to give good tilth and aeration to the soil.

Gradation limits - soil shall be a sandy loam, loam, or clay loam. The definition of soil texture shall be the USDA classification scheme. Gravel over 2 millimeters in diameter shall be less than 20% by weight.

Permeability Rate - Hydraulic conductivity rate shall be not less than one inch per hour nor more than 20 inches per hour when tested in accordance with the USDA Handbook Number 60, method 34b or other approved methods.

Fertility - The range of the essential elemental concentration in soil shall be as follows:

Ammonium Bicarbonate/DTPA Extraction
parts per million (mg/kilogram
dry weight basis

phosphorus	10 - 40
potassium	100 - 220
iron	5 - 35
manganese	0.6 - 6
zinc	1 - 8
copper	0.3 - 5
boron	0.2 - 1.0
magnesium	50 - 150
sodium	0 - 100
sulfur	25 - 500
molybdenum	0.1 - 1.0

Acidity - The soil pH range measured in the saturation extract (Method 21a, USDA Handbook Number 60) shall be 6.5 - 7.9.

Salinity - The salinity range measured in the saturation extract (Method 3a, USDA Handbook Number 60) shall be 0.5 - 2.5 dS/m.

Chloride - The maximum concentration of soluble chloride in the saturation extract (Method 3a, USDA Handbook Number 60) shall be 150 mg/l (parts per million).

Boron - The maximum concentration of soluble boron in the saturation extract (Method 3a, USDA Handbook Number 60) shall be 1.0 mg/l (parts per million).

Sodium Adsorption Ratio (SAR) - The maximum SAR shall be 3 measured per Method 20b, USDA Handbook Number 60.

Aluminum - Available aluminum measured with the Ammonium Bicarbonate/DTPA Extraction shall be less than 3 parts per million.

Soil Organic Matter Content - Sufficient soil organic matter shall be present to impart good physical soil properties but not be excessive to cause toxicity or cause excessive reduction in the volume of soil due to decomposition of organic matter. The desirable range is 3% to 6% on a dry weight basis.

Calcium Carbonate Content - Free calcium carbonate (limestone) shall not be present for acid-loving plants.

URS, October 17, 2013, page 5

Heavy Metals - The maximum permissible elemental concentration in the soil shall not exceed the following concentrations:

Ammonium Bicarbonate/DTPA Extraction
parts per million (mg/kilogram)
dry weight basis

arsenic	1
cadmium	1
chromium	10
cobalt	2
lead	30
mercury	1
nickel	5
selenium	3
silver	0.5
vanadium	3

If the soil pH is between 6 and 7, the maximum permissible elemental concentration shall be reduced 50%. If the soil pH is less than 6.0, the maximum permissible elemental concentration shall be reduced 75%. No more than three metals shall be present at 50% or more of the above values.

Phytotoxic constituent, herbicides, hydrocarbons etc. - Germination and growth of monocots and dicots shall not be restricted more than 10% compared to the reference soil. Total petroleum hydrocarbons shall not exceed 50 mg/kg dry soil measured per the modified EPA Method No. 8015. Total aromatic volatile organic hydrocarbons (benzene, toluene, xylene and ethylbenzene) shall not exceed 0.5 mg/kg dry soil measured per EPA Methods No. 8020.

Sincerely,

Garn A. Wallace, Ph. D.
GAW:n

ammonium bicarbonate/DTPA		*** high, ***** very high	
extractable - mg/kg soil	Sample ID Number	13-281-12	
Interpretation of data	Sample Description	Sample 1C-1	
low medium high	elements	graphic	
0 - 7 8-15 over 15	phosphorus	2.79	*
0-60 60 -120 121-180	potassium	141.87	****
0 - 4 4 - 10 over 10	iron	11.52	****
0- 0.5 0.6- 1 over 1	manganese	12.93	*****
0 - 1 1 - 1.5 over 1.5	zinc	56.35	*****
0- 0.2 0.3- 0.5 over 0.5	copper	6.52	*****
0- 0.2 0.2- 0.5 over 1	boron	0.34	***
	calcium	281.93	***
	magnesium	770.55	*****
	sodium	472.55	*****
	sulfur	177.37	***
	molybdenum	0.20	*****
	nickel	0.33	*
The following trace elements may be toxic	aluminum	n d	*
The degree of toxicity depends upon the pH of the soil, soil texture, organic matter, and the concentrations of the individual elements as well as to their interactions.	arsenic	0.22	*
	barium	1.24	*
	cadmium	0.06	*
	chromium	n d	*
	cobalt	0.15	*
	lead	1.45	**
	lithium	0.26	*
	mercury	n d	*
	selenium	n d	*
The pH optimum depends upon soil organic matter and clay content- for clay and loam soils: under 5.2 is too acidic 6.5 to 7 is ideal over 8.0 is too alkaline	silver	n d	*
	strontium	3.24	*
	tin	n d	*
	vanadium	1.29	**
	Saturation Extract		
	pH value	7.75	****
The ECe is a measure of the soil salinity: 1-2 affects a few plants 2-4 affects some plants, > 4 affects many plants.	ECe (milli-mho/cm)	1.72	***
			millieq/l
	calcium	92.7	4.6
	magnesium	37.0	3.1
	sodium	206.9	9.0
	potassium	9.5	0.2
	cation sum		16.9
problems over 150 ppm good 20 - 30 ppm	chloride	163	4.6
	nitrate as N	3	0.2
	phosphorus as P	0.2	0.0
toxic over 800	sulfate as S	195.4	12.2
	anion sum		17.0
toxic over 1 for many plants	boron as B	0.14	*
increasing problems start at 3 est. gypsum requirement-lbs./1000 sq. ft.	SAR	4.6	***
		252	
	infiltration rate inches/hour	0.28	sand - 34.0%
	soil texture	clay loam	silt - 35.8%
	lime (calcium carbonate)	no	clay - 30.3%
	organic matter	very low	
	moisture content of soil	9.7%	gravel over 2 mm
	half saturation percentage	29.7%	0.4%
ideal percentages of cations		% saturation	
abt 5 % potassium	millieq K	0.35	1%
< 3% sodium	millieq Na	1.54	6%
abt 70% calcium	millieq Ca	15.86	62%
10 - 15% magnesium	millieq Mg	7.00	27%
5-10% hydrogen	millieq H	0.96	4%
	total millieq/100 grams	25.71	

Elements are expressed as mg/kg dry soil or mg/l for saturation extract.
pH and ECe are measured in a saturation paste extract. nd means not detected.
Analytical data determined on soil fraction passing a 2 mm sieve.

WALLACE LABS
365 Coral Circle
El Segundo, CA 90245
(310) 615-0116

SOILS REPORT

Print Date Oct. 15, 2013

Receive Date 10/14/13

DWR-207

Location DHCCP, Project No. WBS014.7

Requester Rob Nixon, URS

graphic interpretation: * very low, ** low, *** moderate

ammonium bicarbonate/DTPA

*** high, ***** very high

extractable - mg/kg soil

Sample ID Number

13-287-15

Interpretation of data

Sample Description

Sample 2B-1

low medium high

elements

graphic

0 - 7 8-15 over 15

phosphorus

2.24

*

0-60 60 -120 121-180

potassium

123.42

0 - 4 4 - 10 over 10

iron

10.87

0- 0.5 0.6- 1 over 1

manganese

8.70

0 - 1 1 - 1.5 over 1.5

zinc

2.78

0- 0.2 0.3- 0.5 over 0.5

copper

5.49

0- 0.2 0.2- 0.5 over 1

boron

0.09

*

calcium

299.28

magnesium

754.82

sodium

454.68

sulfur

132.93

molybdenum

0.08

nickel

0.25

*

The following trace

aluminum

n d

*

elements may be toxic

arsenic

0.15

*

The degree of toxicity

barium

0.80

*

depends upon the pH of

cadmium

0.04

*

the soil, soil texture,

chromium

0.02

*

organic matter, and the

cobalt

0.13

*

concentrations of the

lead

1.20

**

individual elements as

lithium

0.28

*

well as to their interactions.

mercury

n d

*

The pH optimum depends

selenium

n d

*

upon soil organic

silver

n d

*

matter and clay content-

strontium

3.28

*

for clay and loam soils:

tin

n d

*

under 5.2 is too acidic

vanadium

1.13

**

6.5 to 7 is ideal

Saturation Extract

over 8.0 is too alkaline

pH value

7.87

The ECe is a measure of

ECe (milli-

2.14

the soil salinity:

mho/cm)

millieq/l

1-2 affects a few plants

calcium

114.2

5.7

2-4 affects some plants,

magnesium

37.2

3.1

> 4 affects many plants.

sodium

251.7

10.9

potassium

13.5

0.3

cation sum

20.1

problems over 150 ppm

chloride

232

6.5

good 20 - 30 ppm

nitrate as N

3

0.2

phosphorus as P

0.4

0.0

toxic over 800

sulfate as S

220.1

13.8

anion sum

20.5

toxic over 1 for many plants

boron as B

0.11

*

increasing problems start at 3

SAR

5.2

est. gypsum requirement-lbs./1000 sq. ft.

244

infiltration rate inches/hour

0.08

sand - 33.7%

soil texture

clay loam

silt - 35.1%

lime (calcium carbonate)

no

clay - 31.2%

organic matter

low

moisture content of soil

9.4%

gravel over 2 mm

half saturation percentage

27.8%

2.5%

ideal percentages of cations

% saturation

abt 5 % potassium

millieq K

0.32

1%

< 3% sodium

millieq Na

1.38

6%

abt 70% calcium

millieq Ca

13.79

56%

10 - 15% magnesium

millieq Mg

6.64

27%

5-10% hydrogen

millieq H

2.32

9%

total millieq/100 grams

24.44

Elements are expressed as mg/kg dry soil or mg/l for saturation extract.

pH and ECe are measured in a saturation paste extract. nd means not detected.

Analytical data determined on soil fraction passing a 2 mm sieve.

WALLACE LABORATORIES, LLC**365 Coral Circle****El Segundo, CA 90245****phone (310) 615-0116 fax (310) 640-6863**

November 6, 2013

rob.nixon@urs.com, chris.hargreaves@urs.com

URS

2870 Gateway Oaks Drive, Suite 150

Sacramento, CA 95833

RE: DHCCP, Testing, Job No. WBS014.7

Dear Rob & Chris,

CC-1, Our ID No. 13-309-09

The pH is moderately high at 7.85. Salinity is moderate at 1.23 millimho/cm. Potassium and nitrogen are modest. Phosphorus and the micronutrients are high.

The soil texture is sandy clay loam. It contains 57.3% sand, 22.1% silt and 20.6% clay. Gravel is not present.

Cation Exchange Capacity is 15.83 milliequivalents per 100 grams. Exchangeable potassium is modest at 2%. Exchangeable magnesium is high at 30%. High magnesium limits the uptake of potassium and calcium. Exchangeable calcium is modest at 55%. Exchangeable sodium is slightly high at 5%.

The rate of water percolation is rapid at 11.1 inches per hour.

3B-1 Normet Tamsoil 200 CF with 3% Lime, Our ID No. 13-310

The pH is excessively alkaline at 13.36. Limestone is present which induces iron deficiency in iron inefficient or acid-loving plants. Salinity is high at 6.48 millimho/cm. Nitrogen, phosphorus and boron are low. Potassium and the micronutrients are sufficient. Sodium is moderate. Vanadium is high. Vanadium interferes with the metabolism of iron.

Cation Exchange Capacity is 106.29 milliequivalents per 100 grams per the neutral ammonium acetate testing method. The results appear to be excessively high in calcium. Calcium in the lime hydroxide appears to have been extracted.

The soil texture is loam. Based on the non-gravel fraction, it contains 39.5% sand, 34.9% silt and 25.6% clay. The gravel fraction is 0.2%.

The rate of water percolation is rapid at 7.66 inches per hour.

3D-1 Normet Tamsoil 200 CF, Our ID No. 13-311

The pH is high at 8.79. Salinity is moderate at 1.54 millimho/cm. Nitrogen and phosphorus are low. Boron is modest. Potassium and the other micronutrients are sufficient. Gypsum is present. SAR is 3.1.

Soil Analyses Plant Analyses Water Analyses

The soil texture is clay loam. It contains 33.0% sand, 36.5% silt and 30.5% clay. Gravel is not present.

Cation Exchange Capacity is 28.93 milliequivalents per 100 grams. Exchangeable potassium is low at 1%. Exchangeable magnesium is high at 25%. Exchangeable calcium is moderate at 68%. Exchangeable sodium is slightly high at 5%.

The rate of water percolation is moderate at 0.69 inches per hour.

Evaluations

3B-1 Normet Tamsoil 200 CF with 3% Lime, Our ID No. 13-310 is too alkaline to support growth of plants.

Recommendations for CC-1 and 3D-1 Normet Tamsoil 200 CF

General soil preparation per square foot basis. Broadcast the following materials uniformly. The rates are per 1,000 square feet for a 6-inch lift. Incorporate them homogeneously 6 inches deep:

Potassium sulfate (0-0-50) – 6 pounds for CC-1

Triple superphosphate (0-45-0) – 4 pounds for 3D-1

agricultural gypsum - 20 pounds for CC-1

Organic soil amendment - about 3 cubic yards, sufficient for 3% to 6% soil organic matter on a dry weight basis

For the preparation on a volume basis, homogeneously blend the following materials into excavated soil. Rates are expressed per cubic yard:

Potassium sulfate (0-0-50) – 1/4 pound for CC-1

Triple superphosphate (0-45-0) – 1/4 pound for 3D-1

agricultural gypsum – 1 pound for CC-1

Organic soil amendment – about 15% by volume, sufficient for 3% to 6% soil organic matter on a dry weight basis

Organic soil amendment suggestions:

1. Humus material shall have an acid-soluble ash content of no less than 6% and no more than 20%. Organic matter shall be at least 50% on a dry weight basis.
2. The pH of the material shall be between 6 and 7.5.
3. The salt content shall be less than 10 millimho/cm @ 25° C. on a saturated paste extract.
4. Boron content of the saturated extract shall be less than 1.0 part per million.
5. Silicon content (acid-insoluble ash) shall be less than 50%.
6. Calcium carbonate shall not be present if to be applied on alkaline soils.
7. Types of acceptable products are composts, manures, mushroom composts, straw, alfalfa, peat mosses etc. low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.

Soil Analyses Plant Analyses Water Analyses

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8. Composted wood products are conditionally acceptable [stable humus must be present]. Wood based products are not acceptable which are based on red wood or cedar.
9. Sludge-based materials are not acceptable.
10. Carbon:nitrogen ratio is less than 25:1.
11. The compost shall be aerobic without malodorous presence of decomposition products.
12. The maximum particle size shall be 0.5 inch, 80% or more shall pass a No. 4 screen for soil amending.

Maximum total permissible pollutant concentrations in amendment in parts per million on a dry weight basis:

arsenic	20	copper	150	selenium	50
cadmium	15	lead	200	silver	10
chromium	300	mercury	10	vanadium	500
cobalt	50	molybdenum	20	zinc	300
		nickel	100		

Higher amounts of salinity or boron may be present if the soils are to be preleached to reduce the excess or if the plant species will tolerate the salinity and/or boron.

Leach the 3D-1 Normet Tamsoil 200 CF and lower the alkalinity. Reduce the pH to less than 8.0. Afterwards, apply ammonium sulfate (21-0-0) at 5 pounds per 1,000 square feet.

For site maintenance, apply ammonium sulfate (21-0-0) at 5 pounds per 1,000 square feet about once per quarter. Monitor the site with periodic soil testing. Adjust the maintenance program as needed.

Sincerely,

Garn A. Wallace, Ph. D.
GAW:n

WALLACE LABS
365 Coral Circle
El Segundo, CA 90245
(310) 615-0116

SOILS REPORT

Location DHCCP, Job No WBS014 7, P O No WBS014 7
Requester Rob Nixon, URS
graphic interpretation: * very low, ** low, *** moderate

Print Date Nov 6, 2013
Receive Date 11/5/13

DWR-207

ammonium bicarbonate/DTPA

extractable - mg/kg soil
Interpretation of data
low medium high
0 - 7 8-15 over 15
0-60 60 -120 121-180
0 - 4 4 - 10 over 10
0 - 0.5 0.6 - 1 over 1
0 - 1 1 - 1.5 over 1.5
0 - 0.2 0.3 - 0.5 over 0.5
0 - 0.2 0.2 - 0.5 over 1

Sample ID Number
Sample Description
elements
phosphorus
potassium
iron
manganese
zinc
copper
boron

*** high, *** very high

calcium
magnesium
sodium
sulfur
molybdenum
nickel

aluminum
arsenic
barium
cadmium
chromium
cobalt
lead
lithium
mercury
selenium
silver
strontium
tin
vanadium

The following trace elements may be toxic
The degree of toxicity depends upon the pH of the soil, soil texture, organic matter, and the concentrations of the individual elements as well as to their interactions.

The pH optimum depends upon soil organic matter and clay content- for clay and loam soils: under 5.2 is too acidic 6.5 to 7 is ideal over 8.0 is too alkaline

The ECe is a measure of the soil salinity: 1-2 affects a few plants 2-4 affects some plants, > 4 affects many plants.

Saturation Extract
pH value
ECe (milli-mho/cm)

problems over 150 ppm
good 20 - 30 ppm

toxic over 800

toxic over 1 for many plants

increasing problems start at 3
est. gypsum requirement-lbs./1000 sq. ft.

infiltration rate inches/hour
soil texture
lime (calcium carbonate)
organic matter
moisture content of soil
half saturation percentage

13-309-09
CC-1

graphic
21 34 *****
84 25 ***
160 87 *****
35 47 *****
1 24 ***
4 05 *****
0 21 ***
292 61 ***
416 37 *****
189 24 ***
61 27 **
0 01 **
0 96 *
n d *
0 25 *
0 90 *
0 06 *
0 06 *
0 16 *
1 33 **
0 26 *
n d *
n d *
n d *
2 85 *
n d *
1 25 **

millieq/l

72 3 3 6
29 4 2 4
124 2 5 4
7 9 0 2
110 3 1
14 1 0
0 2 0 0
97 2 6 1
0 28 **
3 1 ***
87

11 10 sand - 57 3%
sandy clay loam silt - 22 1%
no clay - 20 6%
low/fair
19 3% gravel over 1/4"
26 0% 0 0%

% saturation

13-309-10
3B-1 Normet Tamsoil 200 CF with 3% Lime

graphic
6 98 **
138 35 *****
90 69 *****
15 60 *****
1 42 ***
8 85 *****
0 12 **
359 78 ***
245 53 *****
328 41 *****
286 02 ***
0 10 ****
0 99 *
n d *
0 59 **
0 29 *
0 05 *
0 27 *
0 28 *
2 24 **
0 30 *
n d *
n d *
n d *
0 43 *
n d *
3 53 ****

millieq/l

359 6 18 0
1 8 0 1
248 4 10 8
12 3 0 3
114 3 2
2 0 2
0 2 0 0
3 9 0 2
0 04 *
3 6 ***
56

7 66 sand - 39 5%
loam silt - 34 9%
yes clay - 25 6%
low/fair
29 8% gravel over 1/4"
34 8% 0 2%

% saturation

13-309-11
3D-1 Normet Tamsoil 200 CF

graphic
2 29 *
132 56 *****
13 68 *****
4 94 *****
1 12 ***
5 57 *****
0 18 **
330 63 ***
775 29 *****
440 14 *****
157 19 ***
0 05 ***
0 23 *
n d *
0 17 *
0 99 *
0 05 *
n d *
0 14 *
1 16 **
0 34 *
n d *
n d *
n d *
3 66 *
n d *
1 31 **

millieq/l

200 6 10 0
16 9 1 4
168 5 7 3
17 4 0 4
131 3 7
1 0 1
0 4 0 0
161 0 10 1
0 24 **
3 1 ***
248

0 69 sand - 33 0%
clay loam silt - 36 5%
no clay - 30 5%
low
14 3% gravel over 1/4"
29 2% 0 0%

% saturation

13-309-11
3D-1 Normet Tamsoil 200 CF

graphic
2 29 *
132 56 *****
13 68 *****
4 94 *****
1 12 ***
5 57 *****
0 18 **
330 63 ***
775 29 *****
440 14 *****
157 19 ***
0 05 ***
0 23 *
n d *
0 17 *
0 99 *
0 05 *
n d *
0 14 *
1 16 **
0 34 *
n d *
n d *
n d *
3 66 *
n d *
1 31 **

millieq/l

200 6 10 0
16 9 1 4
168 5 7 3
17 4 0 4
131 3 7
1 0 1
0 4 0 0
161 0 10 1
0 24 **
3 1 ***
248

0 69 sand - 33 0%
clay loam silt - 36 5%
no clay - 30 5%
low
14 3% gravel over 1/4"
29 2% 0 0%

% saturation

ideal percentages of cations
abt 5 % potassium
< 3% sodium
abt 70% calcium
10 - 15% magnesium
5-10% hydrogen
total millieq/100 grams

millieq K
millieq Na
millieq Ca
millieq Mg
millieq H

0 25 2%
0 72 5%
8 65 55%
4 69 30%
1 52 10%
15 83

% saturation

0 38 0%
1 05 1%
106 29 98%
1 26 1%
0 00 0%
108 98

% saturation

0 34 1%
1 51 5%
19 66 68%
7 10 25%
0 32 1%
28 93

% saturation

0 34 1%
1 51 5%
19 66 68%
7 10 25%
0 32 1%
28 93

Elements are expressed as mg/kg dry soil or mg/l for saturation extract.
pH and ECe are measured in a saturation paste extract. nd means not detected.
Analytical data determined on soil fraction passing a 2 mm sieve.

