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REMEDIAL INVESTIGATION SUPPLEMENTAL DATA PACKAGE FOR OPERABLE UNIT 9 (OU 9) NSY PORTSMOUTH ME

01/01/2011

TETRA TECH NUS

Remedial Investigation Supplemental Data Package for Operable Unit 9 at

Portsmouth Naval Shipyard

Kittery, Maine

Naval Facilities Engineering Command Mid-Atlantic

Contract Number N62467-04-D-0055
Contract Task Order 533

January 2011

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REMEDIAL INVESTIGATION SUPPLEMENTAL DATA PACKAGE FOR OPERABLE UNIT 9 AT PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command Mid-Atlantic
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CONTRACT TASK ORDER 533

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1.0 INTRODUCTION

The Remedial Investigation (RI) Supplemental Data Package for Operable Unit (OU) 9 at Portsmouth Naval Shipyard (PNS) in Kittery, Maine, was prepared by Tetra Tech NUS, Inc. (Tetra Tech) for the United States Department of Navy, Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic, under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-04-D-0055, Contract Task Order (CTO) 533.

Sampling was conducted in 2010 to collect additional data to support the OU9 RI under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Results of the 2010 sampling are presented in this supplemental data package for the RI. The sampling was conducted in accordance with the July 2010 Field Task Memorandum (FTM) to the Sampling and Analysis Plan (SAP) for the OU9 RI submitted by Tetra Tech in July 2009.

OU9 is located in the northwestern portion of PNS, as presented on Figure 1, and consists of Site 34 – Former Oil Gasification Plant (Building 62). Figure 2 presents the OU9 layout. The OU9 RI is being conducted to evaluate residual contaminant concentrations in soil at the site after the 2007 Site 34 Removal Action to remove ash mixed with soil. The ash, generated as part of past site operations (i.e., coal ash buried after being burned for oil gasification) was deposited on the ground around the Former Oil Gasification Plant. The OU9 RI soil sampling results will be used to calculate site risks to human health in the OU9 RI Report. Sampling to support the OU9 RI was conducted in 2009 (Tetra Tech, January 2010). Based the 2009 results, the Navy determined that additional sampling was necessary to further refine the nature and extent of contamination at OU9. The July 2010 FTM provided the sampling and analytical requirements for the additional sampling to support the OU9 RI.

The additional OU9 RI field activities were conducted in September 2010 and consisted of collecting surface and subsurface soil samples from 10 soil borings. Soil locations sampled during the September 2010 field sampling event are included on Figure 3.

The remainder of this data package provides a summary of 2010 OU9 RI sampling activities, results, and the associated data quality review (DQR). Section 2.0 provides a summary of the sampling investigation activities, including deviations from the FTM. Section 3.0 provides a summary of the analytical results, and Section 4.0 provides a summary of the DQR. Figures 1 through 3 show the OU9 location, layout, and RI sampling locations (2009 and 2010).

Support documentation provided in appendices is as follows:

- Appendix A contains field documentation including soil boring logs, field notes, and equipment calibration logs.

- Appendix B contains chain-of-custody forms for soil samples.

- Appendix C contains database printouts, data validation letters, and an electronic version of the database on CD.

- Appendix D contains the DQR.

- Appendix E contains the FTM.

2.0 SAMPLING INVESTIGATION

This section provides a summary of the 2010 OU9 RI field activities conducted in September 2010, in accordance with the OU9 RI SAP (Tetra Tech, July 2009) and July 2010 FTM (included as Appendix E), with minor deviations as discussed herein. The activities included surface and subsurface soil sampling at OU9 using direct-push technology (DPT).

The 2010 soil sampling and analytical program is summarized in Table 2-1, and sampling locations are presented on Figure 3. Boring logs are provided in Appendix A. The 2010 analytical results are presented in Section 3.0.

2.1 SITE UTILITY CLEARANCE

Before drilling commenced at the site, utility maps of the facility were obtained from the PNS Public Works Department and reviewed by the Field Operations Leader (FOL). Tetra Tech was responsible for marking sample locations and contacting Dig Safe[1] for a utility survey. PNS was responsible for conducting the utility survey and marking utility locations as necessary. No intrusive activities (i.e., drilling deeper than 6 inches) occurred until the areas intended for investigation were cleared. Utility clearance activities were conducted prior to field activities (September 13, 2010). Dig Safe was originally notified of site work on August 9, 2010. Per Dig Safe rules, notification is only active for 30 days. Field sampling was conducted more than 30 days after the initial notification to Dig Safe. Therefore, Dig Safe was contacted a second time on September 8, 2010 to renew the utility clearance for ground-intrusive activities which took place on September 13, 2010.

Four boring locations (OU9-19, OU9-21, OU9-22, and OU9-25) were moved as a result of the utility survey. Only samples from OU9-22 could not be collected at the intended location. Location OU9-22, which was the proposed sample located north of OU9-13, was placed to determine whether ash was still present under the fill material in this area. However, because a 12-inch water line is located in the area, the sampling location was moved closer to Building 62, on the other side of the water line. Movement of the other proposed locations to avoid utilities did not affect the project data quality objectives (DQOs) because the sample locations remained in the excavation area in the intended sampling area.

1 Dig Safe is the State of Maine one-call utility clearance service.

2.2 SOIL SAMPLING

Ten soil borings were advanced in September 2010 using a Geoprobe DPT rig, and soil samples were collected from the borings with Geoprobe MacroCore samplers. Samples were collected at locations OU9-16 through OU9-25 from 0 to 2 feet below ground surface (bgs), 2 to 5 feet bgs, and 5 to 8 feet bgs, except at two locations where refusal was shallower than 8 feet bgs. Multiple boring attempts were made at locations where refusal was encountered prior to reaching proposed target depth intervals. Proposed 5-to-8-foot interval subsurface samples could not be collected from borings OU9-23 and OU9-24 due to DPT refusal. Refusal depths at OU9-23 and OU9-24 were 4.0 and 4.5 feet bgs, respectively. At OU9-23, a sample was collected from 2 to 4 feet bgs instead of 2 to 5 feet bgs, and at OU9-24, a sample was collected from 2 to 4.5 feet bgs instead of from 2 to 5 feet bgs.

All borings were backfilled with bentonite chips and patched with asphalt or surface soil, consistent with existing surface conditions.

2.3 FIELD QUALITY CONTROL SAMPLES

Field duplicate samples were collected for soil as indicated in Table 2-1, and a rinsate blank (RB09141001) from the acetate MacroCore liner used to collect soil borings was collected.

2.4 DETERMINATION OF SAMPLING COORDINATES

The horizontal coordinates of each boring location were determined in the field using a global positioning system (GPS) unit with sub-meter accuracy.

TABLE 2-1

SUMMARY OF 2010 SOIL SAMPLING AND ANALYTICAL PROGRAM
OPERABLE UNIT 9
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

Location	Sample ID	Sample Depth (feet bgs)	Soil Type[1]	Area[2]	Analyses	Comment
OU9-16	OU9-SS-16-0002	0 to 2	Brown sand and gravel	Excavated	Antimony, lead, mercury, PAHs	EOB (refusal) at 8.0 feet bgs.
	OU9-SB-16-0205	2 to 5	Medium brown sand and silt with trace gravel			
	OU9-SB-16-0508	5 to 8	Medium brown sand and silt with trace gravel, gravel with sand from 6-8 feet bgs			
OU9-17	OU9-SS-17-0002	0 to 2	Light brown gravel with silt and sand	Excavated	Antimony, lead, mercury, PAHs	EOB at 8.0 feet bgs, weathered bedrock.
	OU9-SB-17-0205	2 to 5	Medium brown gravel with silt and sand			
	OU9-SB-17-0205-D					
	OU9-SB-17-0508	5 to 8	Medium brown gravel with sand, weathered bedrock at 7.5 feet bgs			
OU9-18	OU9-SS-18-0002	0 to 2	Black sand, gravel, and silt	Excavated	Antimony, lead, mercury, PAHs	EOB (refusal) 8 feet bgs.
	OU9-SB-18-0205	2 to 5	Black sand, gravel, and silt to 4 feet bgs, black silty fine sand from 4-5 feet bgs			
	OU9-SB-18-0508	5 to 8	Brown silty fine sand from5-6 feet bgs, brown gravel to EOB.			
	OU9-SB-18-0508-D					
OU9-19	OU9-SS-19-0002	0 to 2	Light yellow brown sandy loam from 0-1 foot bgs, dark brown sand and silt with gravel and rock fragments from 1-2 feet bgs.	Excavated	Antimony, lead, mercury, PAHs	EOB 8 feet bgs. Glass and terra-cotta fragments at 2 feet bgs. Moved boring location approximately 5 feet to the south of the original location because of utilities.
	OU9-SB-19-0205	2 to 5	Dark brown sand and silt with gravel and rock fragments from 2-5.5 feet bgs.			
	OU9-SB-19-0508	5 to 8	Medium brown sand, trace silt, and gravel to 7 feet bgs, light yellow brown sand and gravel to EOB.			
OU9-20	OU9-SS-20-0002	0 to 2	Light brown sandy loam with gravel grading to sand and gravel.	Excavated	Antimony, lead, mercury, PAHs	EOB at 8.0 feet bgs. Terra cotta fragments at 3 feet bgs.
	OU9-SB-20-0205	2 to 5	Light brown sand and gravel to 3 feet bgs. Black sand and gravel from 3-5 feet bgs.			
	OU9-SB-20-0508	5 to 8	Black sand and gravel from 5-7 feet bgs, yellow brown sand and gravel with trace silt from 7 feet bgs to EOB.			
OU9-21	OU9-SS-21-0002	0 to 2	Yellow brown sandy loam with gravel.	Excavated	Antimony, lead, mercury, PAHs	EOB at 8 feet bgs. Moved boring location approximately 5 feet west-northwest of the original location because of utilities.
	OU9-SB-21-0205	2 to 5	Medium brown to yellow brown sand with trace gravel grading to sand and gravel.			
	OU9-SB-21-0508	5 to 8	Medium brown to yellow brown sand with trace gravel grading to sand and gravel. Weathered bedrock at EOB.			

TABLE 2-1

SUMMARY OF 2010 SOIL SAMPLING AND ANALYTICAL PROGRAM
OPERABLE UNIT 9
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

Location	Sample ID	Sample Depth (feet bgs)	Soil Type[1]	Area[2]	Analyses	Comment
OU9-22	OU9-SS-22-0002	0 to 2	Yellow brown to medium brown sand and gravel.	Excavated	Antimony, lead, mercury, PAHs	EOB at 8.0 feet bgs. Slag pebbles at 3 feet bgs. Glass fragments and charred rock from 6-8 feet bgs, with a 6-inch tar-like layer/black slag with strong odor at 7 feet bgs. Moved boring location approximately 10 feet southwest of the original location because of utilities.
	OU9-SS-22-0002-D					
	OU9-SB-22-0205	2 to 5	Yellow brown to brown sand and gravel.			
	OU9-SB-22-0508	5 to 8	Yellow brown to brown sand and gravel with increasing slag from 6-7.5 feet bgs. Gravel with trace sand to EOB.			
OU9-23	OU9-SS-23-0002	0 to 2	Medium brown sand and gravel.	Excavated	Antimony, lead, mercury, PAHs	EOB (refusal) at 4 feet bgs on weathered bedrock. Several attempts resulted in refusal at this depth.
	OU9-SB-23-0204	2 to 4	Light brown sand and gravel.			
	OU9-SB-23-0508	NS	NS		NA	
OU9-24	OU9-SS-24-0002	0 to 2	Medium brown sand, gravel and silt.	Excavated	Antimony, lead, mercury, PAHs	EOB (refusal) at 4.5 feet bgs on bedrock. Several attempts resulted in refusal at this depth. Trace slag at 2 feet bgs.
	OU9-SB-24-0204	2 to 4.5	Dark brown sand, and gravel to 3.5 feet bgs. Very weathered medium brown bedrock from 3.5 feet bgs to EOB.			
	OU9-SB-24-0508	NS	NS		NA	
OU9-25	OU9-SS-25-0002	0 to 2	Gray gravel and sand subase to 1.5 feet bgs. Brown sand and silt to 2 feet bgs.	Excavated	Antimony, lead, mercury, PAHs	EOB at 8 feet bgs. Moved boring location approximately 15 feet northeast of the original location because of utilities.
	OU9-SB-25-0205	2 to 5	Brown sand and gravel.			
	OU9-SB-25-0508	5 to 8	Light brown sand and gravel to 7 feet bgs. Organic brown sand with trace gravel from 7 feet bgs to EOB.			
QA/QC	RB09141001	NA	NA	NA		Rinsate blank - acetate core liner.

1 The terms "fill" and "native soil" were used in the OU9 RI Data Package (Tetra Tech, January 2010). However, because it is difficult to distinguish between these materials in the field, the soil type is listed for each sample.
2 Excavated areas refer to the areas excavated during the 2007 Site 34 Removal Action, as described in the OU9 RI SAP.

bgs - Below ground surface
EOB - End of boring
NA - Not applicable
NS - no sample
PAHs - Polycyclic aromatic hydrocarbons
Quality Control/Quality Assurance

3.0 SOIL ANALYTICAL RESULTS

This section provides the analytical results for soil samples collected during 2010 OU9 RI sampling. Tables 3-1 and 3-2 present the frequencies of detection for target analytes in surface and subsurface soil, respectively. The laboratory analytical data were validated in accordance with the OU9 RI SAP. Appendix C contains a database printout of the 2010 soil data and data validation technical memoranda for the corresponding data (on CD). The DQR for the investigation is summarized in Section 4.0 and detailed in Appendix D.

The soil samples collected in September 2010 for the OU9 RI were analyzed by Mitkem Laboratories of Warwick, Rhode Island, for polycyclic aromatic hydrocarbons (PAHs), antimony, lead, and mercury in accordance with the OU9 RI SAP, with one exception. Soil samples were analyzed for PAHs via SW-846 Method 8270D utilizing gas chromatography/mass spectrometry (GC/MS) instrumentation coupled with a selective ion monitoring (SIM) detector. Although not required in the SAP, the laboratory also reported the 2-methylnaphthalene results from the analysis of the samples collected in 2010 due to a reporting error. Soil samples were analyzed for antimony and lead via SW-846 Method 6010 utilizing inductively couple plasma (ICP) - atomic emission spectrometer (AES) instrumentation and for mercury via SW-846 Method 7471 utilizing cold vapor atomic absorption (CVAA) instrumentation.

TABLE 3-1

FREQUENCIES OF DETECTION FOR 2010 SURFACE SOIL SAMPLES
OPERABLE UNIT 9
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

CAS Number	Parameter	Frequency of Detection (1)	Range of Non-Detects	Range of Detects	Sample with Maximum Detection (2)
Polycyclic Aromatic Hydrocarbons (µg/kg)					
91-57-6	2-METHYLNAPHTHALENE	7/10	3.5 - 4	5.9 - 140	OU9-SS-19-0002
83-32-9	ACENAPHTHENE	7/10	3.5 - 4	31 - 530	OU9-SS-18-0002
208-96-8	ACENAPHTHYLENE	8/10	3.7 - 4	4.4 - 2100	OU9-SS-22-0002
120-12-7	ANTHRACENE	9/10	3.7 - 3.7	4.4 - 2400	OU9-SS-19-0002
56-55-3	BENZO(A)ANTHRACENE	10/10	-	10 - 7500	OU9-SS-22-0002
50-32-8	BENZO(A)PYRENE	10/10	-	11 - 7400	OU9-SS-22-0002
205-99-2	BENZO(B)FLUORANTHENE	10/10	-	9.5 - 8500	OU9-SS-22-0002
191-24-2	BENZO(G,H,I)PERYLENE	10/10	-	7.5 - 3600	OU9-SS-22-0002
207-08-9	BENZO(K)FLUORANTHENE	10/10	-	4.3 - 4800	OU9-SS-22-0002
218-01-9	CHRYSENE	10/10	-	11 - 8700	OU9-SS-22-0002
53-70-3	DIBENZO(A,H)ANTHRACENE	8/10	3.7 - 4	4.3 - 1600	OU9-SS-22-0002
206-44-0	FLUORANTHENE	10/10	-	13 - 11000	OU9-SS-22-0002
86-73-7	FLUORENE	7/10	3.5 - 4	43 - 1100	OU9-SS-19-0002
193-39-5	INDENO(1,2,3-CD)PYRENE	10/10	-	5.2 - 3500	OU9-SS-22-0002
91-20-3	NAPHTHALENE	7/10	3.5 - 4	9 - 240	OU9-SS-19-0002
85-01-8	PHENANTHRENE	10/10	-	11 - 5500	OU9-SS-19-0002
129-00-0	PYRENE	10/10	-	17 - 9700	OU9-SS-22-0002
Inorganics (mg/kg)					
7440-36-0	ANTIMONY	4/10	0.27 - 0.45	0.46 - 2.3	OU9-SS-24-0002
7439-92-1	LEAD	10/10	-	18.8 - 503	OU9-SS-24-0002
7439-97-6	MERCURY	10/10	-	0.027 - 1.1	OU9-SS-18-0002

CAS = Chemical Abstract Service
NA = Not applicable

1 - Sample and duplicate are counted as one sample when determining frequency of detection.
2 - Sample and duplicate are considered as two separate samples when determining maximum concentration.

Associated Samples:

OU9-SS-16-0002	OU9-SS-22-0002
OU9-SS-17-0002	OU9-SS-22-0002-D
OU9-SS-18-0002	OU9-SS-23-0002
OU9-SS-19-0002	OU9-SS-24-0002
OU9-SS-20-0002	OU9-SS-25-0002
OU9-SS-21-0002	

TABLE 3-2

FREQUENCIES OF DETECTION FOR 2010 SUBSURFACE SOIL SAMPLES
OPERABLE UNIT 9
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

CAS Number	Parameter	Frequency of Detection (1)	Range of Non-Detects	Range of Detects	Sample with Maximum Detection (2)
Polycyclic Aromatic Hydrocarbons (µg/kg)					
91-57-6	2-METHYLNAPHTHALENE	4/18	3.5 - 4	16 - 560000	OU9-SB-22-0508
83-32-9	ACENAPHTHENE	4/18	3.5 - 4	45 - 100000	OU9-SB-22-0508
208-96-8	ACENAPHTHYLENE	7/18	3.5 - 3.8	9.7 - 370000	OU9-SB-22-0508
120-12-7	ANTHRACENE	7/18	3.5 - 3.8	7.1 - 290000	OU9-SB-22-0508
56-55-3	BENZO(A)ANTHRACENE	10/18	3.5 - 3.8	4 - 410000	OU9-SB-22-0508
50-32-8	BENZO(A)PYRENE	10/18	3.5 - 3.8	3.7 - 450000	OU9-SB-22-0508
205-99-2	BENZO(B)FLUORANTHENE	11/18	3.5 - 3.8	4 - 360000	OU9-SB-22-0508
191-24-2	BENZO(G,H,I)PERYLENE	11/18	3.5 - 3.8	3.7 - 230000	OU9-SB-22-0508
207-08-9	BENZO(K)FLUORANTHENE	9/18	3.5 - 3.8	3.1 - 130000	OU9-SB-22-0508
218-01-9	CHRYSENE	10/18	3.5 - 3.8	5.4 - 420000	OU9-SB-22-0508
53-70-3	DIBENZO(A,H)ANTHRACENE	7/18	3.5 - 3.8	7.4 - 66000	OU9-SB-22-0508
206-44-0	FLUORANTHENE	13/18	3.5 - 3.8	4.1 - 550000	OU9-SB-22-0508
86-73-7	FLUORENE	6/18	3.5 - 3.8	4.3 - 320000	OU9-SB-22-0508
193-39-5	INDENO(1,2,3-CD)PYRENE	8/18	3.5 - 3.8	4.9 - 160000	OU9-SB-22-0508
91-20-3	NAPHTHALENE	8/18	3.5 - 3.8	3.9 - 640000	OU9-SB-22-0508
85-01-8	PHENANTHRENE	13/18	3.5 - 3.8	4.1 - 1300000	OU9-SB-22-0508
129-00-0	PYRENE	13/18	3.5 - 3.8	4.8 - 910000	OU9-SB-22-0508
Inorganics (mg/kg)					
7440-36-0	ANTIMONY	5/18	0.29 - 0.46	0.58 - 0.93	OU9-SB-20-0205
7439-92-1	LEAD	18/18	-	2.4 - 1050	OU9-SB-20-0205
7439-97-6	MERCURY	15/18	0.021 - 0.026	0.0025 - 8.2	OU9-SB-22-0205

CAS = Chemical Abstract Service
NA = Not applicable

1 - Sample and duplicate are counted as one sample when determining frequency of detection.
2 - Sample and duplicate are considered as two separate samples when determining maximum concentration.

Associated Samples:

OU9-SB-16-0205	OU9-SB-19-0205	OU9-SB-23-0204
OU9-SB-16-0508	OU9-SB-19-0508	OU9-SB-24-0204
OU9-SB-17-0205	OU9-SB-20-0205	OU9-SB-25-0205
OU9-SB-17-0205-D	OU9-SB-20-0508	OU9-SB-25-0508
OU9-SB-17-0508	OU9-SB-21-0205	
OU9-SB-18-0205	OU9-SB-21-0508	
OU9-SB-18-0508	OU9-SB-22-0205	
OU9-SB-18-0508-D	OU9-SB-22-0508	

4.0 DATA QUALITY SUMMARY

A data quality review (DQR) was conducted for the analytical laboratory data collected during 2010 for OU9. The DQR reviewed the processes used to determine whether analytical laboratory data were of acceptable technical quality for use in decision making. The DQR also evaluated the measures of data completeness, sensitivity, comparability, and representativeness. The DQR Report is presented in Appendix D. The following provides a summary of the data quality issues to be considered prior to data use.

The OU9 RI SAP and July 2010 FTM and use of standardized sampling, sample handling, sample analysis, and data reporting procedures were designed so that the final data would be accurate representations of actual site conditions.

Borings at sample locations OU9-16 through OU9-25 were installed to characterize surface and subsurface soil to 8 feet bgs or refusal, whichever was shallower. The intent was to collect samples from three depth intervals (0 to 2 feet, 2 to 5 feet, and 5 to 8 feet bgs) at borings OU9-16 through OU9-25; however, refusal was encountered at 4.0 to 4.5 feet bgs at borings OU9-23 and OU9-24. Several boring attempts were made at OU9-23 and OU9-24. For borings where 8 feet of overburden soil was present, samples from 0 to 2 feet, 2 to 5 feet, and 5 to 8 feet bgs were collected. Where refusal was shallower then 8 feet, samples from 0 to 2 feet, and 2 feet to refusal were collected. Even though no samples could be collected deeper than 4.5 feet bgs at borings OU9-23 and OU9-24, sufficient data from the targeted sample population were collected, and samples collection completeness is considered 100 percent.

Boring OU9-22 could not be installed at its intended location. Location OU9-22, which was the proposed sample location north of sampling location OU9-13, was placed to determine whether ash was still present under fill material in this area. A 12-inch water line is located in the targeted area of sampling, and the sample was moved approximately 10 feet south, in the near vicinity of OU9-13. The impact on the understanding of post-removal action conditions because the location was moved will be evaluated in the OU9 RI Report.

All antimony soil results were qualified due to matrix spike percent recoveries less than the corresponding quality control limit. Despite the poor antimony recoveries in those samples, qualified results were not rejected and are considered usable for the purposes of the RI. Data users should be aware that the matrix spike evaluations indicate that corresponding qualified antimony results are biased low. The impact of this issue on the understanding of antimony concentrations will be evaluated in the OU9 RI Report.

REFERENCES

Tetra Tech NUS, Inc. (TtNUS), July 2009. Sampling and Analysis Plan for Operable Unit 9 Remedial Investigation, Portsmouth Naval Shipyard, Kittery, Maine. TtNUS, King of Prussia, Pennsylvania.

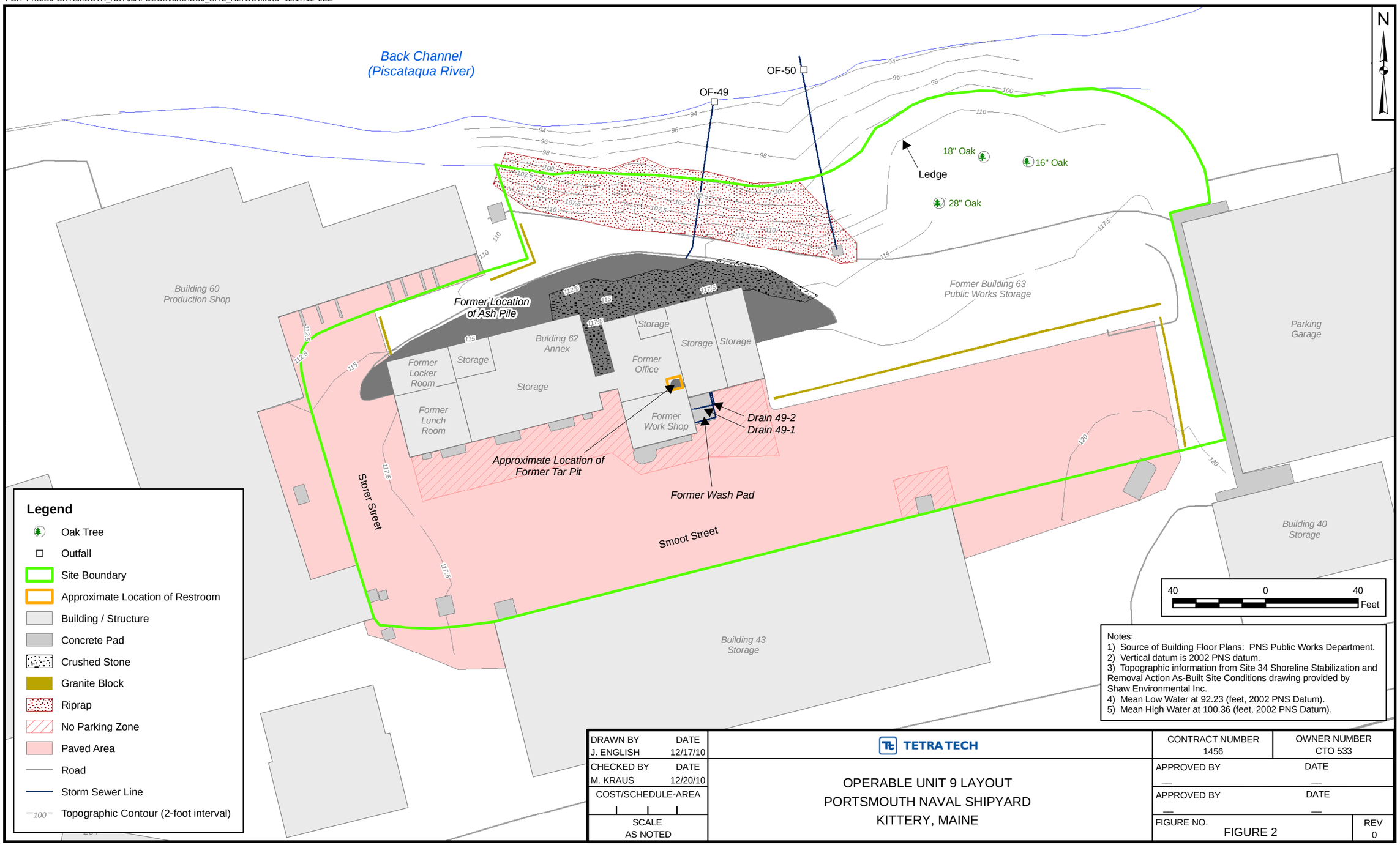
TtNUS, January 2010. Remedial Investigation Data Package for Operable Unit 9, Portsmouth Naval Shipyard, Kittery, Maine. TtNUS, King of Prussia, Pennsylvania.

P:\GIS\PORTSMOUTH_NSY\MAPDOCS\MXD\OU9_VICINITY.MXD 12/17/10 JEE

Aerial Photo Source: Imagery downloaded from the NAVFAC Mid-Atlantic GeoRepository. Imagery shows existing conditions from May 2008.

DRAWN BY T. WHEATON	DATE 12/28/09	TETRA TECH	CONTRACT NUMBER 1456 / OWNER NUMBER CTO 533
CHECKED BY M. KRAUS	DATE 12/20/10	OPERABLE UNIT 9 VICINITY MAP PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE	APPROVED BY — / DATE —
COST/SCHEDULE-AREA			APPROVED BY — / DATE —
SCALE AS NOTED			FIGURE NO. FIGURE 1 / REV 0

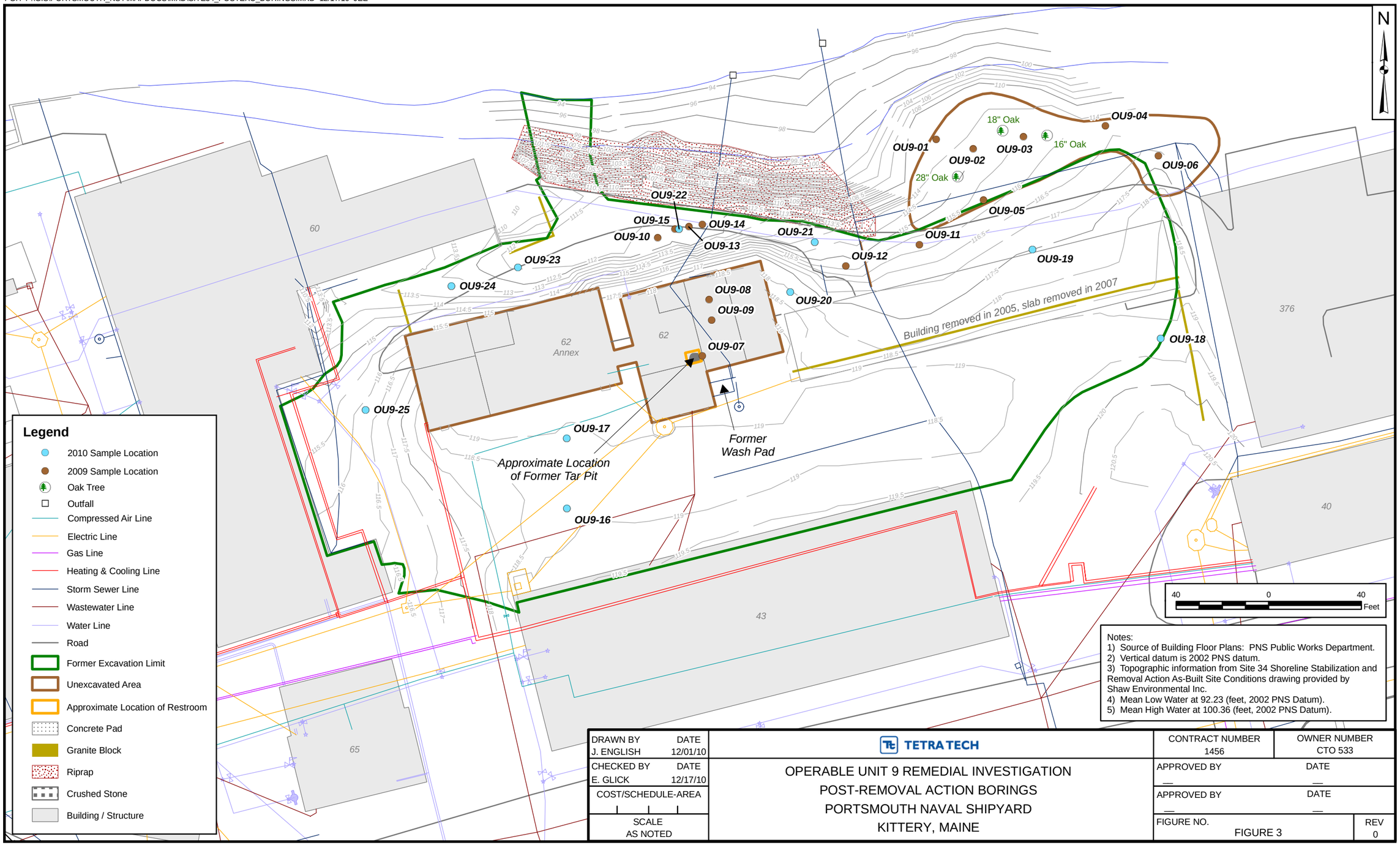
PGH P:\GIS\PORTSMOUTH_NSY\MAPDOCS\MXD\OU9_SITE_ALYOUT.MXD 12/17/10 JEE



Notes:
1) Source of Building Floor Plans: PNS Public Works Department.
2) Vertical datum is 2002 PNS datum.
3) Topographic information from Site 34 Shoreline Stabilization and Removal Action As-Built Site Conditions drawing provided by Shaw Environmental Inc.
4) Mean Low Water at 92.23 (feet, 2002 PNS Datum).
5) Mean High Water at 100.36 (feet, 2002 PNS Datum).

DRAWN BY J. ENGLISH	DATE 12/17/10	TETRA TECH	CONTRACT NUMBER 1456 / OWNER NUMBER CTO 533
CHECKED BY M. KRAUS	DATE 12/20/10	OPERABLE UNIT 9 LAYOUT PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE	APPROVED BY — / DATE —
COST/SCHEDULE-AREA			APPROVED BY — / DATE —
SCALE AS NOTED			FIGURE NO. FIGURE 2 / REV 0

PGH P:\GIS\PORTSMOUTH_NSY\MAPDOCS\MXD\SITE34_POSTEXC_BORINGS.MXD 12/17/10 JEE



Notes:
1) Source of Building Floor Plans: PNS Public Works Department.
2) Vertical datum is 2002 PNS datum.
3) Topographic information from Site 34 Shoreline Stabilization and Removal Action As-Built Site Conditions drawing provided by Shaw Environmental Inc.
4) Mean Low Water at 92.23 (feet, 2002 PNS Datum).
5) Mean High Water at 100.36 (feet, 2002 PNS Datum).

DRAWN BY J. ENGLISH	DATE 12/01/10	TETRA TECH	CONTRACT NUMBER 1456 / OWNER NUMBER CTO 533
CHECKED BY E. GLICK	DATE 12/17/10	OPERABLE UNIT 9 REMEDIAL INVESTIGATION POST-REMOVAL ACTION BORINGS PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE	APPROVED BY — / DATE —
COST/SCHEDULE-AREA			APPROVED BY — / DATE —
SCALE AS NOTED			FIGURE NO. FIGURE 3 / REV 0

APPENDIX A

FIELD DOCUMENTATION

A.1 SOIL BORING LOGS

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: GEOPROBE

BORING No.: OU9-16
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MATT KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						GRY	GRAVEL ASPHALT	GW	ASPHALT SURFACE	19	0		0
S11	2		2/2		LOOSE	BRN	SAND + GRA. TR SIL	GW/SW	MOIST TO DRY	25	0		0
					LOOSE	MED BRN	SAND TR SILT	SW	COLLECTED SPL 0-2'	55	0		0
S-2	4		1/2				(FILL?)		0095S160002				
S-3						MED BRN	f-g SAND w/	SW	MOIST	0			
	6		2				SOME SILT TR GRAVELL		0095B160205				
S-4					DENSE		GRAVEL w/ SAND	GW	ROCK FRAG	0			
	8		2						ROCK FLOUR 0508	0			
							REFUSAL @ 8'						
	10												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: GEOPROBE GCDT

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: GEOPROBE DT60

BORING No.: OU9-17
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MATT KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1							ASPHALT GRAVEL	GW					
	2		2/2			LGT BRN ORG BRN	GRAVEL SILT, GRAVEL	4 GW/SW	MOIST/DRY SAND MIX	0	0		
S-2					MED DENSE	MED BRN	GRAVEL w/ SOME	GW	COLLECTED (SPL 0-2 FOR LAB)				
	4		1.5/2				SAND, SILT	SW		0			
S-3													
	6		1/2							0			
S-4					DENSE		GRAVEL & SAND	GW	DRY				
	8		1.5/2				WEATHERED ROCK 6" INTO ROCK			0			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 2" MACRO CORE W/ PLASTIC SLEEVES

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: GEOPROB DT60

BORING No.: OU9-18
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MATT KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1							GRAVEL	GW	ASPHALT				
	2		1/2			BLK	SAND/GRAVEL/SILT	SW/GW	DAMP	0			
S-2					LOOSE	BLK	AS ABOVE		DAMP				
	4		1/2							0			
S-3						BLK	SILTY f-g SAND	SW					
	6		2/2		LOOSE	BRN	SILTY f-g SAND		WET TRACE	0			
S-4					MED DENSE	BRN	GRAVEL	GW	ROCK FRAG				
	8		1.5/2		DENSE		TOP OF ROCK @ 7.5'			0			
							REFUSAL @ 8'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: MACRO CORE 2' x 2'

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: DT 60 GEOPROBE

BORING No.: OU9-19
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MATT KELLY TDS

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1						LT. YEL BRN	SAND BY LOAM	SP					
	2		1.5/2		LOOSE	DK BRN	SAND + SILT	SW	GLASS FRAGS TERRA COTTA	0			
S-2							GRAVEL	GW	FILL				
	4		1/2				ROCK FRAGS		POOR REC.	0			
S-3							GRAVEL + SAND	GW/SW					
	6		1.5/2			MED BRN	f-g SAND TR SILT	SW	TR GRAVEL LOOK NAT.	0			
S-4													
	8		2/2			LGT YEL BRN	SAND AND GRAVEL	GW/SW	MOIST LOOK LIKE STRONGLY WEATHERED BED ROCK	0			
				TD									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 2" MACRO-CORE x 2'

Drilling Area Background (ppm):

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: GEOPROBE

BORING No.: OU9-20
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MATT KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1						LT BRN	SANDY LOAM W/GRAVELS	SW/GW					
	2		2/2		LOOSE		↓			0			
S-2							SAND + GRAVEL	GW	W/ TERRA COTTA FRAGS (FILL)				
	4		2/2			BLK	SAND + GRAVEL		MOIST	0			
S-3							AS ABOVE		POOR REC.				
	6		1.5/2					↓		0			
S-4					↓	YELL BRN	SAND (F-g) AND GRAVEL	SW	SLIGHTLY MOTTLED	0			
	8		2/2				↓ TR SILT	GW					

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 2" MACRO-CORE X 2'

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: GEOPROBE DT60

BORING No.: OU9-21
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MAT KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1						YEL BRN	SANDY LOAM	SW	DRY				
	2		2/2		LOOSE		GRAVELS	SW/GW		0			
S-2						MED BRN TO YEL BRN	SAND (f.g)	SW					
	4		2/2				TR GRAVELS			0			
S-3						"	SAND + GRAVEL	SW/GW					
	6		1/2							0			
S-4							AS ABOVE			0			
	8		4.5/2		HARD		SAND + GRAVEL - ROCK FRAGS	GW	DRY				
							- WEATHERED BR. ROCK						

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 2" MACRO CORE X 2'

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: GEO PROBE DT 60

BORING No.: OU9-22
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MATT KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1						YEL BRN	MED BRN SAND + GRA		TR GRAVEL				
	2		2/2				↓ DK BRN	CL/SW	SW + BLK @ 1.8'	0		0	
S-2					LOOSE		VERIEGATED SAND	SW	SLAG PEBBLES				
	4		1/2				+ GRA. YEL BRN BRN (SAND)	↓	REDDISH PEBBLES NOT TERRA COTTA				
S-3							AS ABOVE	SW		20		0	
	6		1/2		MED LOOSE		↓ (SLAG MORE ABUNDANT) - GLASS FRAGS						
S-4							+ SLAG BLACK (6") CHARRED TERRA COTTA		- CHARRED ROCK + FRAG. GLASS	40	0	0	0
	8		1/2				GRAVELS TRACE SAND + SILT		TAR (?) PEBBLES LIKE SUBSTANCE ODOROUS	50			
				TD 8'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 2" MACRO CORE X 2'

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: GEO PROBE DT 60

BORING No.: OU9-23
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MATT KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1						MED BRN	SAND + GRA.						
	2		2/2		LOOSE		↓			0			
S-2					↓	LGT BRN	SAND + GRAV						
	4		2/2			LGT BRN	SAND + GRAVEL		DRT WEATHERED ROCK	0			
									REFUSAL	0			
	6								@ 4'				
	8						- SEVERAL						
							ATTEMPTS						
							RESULTED IN						
							REFUSAL						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 2" MACRO CORE x 2'

Drilling Area Background (ppm):

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: GEOPROBE DT60

BORING No.: OU9-24
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MATT KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						MED BRN	SAND MED BRN GRA. + SILT		(LOAM) 6" TOP	0			
	2		2/2		LOOSE	DK BRN	SAND + GRAVEL	GW	TR SLAG GRA SLATE	0			
						DK BRN	SAND + GRA.	GW	(FILL) MOIST TO WET	0			
	4		1.5/2			MED BRN	V. WEATHERED BDRK			0			
					DENSE	LT BRN	GRAVEL BDRK	GW	REFUSAL @				
	6				HARD				4.5' BGS				
							-SEVERAL						
							ATTEMPTS						
							RESULT IN						
							REFUSAL						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 2" x 2' MACRO CORE SPL DPT

Drilling Area Background (ppm): 5

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PNS Site 34
PROJECT NUMBER: 112G01456 CTO 533
DRILLING COMPANY: Tech Drilling Services
DRILLING RIG: GEO PROBE

BORING No.: OU9-25
DATE: 9-14-10
GEOLOGIST: Fred W. Ramser
DRILLER: MATT KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1					DK GRY	GRY	ASPHALT - GRAVEL SUBBASE GRAVEL		ASPHALT SURFACE				
	2		2/2			LT GRY	GRAVEL + SAND ORG BRN SAND + SILT	GW/SW	DRY	0			
S-2					LOOSE	BRN	SAND + GRAVEL	GW		0			
	4		1/2										
S-3										0			
	6		1/2			LGT	BRN SAND + GRAV	GW/SP	DRY				
S-4						ORG	BRN SAND	SP	MOIST	0			
	8		2/2				TR GRAVEL		LOOKS NATIVE				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: MACRO CORE 2" x 2'

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No — Well I.D. #: —

A.2 FIELD NOTES

MONDAY 112601453

9-13-10 ADDITIONAL RI SITE 34 SOIL SAMPLING

0700 -1130 ENROUTE TO PNS FROM PCH, CHK IN HOTEL PICK UP EQ.
- ARR AT PASS OFFICE
+ NO PAPER WORK
+ CALLED M. THYNG
- SUBMITTED PAPERWORK (TODAY)

1345 OBTAINED VISITOR BADGE
+ GO TO SITE 34
- PROPOSED POINTS MARKS ARE VISIBLE
- UTILITIES ARE ALSO MARK
- WILL HAVE TO MOVE SOME POINTS ~10' TO AVOID UTILITIES

1500 GO TO HAZ MATL. BUILD
TALK W/ STEVE ABOUT STORAGE SHED

1600 CHK RENTAL EQUIPMENT
- NO CAL GAS (EN ROUTE)
- PLACE ON CHG. END OF DAY

TUESDAY AM 60's WIND

14 9-14-10

0700 FWR AT PASS/BADGE WT
M. KELLY OF TDS GET PASS
- DO H&S EQ INSPECTION

0900 START @ OU9 SB16
0915 COLLECTED OU9SS160002
0945 OU9SB160205
0955 OU9SB160508
1000 MOVE R16 TO OU9SB17

1005 COLLECTED OU9-SS-17-0002

1020 COLLECTED DUP01
@ OU9-SB-17-0205
FD09141001 (1025 HRS)
1030 MATT T. STOPPED BY DISCUSSED
UTILITIES THREE LOCATIONS ARE
CLOSE TO WATER LINE
1100 MOVE RIG ONTO SB18
1105 COLLECTED OU9-SS-18-0002
1115 COLLECTED OU9-SB-18-0205

1125 COLLECTED OU9-SB-18-0508
+ DUP02
1130 → FD09141002 COLLECTED @
OU9-SB-18-0508

9-14-10 BREEZY/WIND 60-70°F

1145 MOVED SB 19 ~10' SOUTH TO AVOID WATER LINE

1150 MOVE RIG ON TO SB19
1155 COLLECTED OU9-SS-19-0002
1200 COLLECTED OU9-SB-19-0205
1210 COLLECTED OU9-SB-19-0508
1230 MOVED RIG TO SB20
1310 COLLECTED OU9-SS-20-0002
1315 COLLECTED OU9-SB-20-0205
1325 COLLECTED OU9-SB-20-0508
1330 COLLECTED OU9-SS-21-0002
1340 COLLECTED OU9-SB-21-0205
1350 COLLECTED OU9-SB-21-0508
1355 SET UP ON SB22
1358 COLLECTED OU9-SS-22-0002 FD03 @ 1400 HR
OU9-SB-22-0205 @ 1405 HRS
OU9-SB-22-0508 @ 1410 HRS
1450 MOVED TO SB23, COLLECTED OU9-SS-23-0002
COLLECTED OU9-SB-23-0205
1500 MOVED TO SB24, COLLECTED OU9-SS-24-0002
COLLECTED OU9-SB24-0205
1525 MOVED TO SB25 COLLECTED OU9-SS-25-0002
1535 OU9-SB-25-0508 OU9-SB-25-0205
1545 FLR GOES TO FIELD OFFICE TO DO QAQC
1600 GENERATED RINSATE BLANK USING DI WATER
-DRILLER OFF SITE
1745 FW OFF SITE

16 9/15/10 AM: SUNNY WINDY 60s 60s

0700 FWR PREP SPLS FOR PICK UP
- COCs
- LABELS ETC
-

1000 AT SITE 34
+ SURVEY SB's
- GPS
- TOP OFF SBs AS REQUIRED
- REMOVED ALL PIN FLAGS
- GAVE SET OFF KEYS TO ENV. Dept Left ON MATT T. DESK
- CONTACTED LAB CONFIRM PICK

1200 COMPLETED WORK @ SITE 34
- GO TO JILF TO DO MW INVENTORY AND MEASURE SIGN DETAILS

A.3 EQUIPMENT CALIBRATION LOG

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : PNS Site 34

SITE NAME: Portsmouth Naval Yard

PROJECT No.: 112G01456 CTO 533

INSTRUMENT NAME/MODEL: PID MINIRAE 2000

MANUFACTURER: MINIRAE

SERIAL NUMBER: NA

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Zero Reading		Span Reading		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		
9/14	NA	FVR	0.0	0.0	125	100	HAK-248 100-13	AM CALIBRATION
9/14	NA	FVR	0.0	0.0	101	100	"	PM CALIBRATION/CHK

APPENDIX B

CHAIN-OF-CUSTODY FORMS

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER № 028276

PAGE 1 OF 3

PROJECT NO: 112G01456	FACILITY: PNS	PROJECT MANAGER: DEBBIE COHEN	PHONE NUMBER: 412-921-7090
SAMPLERS (SIGNATURE): Fred W Ramser		FIELD OPERATIONS LEADER: FRED W. RAMSER	PHONE NUMBER: 412-921-8838
		CARRIER/WAYBILL NUMBER: PICK UP BY MITKEM	

LABORATORY NAME AND CONTACT: MITKEM ED. LAWLER.
ADDRESS: 175 METRO CENTER BLVD
CITY, STATE: WARWICK, RI 02886

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PA HI's	SIM	SELECTED METALS. Sb, Pb, Hg						COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)									G	G	G						
PRESERVATIVE USED									—	—	—						
9/14	0915	OU9-SS-16-0002	OU9-16	0	2	SO	G	1	✓	✓	✓						
	0945	OU9-SB-16-0205	OU9 16	2	5	SO	G	1	✓	✓	✓						
	0955	OU9-SB-16-0508	"	5	8	SO	G	1	✓	✓	✓						
	1005	OU9-SS-17-0002	OU9 17	0	2	SO	G	1	✓	✓	✓						
	1020	OU9-SB-17-0205	"	2	5	SO	G	1	✓	✓	✓						
	1025	FD09141001	—	2	5	SO	G	1	✓	✓	✓						COLLECTED @ OU9-SB-17-0205
	1030	OU9-SB-17-0508	OU9 17	5	8	SO	G	1	✓	✓	✓						
	1105	OU9-SS-18-0002	OU9 18	0	2	SO	G	1	✓	✓	✓						
	1115	OU9-SB-18-0205	OU9 18	2	5	SO	G	1	✓	✓	✓						
	1125	OU9-SB-18-0508	"	5	8	SO	G	1	✓	✓	✓						
	1130	FD09141002	—	5	8	SO	G	1	✓	✓	✓						COLLECTED @ OU9-SB-18-0508
	1155	OU9-SS-19-0002	OU9 19	0	2	SO	G	1	✓	✓	✓						RUN MS/MSD *
9/14	1200	OU9-SB-19-0205	OU9 19	2	5	SO	G	1	✓	✓	✓						

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Fred W Ramser	9/15/10	1500	1. RECEIVED BY: [signature]	9-15-10	1500
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS: * NO EXTRA VOL. PROVIDED

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

2.3

4/02R
FORM NO. TINUS-001

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER № 028277

PROJECT NO: 112G01456	FACILITY: PNS OU9 S34	PROJECT MANAGER: DEBBIE COHEN	PHONE NUMBER: 412 ~~937-0~~921-7090
SAMPLERS (SIGNATURE): Fred W Ramser		FIELD OPERATIONS LEADER: FRED W. RAMSER	PHONE NUMBER: 412-921-8838
		CARRIER/WAYBILL NUMBER: PICKED UP BY MITKEM	

LABORATORY NAME AND CONTACT: MITKEM ED. HAULER
ADDRESS: 175 METRO CENTER BLVD
CITY, STATE: WARWICK, RI 02886

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G
PRESERVATIVE USED: — — —

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: PAH's	SIM	SELECTED METS. Sb, Pb + Hg					COMMENTS
9/14	1210	OU9-SB-19-0508	OU9 SB19	5	8	SO	G	1	✓	✓	✓					
	1310	OU9-SS-20-0002	OU9 SB20	0	2	SO	G	1	✓	✓	✓					
	1315	OU9-SB-20-0205	OU9 SB20	2	5	SO	G	1	✓	✓	✓					
	1325	OU9-SB-20-0508	"	5	8	SO	G	1	✓	✓	✓					
	1330	OU9-SS-21-0002	OU9 SB21	0	2	SO	G	1	✓	✓	✓					
	1340	OU9-SB-21-0205	"	2	5	SO	G	1	✓	✓	✓					
	1350	OU9-SB-21-0508	"	5	8	SO	G	1	✓	✓	✓					
	1358	OU9-SS-22-0002	OU9 SB22	0	2	SO	G	1	✓	✓	✓					
	1400	FD091410 03	—	0	2	SO	G	1	✓	✓	✓					COLLECTED @ SS22
	1405	OU9-SB-22-0205	OU9 SB22	2	5	SO	G	1	✓	✓	✓					HI CONC!!
	1410	OU9-SB-22-0508	"	5	8	SO	G	1	✓	✓	✓					HI CONC!!
	1450	OU9-SS-23-0002	OU9 SB23	0	2	SO	G	1	✓	✓	✓					
9/14	1455	OU9-SB-23-0204	"	02	4	SO	G	1	✓	✓	✓					

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Fred W Ramser	9/15/10	1500	1. RECEIVED BY: [signature]	9/15/10	1800
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER No. 028278

PAGE 3 OF 3

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G01456	PNS OU9 S34	DEBBIE COHEN	412 921 7090	MITKEM ED LAULER
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Fred W Ramsey		FRED W. RAMSEY	412-921-8838	175 METRO CENTER BLVD
		CARRIER/WAYBILL NUMBER		CITY, STATE
		PICK UP BY MITKEM		WARWICK, RI 02886

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PAHs	SIM	SELECTED METS. SbPbHg						COMMENTS
								CONTAINER TYPE PLASTIC (P) or GLASS (G)	G	G	G						
								PRESERVATIVE USED	/	/	/						
9/14	1500	OU9-SS-24-0002	OU9 SB24	0	2	SO	G	1	✓	✓	✓						
	1510	OU9-SB-24-0204	"	2	4	SO	G	1	✓	✓	✓						
	1525	OU9-SS-25-0002	OU9 SB25	0	2	SO	G	1	✓	✓	✓						
	1530	OU9-SB-25-0205	"	2	5	SO	G	1	✓	✓	✓						
	1535	OU9-SB-25-0508	"	5	8	SO	G	1	✓	✓	✓						RUN MS/MSD *
9/14	1600	RB09141001	—	—	—	QC	G	3	✓	✓	✓						

1. RELINQUISHED BY Fred W Ramsey	DATE 9/15/10	TIME 1500	1. RECEIVED BY	DATE 9-15-10	TIME 1500
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS * NO EXTRA VOL. PROVIDED

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

APPENDIX C

ANALYTICAL DATA

C.1 SOIL DATABASE PRINTOUT

APPENDIX C.1

SOIL DATABASE PRINTOUT
OU9 RI SUPPLEMENTAL SOIL SAMPLING DATA PACKAGE
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

LOCATION	OU9-16	OU9-16	OU9-16	OU9-17	OU9-17	OU9-17
LOCATION TYPE	SB	SB	SB	SB	SB	SB
SAMPLE ID	OU9-SB-16-0205	OU9-SB-16-0508	OU9-SS-16-0002	OU9-SB-17-0205	OU9-SB-17-0205-D	OU9-SB-17-0508
NORTHING	91901.646	91901.646	91901.646	91931.837	91931.837	91931.837
EASTING	2799601.689	2799601.689	2799601.689	2799601.614	2799601.614	2799601.614
SAMPLE DATE	20100914	20100914	20100914	20100914	20100914	20100914
DEPTH INTERVAL (FT)	2 - 5	5 - 8	0 - 2	2 - 5	2 - 5	5 - 8
METALS (MG/KG)						
ANTIMONY	0.44 UJ	0.32 UJ	0.27 UJ	0.77 J	0.62 J	0.87 J
LEAD	5 J	2.4 J	22.1 J	13.4 J	13.7 J	10.8 J
MERCURY	0.005 J	0.021 U	0.73	0.026 U	0.0033 J	0.025 U
MISCELLANEOUS (%)						
PERCENT MOISTURE	14	5.5	6.6	7.8	7.4	7.5
PAHs (UG/KG)						
2-METHYLNAPHTHALENE	3.8 UJ	3.5 U	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ
ACENAPHTHENE	3.8 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
ACENAPHTHYLENE	3.8 U	3.5 U	4.4	3.5 U	3.5 U	3.5 U
ANTHRACENE	3.8 U	3.5 U	6	3.5 U	3.5 U	3.5 U
BENZO(A)ANTHRACENE	3.8 U	3.5 U	21	3.5 U	3.5 U	3.5 U
BENZO(A)PYRENE	3.8 U	3.5 U	22	3.5 U	3.5 U	3.5 U
BENZO(B)FLUORANTHENE	3.8 UJ	3.5 U	22 J	3.5 UJ	3.5 UJ	3.5 UJ
BENZO(G,H,I)PERYLENE	3.8 UJ	3.5 U	14 J	5.4 J	3.5 UJ	3.5 UJ
BENZO(K)FLUORANTHENE	3.8 U	3.5 U	18	3.5 U	3.5 U	3.5 U
CHRYSENE	3.8 U	3.5 U	24	3.5 U	3.5 U	3.5 U
DIBENZO(A,H)ANTHRACENE	3.8 U	3.5 U	4.3	3.5 U	3.5 U	3.5 U
FLUORANTHENE	3.8 U	3.5 UJ	45	3.5 U	3.5 U	3.5 U
FLUORENE	3.8 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
INDENO(1,2,3-CD)PYRENE	3.8 U	3.5 U	11	3.5 U	3.5 U	3.5 U
NAPHTHALENE	3.8 UJ	3.5 U	3.5 UJ	3.5 UJ	3.5 UJ	3.5 UJ
PHENANTHRENE	3.8 U	3.5 U	23	3.5 U	3.5 U	3.5 U
PYRENE	3.8 U	3.5 UJ	46	3.5 U	3.5 U	3.5 U

APPENDIX C.1

SOIL DATABASE PRINTOUT
OU9 RI SUPPLEMENTAL SOIL SAMPLING DATA PACKAGE
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

LOCATION	OU9-17	OU9-18	OU9-18	OU9-18	OU9-18	OU9-19
LOCATION TYPE	SB	SB	SB	SB	SB	SB
SAMPLE ID	OU9-SS-17-0002	OU9-SB-18-0205	OU9-SB-18-0508	OU9-SB-18-0508-D	OU9-SS-18-0002	OU9-SB-19-0205
NORTHING	91931.837	91974.85	91974.85	91974.85	91974.85	92013.098
EASTING	2799601.614	2799857.872	2799857.872	2799857.872	2799857.872	2799802.587
SAMPLE DATE	20100914	20100914	20100914	20100914	20100914	20100914
DEPTH INTERVAL (FT)	0 - 2	2 - 5	5 - 8	5 - 8	0 - 2	2 - 5
METALS (MG/KG)						
ANTIMONY	0.43 UJ	0.32 UJ	0.31 UJ	0.30 UJ	2.1 J	0.34 UJ
LEAD	18.8 J	550 J	8.6 J	7.5 J	494 J	42.2 J
MERCURY	0.049	0.40	0.021 J	0.042 J	1.1	0.069
MISCELLANEOUS (%)						
PERCENT MOISTURE	11	25	14	14	22	17
PAHs (UG/KG)						
2-METHYLNAPHTHALENE	3.7 UJ	16 J	3.8 UJ	3.8 UJ	81 J	3.9 UJ
ACENAPHTHENE	3.7 U	45	3.8 U	3.8 U	530	3.9 U
ACENAPHTHYLENE	3.7 U	34	3.8 U	3.8 U	390	22
ANTHRACENE	3.7 U	91	3.8 U	3.8 U	1500	17
BENZO(A)ANTHRACENE	10	170	3.8 U	3.8 U	2700 J	41
BENZO(A)PYRENE	11	140	3.8 U	3.8 U	2400	35
BENZO(B)FLUORANTHENE	9.5 J	120 J	3.8 UJ	3.8 UJ	2800	41 J
BENZO(G,H,I)PERYLENE	11 J	83 J	3.8 UJ	3.8 UJ	1400	23 J
BENZO(K)FLUORANTHENE	6.7	150	3.8 U	3.8 U	2000	30
CHRYSENE	12	160	3.8 U	3.8 U	2900	47
DIBENZO(A,H)ANTHRACENE	3.7 U	28	3.8 U	3.8 U	290	8.6
FLUORANTHENE	13	240	3.8 U	3.8 U	4700	85
FLUORENE	3.7 U	43	3.8 U	3.8 U	690	9.8
INDENO(1,2,3-CD)PYRENE	7.1	71	3.8 U	3.8 U	1200	19
NAPHTHALENE	3.7 UJ	35 J	3.8 UJ	3.8 UJ	96 J	5.2 J
PHENANTHRENE	11	290	3.8 U	3.8 U	5100	65
PYRENE	17	230	3.8 U	3.8 U	4000 J	76

APPENDIX C.1

SOIL DATABASE PRINTOUT
OU9 RI SUPPLEMENTAL SOIL SAMPLING DATA PACKAGE
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

LOCATION	OU9-19	OU9-19	OU9-20	OU9-20	OU9-20
LOCATION TYPE	SB	SB	SB	SB	SB
SAMPLE ID	OU9-SB-19-0508	OU9-SS-19-0002	OU9-SB-20-0205	OU9-SB-20-0508	OU9-SS-20-0002
NORTHING	92013.098	92013.098	91994.698	91994.698	91994.698
EASTING	2799802.587	2799802.587	2799698.04	2799698.04	2799698.04
SAMPLE DATE	20100914	20100914	20100914	20100914	20100914
DEPTH INTERVAL (FT)	5 - 8	0 - 2	2 - 5	5 - 8	0 - 2
METALS (MG/KG)					
ANTIMONY	0.58 J	0.44 UJ	0.93 J	0.37 UJ	0.34 UJ
LEAD	9.6 J	123 J	1050 J	12.2 J	36.1 J
MERCURY	0.0096 J	0.10	0.62	0.0048 J	0.027 J
MISCELLANEOUS (%)					
PERCENT MOISTURE	9.9	7.6	18	11	6.8
PAHs (UG/KG)					
2-METHYLNAPHTHALENE	3.6 UJ	140 J	270 J	3.7 UJ	5.9 J
ACENAPHTHENE	3.6 U	420	830	3.7 U	32
ACENAPHTHYLENE	3.6 U	870	800	9.7	33
ANTHRACENE	3.6 U	2400	1500	7.1	120
BENZO(A)ANTHRACENE	4	3600 J	4200 J	22	230
BENZO(A)PYRENE	3.6 U	3000	4000	24	180
BENZO(B)FLUORANTHENE	4.3 J	3400	4800	30 J	170 J
BENZO(G,H,I)PERYLENE	3.7 J	1400	2500	24 J	78 J
BENZO(K)FLUORANTHENE	3.1 J	2600	2400 J	24	140
CHRYSENE	5.4	3900	5300	37	210
DIBENZO(A,H)ANTHRACENE	3.6 U	260	860	7.4	35
FLUORANTHENE	6.9	5200	7900	43	430
FLUORENE	3.6 U	1100	830	3.7 U	43
INDENO(1,2,3-CD)PYRENE	3.6 U	1400	2100	15	74
NAPHTHALENE	3.6 UJ	240 J	1100	4.2 J	9 J
PHENANTHRENE	5.3	5500	7200	30	330
PYRENE	5.8	4100 J	6500 J	36	350 J

APPENDIX C.1

SOIL DATABASE PRINTOUT
OU9 RI SUPPLEMENTAL SOIL SAMPLING DATA PACKAGE
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

LOCATION	OU9-21	OU9-21	OU9-21	OU9-22	OU9-22	OU9-22
LOCATION TYPE	SB	SB	SB	SB	SB	SB
SAMPLE ID	OU9-SB-21-0205	OU9-SB-21-0508	OU9-SS-21-0002	OU9-SB-22-0205	OU9-SB-22-0508	OU9-SS-22-0002
NORTHING	92016.282	92016.282	92016.282	92021.907	92021.907	92021.907
EASTING	2799708.584	2799708.584	2799708.584	2799649.998	2799649.998	2799649.998
SAMPLE DATE	20100914	20100914	20100914	20100914	20100914	20100914
DEPTH INTERVAL (FT)	2 - 5	5 - 8	0 - 2	2 - 5	5 - 8	0 - 2
METALS (MG/KG)						
ANTIMONY	0.29 UJ	0.31 UJ	0.37 UJ	0.77 J	0.31 UJ	0.46 J
LEAD	45.2 J	15.1 J	38.1 J	267 J	118 J	26.3 J
MERCURY	0.063	0.0067 J	0.03 J	8.2	0.80	0.15
MISCELLANEOUS (%)						
PERCENT MOISTURE	17	5.6	6.3	15	28	8
PAHs (UG/KG)						
2-METHYLNAPHTHALENE	4 UJ	3.5 UJ	32 J	14000 J	560000 J	87 J
ACENAPHTHENE	4 U	3.5 U	91	16000	100000	120 J
ACENAPHTHYLENE	27	3.5 U	47	7300	370000	2100 J
ANTHRACENE	15	3.5 U	170	38000	290000	1800 J
BENZO(A)ANTHRACENE	55	6.2	280	54000 J	410000 J	7500 J
BENZO(A)PYRENE	68	8.5	250	51000	450000	7400 J
BENZO(B)FLUORANTHENE	72 J	9 J	230 J	58000	360000	8500 J
BENZO(G,H,I)PERYLENE	50 J	8 J	120 J	29000	230000	3600 J
BENZO(K)FLUORANTHENE	56	6.5	220	25000 J	130000 J	4800 J
CHRYSENE	75	9.3	300	54000	420000	8700 J
DIBENZO(A,H)ANTHRACENE	14	3.5 U	42	13000	66000	1600 J
FLUORANTHENE	110	11	450	91000	550000	11000 J
FLUORENE	4.3	3.5 U	110	18000	320000	320 J
INDENO(1,2,3-CD)PYRENE	37	4.9	110	19000	160000	3500 J
NAPHTHALENE	7.4 J	3.5 UJ	70 J	15000	640000	210 J
PHENANTHRENE	54	6.9	600	110000	1300000	1100 J
PYRENE	100	11	420 J	85000 J	910000 J	9700 J

APPENDIX C.1

SOIL DATABASE PRINTOUT
OU9 RI SUPPLEMENTAL SOIL SAMPLING DATA PACKAGE
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

LOCATION	OU9-22	OU9-23	OU9-23	OU9-24	OU9-24
LOCATION TYPE	SB	SB	SB	SB	SB
SAMPLE ID	OU9-SS-22-0002-D	OU9-SB-23-0204	OU9-SS-23-0002	OU9-SB-24-0204	OU9-SS-24-0002
NORTHING	92021.907	92005.3326	92005.3326	91997.271	91997.271
EASTING	2799649.998	2799580.56	2799580.56	2799551.866	2799551.866
SAMPLE DATE	20100914	20100914	20100914	20100914	20100914
DEPTH INTERVAL (FT)	0 - 2	2 - 4	0 - 2	2 - 4	0 - 2
METALS (MG/KG)					
ANTIMONY	0.38 UJ	0.46 UJ	0.48 J	0.35 UJ	2.3 J
LEAD	23.4 J	6.5 J	106 J	7.8 J	503 J
MERCURY	0.03 J	0.0085 J	0.20	0.012 J	0.50
MISCELLANEOUS (%)					
PERCENT MOISTURE	9.4	9.1	11	11	13
PAHs (UG/KG)					
2-METHYLNAPHTHALENE	26 J	3.6 U	23 J	3.7 U	39 J
ACENAPHTHENE	31 J	3.6 U	140 J	3.7 U	59
ACENAPHTHYLENE	230 J	3.6 U	43 J	3.7 U	190
ANTHRACENE	470 J	3.6 U	300 J	3.7 U	190
BENZO(A)ANTHRACENE	1000 J	3.6 U	560 J	3.7 U	670 J
BENZO(A)PYRENE	820 J	3.7	290	3.7 U	680
BENZO(B)FLUORANTHENE	800 J	3.6 U	250 J	4	810
BENZO(G,H,I)PERYLENE	280 J	4.3	140 J	3.7 U	350 J
BENZO(K)FLUORANTHENE	690 J	3.6 U	360	3.7 U	290
CHRYSENE	850 J	3.6 U	630	3.7 U	660
DIBENZO(A,H)ANTHRACENE	130 J	3.6 U	77	3.7 U	170
FLUORANTHENE	1100 J	4.1 J	1000	6.5 J	690
FLUORENE	170 J	3.6 U	190 J	3.7 U	100
INDENO(1,2,3-CD)PYRENE	220 J	3.6 U	130	3.7 U	240
NAPHTHALENE	32 J	3.6 U	48 J	3.7 U	60 J
PHENANTHRENE	1000 J	4.1	1200	5	590
PYRENE	1100 J	5 J	770 J	6.5 J	680 J

APPENDIX C.1

SOIL DATABASE PRINTOUT
OU9 RI SUPPLEMENTAL SOIL SAMPLING DATA PACKAGE
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

LOCATION	OU9-25	OU9-25	OU9-25
LOCATION TYPE	SB	SB	SB
SAMPLE ID	OU9-SB-25-0205	OU9-SB-25-0508	OU9-SS-25-0002
NORTHING	91943.942	91943.942	91943.942
EASTING	2799514.773	2799514.773	2799514.773
SAMPLE DATE	20100914	20100914	20100914
DEPTH INTERVAL (FT)	2 - 5	5 - 8	0 - 2
METALS (MG/KG)			
ANTIMONY	0.38 UJ	0.38 UJ	0.45 UJ
LEAD	4.8 J	5.1 J	48.5 J
MERCURY	0.0025 J	0.023 U	0.051
MISCELLANEOUS (%)			
PERCENT MOISTURE	10	9.4	17
PAHs (UG/KG)			
2-METHYLNAPHTHALENE	3.6 U	3.6 UJ	4 U
ACENAPHTHENE	3.6 U	3.6 U	4 U
ACENAPHTHYLENE	3.6 U	3.6 U	4 U
ANTHRACENE	3.6 U	3.6 U	4.4
BENZO(A)ANTHRACENE	3.6 U	4.2	10
BENZO(A)PYRENE	3.6 U	4.3	11
BENZO(B)FLUORANTHENE	3.6 U	4.2 J	11
BENZO(G,H,I)PERYLENE	3.6 U	3.6 UJ	7.5
BENZO(K)FLUORANTHENE	3.6 U	3.6 U	4.3
CHRYSENE	3.6 U	7.8	11
DIBENZO(A,H)ANTHRACENE	3.6 U	3.6 UJ	4 U
FLUORANTHENE	5.3 J	9.9	17 J
FLUORENE	3.6 U	3.6 U	4 U
INDENO(1,2,3-CD)PYRENE	3.6 U	3.6 UJ	5.2
NAPHTHALENE	3.6 U	3.9 J	4 U
PHENANTHRENE	4.1	8.7	18
PYRENE	4.8 J	9.9	20 J

C.2 DATA VALIDATION REPORTS / ELECTRONIC DATABASE (ON CD)

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **D. COHEN** **DATE: NOVEMBER 5, 2010**

FROM: **LEANNE M. GANSER** **COPIES: DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – ANTIMONY, LEAD, MERCURY, AND PERCENT MOISTURE**
CTO 533, PORTSMOUTH NSY
SAMPLE DELIVERY GROUP (SDG) J1792

SAMPLES: 31/Soil/

FD09141001	FD09141002	FD09141003	OU9-SB-16-0205
OU9-SB-16-0508	OU9-SB-17-0205	OU9-SB-17-0508	OU9-SB-18-0205
OU9-SB-18-0508	OU9-SB-19-0205	OU9-SB-19-0508	OU9-SB-20-0205
OU9-SB-20-0508	OU9-SB-21-0205	OU9-SB-21-0508	OU9-SB-22-0205
OU9-SB-22-0508	OU9-SB-23-0204	OU9-SB-24-0204	OU9-SB-25-0205
OU9-SB-25-0508	OU9-SS-16-0002	OU9-SS-17-0002	OU9-SS-18-0002
OU9-SS-19-0002	OU9-SS-20-0002	OU9-SS-21-0002	OU9-SS-22-0002
OU9-SS-23-0002	OU9-SS-24-0002	OU9-SS-25-0002	

1/Aqueous/

RB09141001

Overview

The sample set for CTO 533, SDG J1792, Portsmouth NSY, consists of thirty-one (31) soil environmental samples and one (1) rinsate blank. Three field duplicate pairs were included in this SDG: FD09141001/ OU9-SB-17-0205, FD09141002/ OU9-SB-18-0508, and FD09141003/ OU9-SS-22-0002.

All samples were analyzed for antimony, lead, mercury, and percent moisture. The samples were collected by Tetra Tech NUS on September 14, 2010 and analyzed by Mitkem Laboratories. All analyses were conducted in accordance with SW-846 method 6010C for antimony and lead and SW-846 methods 7470A and 7471B for mercury. All samples in this SDG were validated to EPA Region I Tier III protocol.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Initial and Continuing Calibrations
* • Laboratory Method / Preparation Blanks
* • ICP Interference Analysis
* • Laboratory Control Sample Results
  • Matrix Spike Results
  • Laboratory Duplicate Results
  • ICP Serial Dilution Results

* • Field Duplicate Results
* • Detection Limits
* • Analyte Quantitation

* - All quality control criteria were met for this parameter.

Matrix Spike Results

Matrix spike percent recovery for antimony was <30% quality control limit affecting batch 54223. The post digestion spike was compliant. The nondetected results for antimony were qualified as estimated, "UJ". The positive results for antimony were qualified as estimated, "J".

Matrix spike percent recovery for lead was >120% quality control limit affecting batch 54223. The post digestion spike was compliant. The positive results for lead were qualified as estimated, "J".

Matrix spike percent recoveries for antimony and lead were <80% quality control limit affecting batch 54224. The post digestion spike was compliant. The positive and nondetected results for antimony were qualified as estimated, "J" and "UJ". The positive results for lead were qualified as estimated, "J".

Laboratory Duplicate Results

Laboratory duplicate imprecision (RPD >35%) was noted for lead affecting batch 54223. Positive results for lead were qualified as estimated, "J".

ICP Serial Dilution

ICP serial dilution was >10% quality control limit for lead affecting batch 54223. Positive results for lead were qualified as estimated, "J".

ICP serial dilution was >10% quality control limit for lead affecting batch 54224. Positive results for lead were qualified as estimated, "J".

Notes

Positive results between the method detection limit (MDL) and the project quanitation limit (PQL) were qualified as estimated, "J", as a result of uncertainty near the detection limit.

Nondetected results were reported to the limit of detection (LOD).

Executive Summary

Laboratory Performance: Laboratory duplicate imprecision was noted for lead.

Other Factors Affecting Data Quality: The matrix spike percent recovery was outside quality control limits for antimony and lead. ICP serial dilution noncompliance was noted for lead.

The data for these analyses were reviewed with reference to EPA Region I, "National Functional Guidelines for Inorganic Review", November 2008. The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech NUS
Leanne M. Ganser
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Region I Worksheets
4. Appendix D - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS-GFAA MSA's r < 0.995 / ICP PDS Recovery Noncompliance
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient r < 0.995
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 01456	NSAMPLE	FD09141001			FD09141002			FD09141003			OU9-SB-16-0205		
SDG: J1792	LAB_ID	J1792-06A			J1792-11A			J1792-22A			J1792-02A		
FRACTION: M	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	93.0			86.0			91.0			86.0		
	DUP_OF	OU9-SB-17-0205			OU9-SB-18-0508			OU9-SS-22-0002					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.62	J	DP	0.3	UJ	D	0.38	UJ	D	0.44	UJ	D
LEAD		13.7	J	DFI	7.5	J	DFI	23.4	J	DI	5	J	DFI
MERCURY		0.0033	J	P	0.042	J	P	0.03	J	P	0.005	J	P

PROJ_NO: 01456	NSAMPLE	OU9-SB-16-0508			OU9-SB-17-0205			OU9-SB-17-0508			OU9-SB-18-0205		
SDG: J1792	LAB_ID	J1792-03A			J1792-05A			J1792-07A			J1792-09A		
FRACTION: M	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	94.0			92.0			93.0			75.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.32	UJ	D	0.77	J	DP	0.87	J	D	0.32	UJ	D
LEAD		2.4	J	DFI	13.4	J	DFI	10.8	J	DFI	550	J	DFI
MERCURY		0.021	U		0.026	U		0.025	U		0.4		

PROJ_NO: 01456	NSAMPLE	OU9-SB-18-0508			OU9-SB-19-0205			OU9-SB-19-0508			OU9-SB-20-0205		
SDG: J1792	LAB_ID	J1792-10A			J1792-13A			J1792-14A			J1792-16A		
FRACTION: M	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.0			83.0			90.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.31	UJ	D	0.34	UJ	D	0.58	J	DP	0.93	J	D
LEAD		8.6	J	DFI	42.2	J	DFI	9.6	J	DFI	1050	J	DFI
MERCURY		0.021	J	P	0.069			0.0096	J	P	0.62		

PROJ_NO: 01456	NSAMPLE	OU9-SB-20-0508			OU9-SB-21-0205			OU9-SB-21-0508			OU9-SB-22-0205		
SDG: J1792	LAB_ID	J1792-17A			J1792-19A			J1792-20A			J1792-23A		
FRACTION: M	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	89.0			83.0			94.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.37	UJ	D	0.29	UJ	D	0.31	UJ	D	0.77	J	D
LEAD		12.2	J	DFI	45.2	J	DFI	15.1	J	DFI	267	J	DI
MERCURY		0.0048	J	P	0.063			0.0067	J	P	8.2		

PROJ_NO: 01456	NSAMPLE	OU9-SB-22-0508			OU9-SB-23-0204			OU9-SB-24-0204			OU9-SB-25-0205		
SDG: J1792	LAB_ID	J1792-24A			J1792-26A			J1792-28A			J1792-30A		
FRACTION: M	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	72.0			91.0			89.0			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.31	UJ	D	0.46	UJ	D	0.35	UJ	D	0.38	UJ	D
LEAD		118	J	DI	6.5	J	DI	7.8	J	DI	4.8	J	DI
MERCURY		0.8			0.0085	J	P	0.012	J	P	0.0025	J	P

PROJ_NO: 01456 SDG: J1792 FRACTION: M MEDIA: SOIL	NSAMPLE	OU9-SB-25-0508			OU9-SS-16-0002			OU9-SS-17-0002			OU9-SS-18-0002		
	LAB_ID	J1792-31A			J1792-01A			J1792-04A			J1792-08A		
	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	91.0			93.0			89.0			78.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.38	UJ	D	0.27	UJ	D	0.43	UJ	D	2.1	J	D
LEAD		5.1	J	DI	22.1	J	DFI	18.8	J	DFI	494	J	DFI
MERCURY		0.023	U		0.73			0.049			1.1		

PROJ_NO: 01456	NSAMPLE	OU9-SS-19-0002			OU9-SS-20-0002			OU9-SS-21-0002			OU9-SS-22-0002		
SDG: J1792	LAB_ID	J1792-12A			J1792-15A			J1792-18A			J1792-21A		
FRACTION: M	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	92.0			93.0			94.0			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.44	UJ	D	0.34	UJ	D	0.37	UJ	D	0.46	J	DP
LEAD		123	J	DFI	36.1	J	DFI	38.1	J	DFI	26.3	J	DI
MERCURY		0.1			0.027	J	P	0.03	J	P	0.15		

PROJ_NO: 01456	NSAMPLE	OU9-SS-23-0002			OU9-SS-24-0002			OU9-SS-25-0002		
SDG: J1792	LAB_ID	J1792-25A			J1792-27A			J1792-29A		
FRACTION: M	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	89.0			87.0			83.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.48	J	DP	2.3	J	D	0.45	UJ	D
LEAD		106	J	DI	503	J	DI	48.5	J	DI
MERCURY		0.2			0.5			0.051		

PROJ_NO: 01456	NSAMPLE	FD09141001			FD09141002			FD09141003			OU9-SB-16-0205		
SDG: J1792	LAB_ID	J1792-06A			J1792-11A			J1792-22A			J1792-02A		
FRACTION: MISC	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	100.0			100.0			100.0			100.0		
	DUP_OF	OU9-SB-17-0205			OU9-SB-18-0508			OU9-SS-22-0002					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		7.4			14			9.4			14		

PROJ_NO: 01456	NSAMPLE	OU9-SB-16-0508			OU9-SB-17-0205			OU9-SB-17-0508			OU9-SB-18-0205		
SDG: J1792	LAB_ID	J1792-03A			J1792-05A			J1792-07A			J1792-09A		
FRACTION: MISC	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	100.0			100.0			100.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		5.5			7.8			7.5			25		

PROJ_NO: 01456	NSAMPLE	OU9-SB-18-0508			OU9-SB-19-0205			OU9-SB-19-0508			OU9-SB-20-0205		
SDG: J1792	LAB_ID	J1792-10A			J1792-13A			J1792-14A			J1792-16A		
FRACTION: MISC	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	100.0			100.0			100.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		14			17			9.9			18		

PROJ_NO: 01456	NSAMPLE	OU9-SB-20-0508			OU9-SB-21-0205			OU9-SB-21-0508			OU9-SB-22-0205		
SDG: J1792	LAB_ID	J1792-17A			J1792-19A			J1792-20A			J1792-23A		
FRACTION: MISC	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	100.0			100.0			100.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		11			17			5.6			15		

PROJ_NO: 01456 SDG: J1792 FRACTION: MISC MEDIA: SOIL	NSAMPLE	OU9-SB-22-0508			OU9-SB-23-0204			OU9-SB-24-0204			OU9-SB-25-0205		
	LAB_ID	J1792-24A			J1792-26A			J1792-28A			J1792-30A		
	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	100.0			100.0			100.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		28			9.1			11			10		

PROJ_NO: 01456 SDG: J1792 FRACTION: MISC MEDIA: SOIL	NSAMPLE	OU9-SB-25-0508			OU9-SS-16-0002			OU9-SS-17-0002			OU9-SS-18-0002		
	LAB_ID	J1792-31A			J1792-01A			J1792-04A			J1792-08A		
	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	100.0			100.0			100.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		9.4			6.6			11			22		

PROJ_NO: 01456 SDG: J1792 FRACTION: MISC MEDIA: SOIL	NSAMPLE	OU9-SS-19-0002			OU9-SS-20-0002			OU9-SS-21-0002			OU9-SS-22-0002		
	LAB_ID	J1792-12A			J1792-15A			J1792-18A			J1792-21A		
	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	100.0			100.0			100.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		7.6			6.8			6.3			8		

PROJ_NO: 01456	NSAMPLE	OU9-SS-23-0002			OU9-SS-24-0002			OU9-SS-25-0002		
SDG: J1792	LAB_ID	J1792-25A			J1792-27A			J1792-29A		
FRACTION: MISC	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	%			%			%		
	PCT_SOLIDS	100.0			100.0			100.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		11			13			17		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FD09141001

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-06

Level (low/med): MED Date Received: 09/16/2010

% Solids: 93.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.62	B	N	P	0.37	0.45	0.97
7439-92-1	Lead	13.7		N*E	P	0.16	0.23	0.48
7439-97-6	Mercury	0.0033	B		CV	0.0022	0.022	0.035

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FD09141002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-11

Level (low/med): MED Date Received: 09/16/2010

% Solids: 86.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.3	U	N	P	0.27	0.30	0.71
7439-92-1	Lead	7.5		N*E	P	0.12	0.15	0.35
7439-97-6	Mercury	0.042	B		CV	0.0026	0.026	0.043

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FD09141003

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-22

Level (low/med): MED Date Received: 09/16/2010

% Solids: 91.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.38	U	N	P	0.32	0.38	0.84
7439-92-1	Lead	23.4		NE	P	0.14	0.19	0.42
7439-97-6	Mercury	0.030	B		CV	0.0024	0.024	0.040

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-16-0205

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-02

Level (low/med): MED Date Received: 09/16/2010

% Solids: 86.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.44	U	N	P	0.38	0.44	1.0
7439-92-1	Lead	5.0		N*E	P	0.17	0.22	0.51
7439-97-6	Mercury	0.0050	B		CV	0.0026	0.026	0.043

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-16-0508

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-03

Level (low/med): MED Date Received: 09/16/2010

% Solids: 94.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.32	U	N	P	0.26	0.32	0.68
7439-92-1	Lead	2.4		N*E	P	0.12	0.16	0.34
7439-97-6	Mercury	0.021	U		CV	0.0021	0.021	0.035

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-17-0205

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-05

Level (low/med): MED Date Received: 09/16/2010

% Solids: 92.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.77	B	N	P	0.34	0.41	0.90
7439-92-1	Lead	13.4		N*E	P	0.15	0.21	0.45
7439-97-6	Mercury	0.026	U		CV	0.0026	0.026	0.042

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-17-0508

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-07

Level (low/med): MED Date Received: 09/16/2010

% Solids: 93.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.87		N	P	0.27	0.33	0.71
7439-92-1	Lead	10.8		N*E	P	0.12	0.16	0.35
7439-97-6	Mercury	0.025	U		CV	0.0025	0.025	0.041

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-18-0205

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-09

Level (low/med): MED Date Received: 09/16/2010

% Solids: 75.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.32	U	N	P	0.32	0.32	0.85
7439-92-1	Lead	550		N*E	P	0.15	0.16	0.43
7439-97-6	Mercury	0.40			CV	0.0028	0.028	0.046

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-18-0508

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-10

Level (low/med): MED Date Received: 09/16/2010

% Solids: 86.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.31	U	N	P	0.28	0.31	0.73
7439-92-1	Lead	8.6		N*E	P	0.13	0.16	0.36
7439-97-6	Mercury	0.021	B		CV	0.0025	0.025	0.042

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-19-0205

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-13

Level (low/med): MED Date Received: 09/16/2010

% Solids: 83.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.34	U	N	P	0.31	0.34	0.82
7439-92-1	Lead	42.2		N*E	P	0.14	0.17	0.41
7439-97-6	Mercury	0.069			CV	0.0024	0.024	0.040

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-19-0508

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-14

Level (low/med): MED Date Received: 09/16/2010

% Solids: 90.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.58	B	N	P	0.28	0.33	0.74
7439-92-1	Lead	9.6		N*E	P	0.12	0.17	0.37
7439-97-6	Mercury	0.0096	B		CV	0.0023	0.023	0.037

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-20-0205

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-16

Level (low/med): MED Date Received: 09/16/2010

% Solids: 82.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.93		N	P	0.35	0.38	0.91
7439-92-1	Lead	1050		N*E	P	0.16	0.19	0.46
7439-97-6	Mercury	0.62			CV	0.0029	0.029	0.048

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-20-0508

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-17

Level (low/med): MED Date Received: 09/16/2010

% Solids: 89.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.37	U	N	P	0.31	0.37	0.83
7439-92-1	Lead	12.2		N*E	P	0.15	0.19	0.42
7439-97-6	Mercury	0.0048	B		CV	0.0025	0.025	0.042

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-21-0205

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-19

Level (low/med): MED Date Received: 09/16/2010

% Solids: 83.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.29	U	N	P	0.27	0.29	0.70
7439-92-1	Lead	45.2		N*E	P	0.12	0.15	0.35
7439-97-6	Mercury	0.063			CV	0.0024	0.024	0.040

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-21-0508

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-20

Level (low/med): MED Date Received: 09/16/2010

% Solids: 94.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.31	U	N	P	0.26	0.31	0.67
7439-92-1	Lead	15.1		N*E	P	0.12	0.16	0.33
7439-97-6	Mercury	0.0067	B		CV	0.0024	0.024	0.040

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-22-0205

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-23

Level (low/med): MED Date Received: 09/16/2010

% Solids: 85.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.77		N	P	0.24	0.27	0.64
7439-92-1	Lead	267		NE	P	0.11	0.13	0.32
7439-97-6	Mercury	8.2			CV	0.027	0.27	0.45

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-22-0508

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-24

Level (low/med): MED Date Received: 09/16/2010

% Solids: 72.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.31	U	N	P	0.33	0.31	0.88
7439-92-1	Lead	118		NE	P	0.15	0.16	0.43
7439-97-6	Mercury	0.80			CV	0.0029	0.029	0.047

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-23-0204

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-26

Level (low/med): MED Date Received: 09/16/2010

% Solids: 91.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.46	U	N	P	0.38	0.46	1.0
7439-92-1	Lead	6.5		NE	P	0.18	0.23	0.51
7439-97-6	Mercury	0.0085	B		CV	0.0026	0.026	0.044

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-24-0204

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-28

Level (low/med): MED Date Received: 09/16/2010

% Solids: 89.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.35	U	N	P	0.30	0.35	0.79
7439-92-1	Lead	7.8		NE	P	0.13	0.17	0.39
7439-97-6	Mercury	0.012	B		CV	0.0023	0.023	0.038

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-25-0205

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-30

Level (low/med): MED Date Received: 09/16/2010

% Solids: 90.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.38	U	N	P	0.32	0.38	0.83
7439-92-1	Lead	4.8		NE	P	0.14	0.19	0.42
7439-97-6	Mercury	0.0025	B		CV	0.0024	0.024	0.040

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-25-0508

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-31

Level (low/med): MED Date Received: 09/16/2010

% Solids: 91.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.38	U	N	P	0.32	0.38	0.85
7439-92-1	Lead	5.1		NE	P	0.14	0.19	0.42
7439-97-6	Mercury	0.023	U		CV	0.0023	0.023	0.038

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-16-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-01

Level (low/med): MED Date Received: 09/16/2010

% Solids: 93.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.27	U	N	P	0.23	0.27	0.58
7439-92-1	Lead	22.1		N*E	P	0.099	0.14	0.29
7439-97-6	Mercury	0.73			CV	0.0026	0.026	0.043

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-17-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-04

Level (low/med): MED Date Received: 09/16/2010

% Solids: 89.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.43	U	N	P	0.37	0.43	0.97
7439-92-1	Lead	18.8		N*E	P	0.17	0.22	0.48
7439-97-6	Mercury	0.049			CV	0.0026	0.026	0.044

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-18-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-08

Level (low/med): MED Date Received: 09/16/2010

% Solids: 78.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	2.1		N	P	0.29	0.31	0.79
7439-92-1	Lead	494		N*E	P	0.13	0.15	0.40
7439-97-6	Mercury	1.1			CV	0.0028	0.028	0.046

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-19-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-12

Level (low/med): MED Date Received: 09/16/2010

% Solids: 92.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.44	U	N	P	0.37	0.44	0.96
7439-92-1	Lead	123		N*E	P	0.16	0.22	0.48
7439-97-6	Mercury	0.10			CV	0.0024	0.024	0.040

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-20-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-15

Level (low/med): MED Date Received: 09/16/2010

% Solids: 93.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.34	U	N	P	0.28	0.34	0.73
7439-92-1	Lead	36.1		N*E	P	0.13	0.17	0.37
7439-97-6	Mercury	0.027	B		CV	0.0022	0.022	0.036

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-21-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Lab Sample ID: J1792-18

Level (low/med): MED Date Received: 09/16/2010

% Solids: 94.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.37	U	N	P	0.30	0.37	0.79
7439-92-1	Lead	38.1		N*E	P	0.14	0.18	0.39
7439-97-6	Mercury	0.030	B		CV	0.0022	0.022	0.037

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-22-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-21

Level (low/med): MED Date Received: 09/16/2010

% Solids: 92.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.46	B	N	P	0.26	0.32	0.68
7439-92-1	Lead	26.3		NE	P	0.12	0.16	0.35
7439-97-6	Mercury	0.15			CV	0.0026	0.026	0.042

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-23-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-25

Level (low/med): MED Date Received: 09/16/2010

% Solids: 89.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.48	B	N	P	0.29	0.34	0.75
7439-92-1	Lead	106		NE	P	0.12	0.17	0.38
7439-97-6	Mercury	0.20			CV	0.0022	0.022	0.037

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-24-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-27

Level (low/med): MED Date Received: 09/16/2010

% Solids: 87.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	2.3		N	P	0.25	0.30	0.68
7439-92-1	Lead	503		NE	P	0.11	0.15	0.34
7439-97-6	Mercury	0.50			CV	0.0027	0.027	0.044

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-25-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Lab Sample ID: J1792-29

Level (low/med): MED Date Received: 09/16/2010

% Solids: 83.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	0.45	U	N	P	0.41	0.45	1.1
7439-92-1	Lead	48.5		NE	P	0.18	0.22	0.54
7439-97-6	Mercury	0.051			CV	0.0028	0.028	0.046

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

RB09141001

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): WATER Lab Sample ID: J1792-32

Level (low/med): MED Date Received: 09/16/2010

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	MDL	LOD	PQL
7440-36-0	Antimony	10	U		P	9.3	10.0	20.0
7439-92-1	Lead	5	U		P	4.2	5.0	10.0
7439-97-6	Mercury	0.05	U		CV	0.028	0.050	0.20

Comments:

APPENDIX C
REGION I WORKSHEETS

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name Portsmouth NSY
Reference No. _____

REGION I INORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name Mitkem
Case/Project No. _____
SDG No. J 1792
No. of Samples/Matrix _____

SOW/Method No. _____
Sampling Date(s) _____
Shipping Date(s) _____
Date Rec'd by lab _____

Traffic Report Sample Nos. _____

Equipment Blank No. _____
Bottle Blank No. _____
Field Duplicate Nos. _____
PES Nos. _____

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision _____ was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPP or amendment to QAPP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc., that received partial Tier III validation.

_____

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation and Technical Holding Times
- ICP-MS Tune
- Calibrations
- Blanks
- ICP-AES Interference Check Sample (ICS)
- ICP-MS Interference Check Sample (ICS)
- ICP-MS Internal Standards
- Matrix Spikes
- Laboratory Duplicate Samples
- Field Duplicates
- ICP Serial Dilutions
- Sensitivity Check
- Performance Evaluation Samples/Accuracy Check
- Analyte Quantitation and Reported Quantitation Limits
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with analyte is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Analyte not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
BB, EB - Analyte detected in aqueous bottle blank or aqueous equipment blank associated with soil/sediment samples.

Validator's Name _____ Company Name _____ Phone Number _____

Date Validation Started _____ Date Validation Completed _____

Check if all criteria are met and no hard copy worksheet is provided. Indicate NA if worksheet is not applicable to the analytical method. Note: there is no standard worksheet for System Performance; however, the validator must document all system performance issues in the Data Validation Memorandum.

INORG Worksheets:

INORG	COMPLETE SDG FILE (CSF) AUDIT	
INORG-I	PRESERVATION AND TECHNICAL HOLDING TIMES	_____
INORG-II	ICP-MS TUNE	_____
INORG-III-A/B	CALIBRATIONS	_____
INORG-IV-A/B	BLANKS	_____
INORG-IV-C.1	BLANKS	_____
INORG-IV-C.2	BLANKS	_____
INORG-V-A	ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB	_____
INORG-V-B.1	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	_____
INORG-V-B.2	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	_____
INORG-VI-A	ICP-MS INTERFERENCE CHECK SAMPLE - ICSAB	_____
INORG-VI-B	ICP-MS INTERFERENCE CHECK SAMPLE - ICSA	_____
INORG-VII	ICP-MS INTERNAL STANDARDS	_____
INORG-VIII	MATRIX SPIKES	_____
INORG-IX	LABORATORY DUPLICATE SAMPLES	_____
INORG-X	FIELD DUPLICATES	_____
INORG-XI	ICP SERIAL DILUTIONS	_____
INORG-XII-A/B	SENSITIVITY CHECK	_____
INORG-XIII-A	PE SAMPLES/ACCURACY CHECK- LCS	_____
INORG-XIII-B	PE SAMPLES/ACCURACY CHECK- PE RESULTS	_____
INORG-XIV	ANALYTE QUANTITATION AND REPORTED QUANTITATION LIMITS	_____
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	_____

I certify that all criteria were met for the worksheets checked above.

Signature: _____ Name: _____

Date: _____

EPA-NE - Data Validation Worksheet

Overall Evaluation of Data - Data Validation Memorandum - Table II

See DV report

Site:_____ Case:_____ SDG:_____

INORGANICS					
DQO (List all DQOs)	Sampling and/or Analytical Method Appropriate? (Yes or No)	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator:_____ Date:_____

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EPA-NE - Data Validation Worksheet
INORG

COMPLETE SDG FILE (CSF) AUDIT

Inorganic Parameters: _____

Missing Information	Date Lab Contacted	Date Received
	See DV report	

Validator: _____ Date: _____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-I

See DV report

I. PRESERVATION AND HOLDING TIMES

Circle sample numbers with exceeded technical holding times or omitted preservation.
Circle all exceeded technical holding times.

Sample No.	Matrix	Pres. Code		Date Sampled	Metals		Hg		CN		Action
		Metals	CN		Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	

Preservation Code:

1. Cool (≤ 6°C)
2. pH < 2 with HNO_3
3. pH > 12 with NaOH
4. Room Temperature
5. Freeze
6. Reducing agent (for oxidants)
7. Treated for sulfides
8. Other - _____

Action Code:

J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Sampler:_____ Company:_____ Contacted: Y N Date:_____

Validator:_____

Date:_____

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NA

II. ICP-MS TUNE

List all Tunes that are outside method QC acceptance criteria.

Method:_____

Method QC acceptance criteria for mass calibration:_____

Method QC acceptance criteria for resolution check/peak width:_____ at_____% peak height.

Method QC acceptance criteria for % RSD:_____

Analysis Date and Time	Analyte	Mass Calibration			Mass Resolution		% RSD of Absolute Signals	Analyte/Samples Affected	Action
		True Mass (amu)	Measured Mass (amu)	Absolute Difference of Masses (amu)	Peak Width (amu)	% Peak Height			

Comments:

Validator:_____

Date:_____

EPA-NE - Data Validation Worksheet
INORG-III-A/B/C

III. CALIBRATIONS

See DV report

A. Instrument Calibration - List all calibration correlation coefficients that are outside the method QC acceptance criteria.
Calibration correlation QC acceptance criteria: _____ Calibration Type: _____

Date/Time	Instr.	Analyte	Corr. Coef.	Samples Affected	Action

B. Initial and Continuing Calibration Verifications - List all ICV and CCV analyte recoveries that are outside the method QC acceptance criteria.
ICV method QC acceptance criteria: _____ CCV method QC acceptance criteria: _____

Date	Instr.	Analyte	ICV/CCV #	% R	Samples Affected	Action

C. Quantitation Limit Check Standard - List all QL Check Standard analytes that are outside method QC acceptance criteria.
QL Check Standard method QC acceptance criteria: _____

Date	Instr.	Analyte	QL Check Std. #	% R	Affected Range	Samples Affected	Action

Comments: _____

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet
INORG-IV-A/B

See DV report

IV. BLANKS - List the blank contamination and negative blank results below.

Sampler: _____ Company: _____ Contacted: Y N Date: _____

A. Laboratory: Preparation (Method) and Calibration (Instrument) Blanks

Date Prepared	Date Analyzed	Blank Type (ICB/CCB#/Prep Blank)	Matrix	Instrument	Analyte	Conc. (units)

B. Field: Equipment (Rinsate) and Bottle Blanks

Date Sampled	Date Analyzed	Sample No. (Blank Type)	Matrix	Instrument	Analyte	Conc. (units)

Were the proper number of blanks analyzed at the proper frequency? Y N

For ICP MS - Are internal standard responses in all blanks within method QC acceptance criteria? Y N

Comments: _____

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet
INORG-IV-C.1
IV. BLANKS

See DV report

C.1 Blank Contamination Worksheet

Circle the highest concentration of each contaminant.

Analyte	Date Analyzed	ICB	CCB							PBW	PBS	EB	BB	Max. Conc.	Action Level
			1	2	3	4	5	6	7						
Aluminum															
Antimony															
Arsenic															
Barium															
Beryllium															
Cadmium															
Calcium															
Chromium															
Cobalt															
Copper															
Iron															
Lead															
Magnesium															
Manganese															
Mercury															
Nickel															
Potassium															
Selenium															
Silver															
Sodium															
Thallium															
Vanadium															
Zinc															
Cyanide															

Validator: _____

Date: _____

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EPA-NE - Data Validation Worksheet
INORG-IV-C.2

See DV report

IV. BLANKS

C.2 Blank Actions - List the maximum concentrations of each analyte among all blanks associated with each sample.

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (units)	Blank Action Level (units)	Sample QL	Samples Affected	Action

Comments:

Validator: _____

Date: _____

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EPA NE - Data Validation Worksheet
INORG-V-A

V. A. ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB

See DV report

1. List all analytes in the ICSAB that are outside ICSAB percent recovery criteria.

Date	Analyte	%R	Conc. of Interferents Observed in ICSAB (ug/L)				Samples Affected	Action
			Al	Ca	Fe	Mg		

Comments:

Validator:_____ Date:_____

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V. B.1 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

See DV report

1. List all analytes in the ICSA that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV±2xMDL	Conc. of Interferents Observed in ICSA (ug/L)				Associated Samples
						Al	Ca	Fe	Mg	

Comments:

Validator:_____

Date:_____

EPA NE - Data Validation Worksheet
INORG-V-B.2

V. B.2 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

See DV report

2. List all affected sample results.

Affected Sample	Interferent	Conc. in Sample (ug/L)	Analyte	Conc. in Sample (ug/L)	Estimated Interference in Sample (ug/L)	Action

Comments:

Validator:_____

Date:_____

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-VI-A

NA

VI. A. ICP-MS INTERFERENCE CHECK SAMPLE - ICSAB

List all analytes that are outside ICSAB criteria of 80-120% R.

Date	Analyte	%R	Samples Affected	Action

Comments:

Validator:_____ Date:_____

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EPA NE - Data Validation Worksheet
INORG-VI-B

NA

VI. B. ICP-MS INTERFERENCE CHECK SAMPLE - ICSA

List all analytes that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV ± 2xMDL	Samples Affected	Action

Comments:

Validator:_____ Date:_____

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EPA-NE - Data Validation Worksheet
INORG-VII

NA

VII. ICP-MS INTERNAL STANDARDS

List all internal standards that are outside method QC acceptance criteria.

IS method QC acceptance criteria: _____

Sample Number	Date and Time Analyzed	IS, amu	% RI	Analytes Affected (amu)	Action
Comments:					

Validator:_____ Date:_____

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EPA-NE - Data Validation Worksheet
INORG-VIII

See DV report

VIII. MATRIX SPIKES - List all matrix spike analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each matrix spike sample.

Sample No.: _____ Matrix: _____

Method	Analyte	Spiked Sample Result	Sample Result	Amount of Spike Added	MS % Recovery	Method QC Limits % Recovery	Post-Digest Spike % Recovery	Action

Comments:

Validator: _____ Date: _____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-IX

See DV report

IX. LABORATORY DUPLICATE SAMPLES - List all analytes that are outside method QC acceptance criteria for the specific matrix.

Use a separate worksheet for each laboratory duplicate sample.

Sample No.:_____ Duplicate Sample No.:_____ Matrix:_____

Laboratory duplicate sample method QC acceptance criteria:_____

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			

Do the field duplicate sample data indicate acceptable field precision? Y N

Comments:_____

Validator:_____ Date:_____

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EPA-NE - Data Validation Worksheet
INORG-X

See DV report

X. FIELD DUPLICATES - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample No.:_____ Duplicate Sample No.:_____ Matrix:_____

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			

Do the laboratory duplicate sample data indicate acceptable laboratory precision? Y N

Comments: _____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for contact and resolution obtained: _____

Validator: _____ Date: _____

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EPA-NE - Data Validation Worksheet
INORG-XI

See DV report

XI. ICP SERIAL DILUTIONS

Use a separate worksheet for each serial dilution sample.

Sample No.:_____ Matrix:_____ Method:_____

List all serial dilution analytes that are outside method QC acceptance criteria.

% Difference method QC acceptance criteria: _____
Minimum concentration required to apply the % D criteria (e.g., 50x MDL): _____

Analyte	MDL	Min. Conc. Required	Sample Result	Serial Dilution Sample Result (corrected for dilution)	% D	Action
Comments:						

Validator:_____ Date:_____

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EPA-NE - Data Validation Worksheet
INORG-XII-A/B

~~What~~
See DV report

XII. SENSITIVITY CHECK

A. Method Detection Limit Study - List all analytes that are outside the MDL criteria.

- Has an appropriate MDL study been submitted with seven replicates for each analyte and matrix of interest? Y N
- Were samples analyzed within one year of the MDL study and on the same instrument? Y N

Matrix	Analyte	MDL	MDL > QL	Samples Affected	Action

If an MDL study has not been submitted, use only the LFB results to evaluate data.

B. Laboratory Fortified Blank - List all LFB analytes that are outside the LFB criteria.

- Has an appropriate and complete LFB been submitted at the proper frequency? Y N
- Does the LFB contain all target analytes at their QLs? Y N

Matrix	Method	Analyte	% R	Method QC Limits % R	Samples Affected	Action

Comments:_____

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet
INORG-XIII-A

See DV report

XIII. PERFORMANCE EVALUATION SAMPLES/ACCURACY CHECK

A. Laboratory Control Samples - List all analytes that are outside criteria.

SDG No.:_____ Case:_____

Are more than one-half of the LCS analytes within criteria for each parameter and method? **Y** **N**

Date Prepared	Date Analyzed	Parameter/ Method	Matrix	Analyte	% Recovery (or Observed Conc.)	Method QC Acceptance Criteria	Samples Affected	Action

Comments:

Validator:_____ Date:_____

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EPA-NE - Data Validation Worksheet
INORG-XIII-B

See DV report

XIII. PERFORMANCE EVALUATION SAMPLES/ACCURACY CHECK

B. Performance Evaluation Results - List all analytes that are outside criteria.

SDG No.:_____ Case:_____

Indicate the source of the PES: Region 1 EPA PES Non-EPA PES

Are more than one-half of the PES analytes within criteria for each parameter and method? **Y** **N**

PE Sample Number	Ampule Number	Parameter/ Method	Type of PES	Matrix	Analyte	Conc.	PES Score*	Samples Affected	Action

* For Region I PESs indicate the Region I PES Score Report Result: Action High, Action Low, Analyte Missed, Contaminant.
For Non-EPA PESs indicate the Non-EPA PES Score: PES Analyte Missed; PES Analyte Contaminant; PES Analyte Hit (% Recovery Limits).

Comments:_____

Validator:_____ Date:_____

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EPA-NE - Data Validation Worksheet
INORG-XIV

See DV report

XIV. ANALYTE QUANTITATION AND REPORTED QUANTITATION LIMITS

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per analytical method. (Note: Although Section XIV, C.2.a, requires that one calculation for each method in each sample be performed, the validator is only required to reproduce an example, for each method, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? **Y** **N**

- If no, were any steps employed to address the high moisture content? _____
- Indicate the action and list the affected sample nos.: _____

Method		Calculation
ICP-AES		
Sample No.:		
Reported Analyte:		
Reported Value:		
Non-Detected Analyte:		
Reported Quantitation Limit:		
ICP-MS		
Sample No.:		
Reported Analyte:		
Reported Value:		
Non-Detected Analyte:		
Reported Quantitation Limit:		
Mercury		
Sample No.:		
Reported Value:		
Sample No.:		
Reported Quantitation Limit:		
Cyanide		
Sample No.:		
Reported Value:		
Sample No.:		
Reported Quantitation Limit:		

Validator: _____ Date: _____

APPENDIX D
SUPPORT DOCUMENTATION

HOLDTIME

SDG J1792

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	OU9-SS-18-0002	J1792-08A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	FD09141001	J1792-06A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SS-25-0002	J1792-29A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SS-24-0002	J1792-27A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SS-23-0002	J1792-25A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SS-22-0002	J1792-21A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SS-21-0002	J1792-18A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SS-19-0002	J1792-12A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SS-17-0002	J1792-04A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SS-16-0002	J1792-01A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-25-0508	J1792-31A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-25-0205	J1792-30A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-24-0204	J1792-28A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-23-0204	J1792-26A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-22-0508	J1792-24A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	OU9-SB-18-0508	J1792-10A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-16-0205	J1792-02A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-16-0508	J1792-03A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-17-0205	J1792-05A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-17-0508	J1792-07A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SS-20-0002	J1792-15A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-22-0205	J1792-23A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	FD09141002	J1792-11A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	FD09141003	J1792-22A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-19-0205	J1792-13A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-19-0508	J1792-14A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-20-0205	J1792-16A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-20-0508	J1792-17A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-21-0205	J1792-19A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-21-0508	J1792-20A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	MG/KG	OU9-SB-18-0205	J1792-09A	NM	09/14/2010	09/22/2010	09/23/2010	8	1	9
HG	UG/L	RB09141001	J1792-32A	NM	09/14/2010	09/21/2010	09/21/2010	7	0	7
M	MG/KG	OU9-SS-19-0002	J1792-12A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	OU9-SB-23-0204	J1792-26A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-24-0204	J1792-28A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-25-0205	J1792-30A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-19-0205	J1792-13A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-25-0508	J1792-31A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SS-16-0002	J1792-01A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SS-25-0002	J1792-29A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SS-18-0002	J1792-08A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SS-20-0002	J1792-15A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SS-21-0002	J1792-18A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SS-22-0002	J1792-21A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SS-23-0002	J1792-25A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SS-24-0002	J1792-27A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-22-0508	J1792-24A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SS-17-0002	J1792-04A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	FD09141003	J1792-22A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-20-0205	J1792-16A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-22-0205	J1792-23A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	FD09141002	J1792-11A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-16-0205	J1792-02A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-16-0508	J1792-03A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-17-0205	J1792-05A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-17-0508	J1792-07A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-21-0205	J1792-19A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-18-0508	J1792-10A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-19-0508	J1792-14A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-20-0508	J1792-17A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-18-0205	J1792-09A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	FD09141001	J1792-06A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	MG/KG	OU9-SB-21-0508	J1792-20A	NM	09/14/2010	09/20/2010	09/21/2010	6	1	7
M	UG/L	RB09141001	J1792-32A	NM	09/14/2010	09/21/2010	09/22/2010	7	1	8
PMOIS	PCT	OU9-SB-20-0508	J1792-17A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-21-0205	J1792-19A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-21-0508	J1792-20A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-22-0205	J1792-23A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-22-0508	J1792-24A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PMOIS	PCT	OU9-SB-24-0204	J1792-28A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-20-0205	J1792-16A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	FD09141002	J1792-11A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-25-0205	J1792-30A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-23-0204	J1792-26A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-19-0508	J1792-14A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-19-0205	J1792-13A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-18-0508	J1792-10A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-18-0205	J1792-09A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-17-0508	J1792-07A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-17-0205	J1792-05A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-16-0508	J1792-03A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	FD09141003	J1792-22A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	FD09141001	J1792-06A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-17-0002	J1792-04A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-16-0205	J1792-02A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-24-0002	J1792-27A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-25-0002	J1792-29A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PMOIS	PCT	OU9-SS-16-0002	J1792-01A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-23-0002	J1792-25A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-22-0002	J1792-21A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-21-0002	J1792-18A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-20-0002	J1792-15A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-19-0002	J1792-12A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-18-0002	J1792-08A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-25-0508	J1792-31A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
SIM	UG/KG	OU9-SS-18-0002DL	J1792-08ADL	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SB-25-0508	J1792-31A	SUR	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SS-18-0002	J1792-08A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-18-0002	J1792-08A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-17-0002	J1792-04A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-17-0002	J1792-04A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-16-0002	J1792-01A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-16-0002	J1792-01A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-25-0508	J1792-31A	NM	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SB-25-0205	J1792-30A	SUR	09/14/2010	09/24/2010	10/06/2010	10	12	22

PORTSMOUTH NSY
SOIL DATA
J1792

FRACTION	CHEMICAL	OU9-SB-17-0205	UNITS	FD09141001	RPD	D
M	ANTIMONY	0.77 J	MG/KG	0.62 J	21.58	0.15
M	LEAD	13.4 J	MG/KG	13.7 J	2.21	0.30
M	MERCURY	ND	MG/KG	0.0033 J	200.00	0.00 ok
MISC	PERCENT MOISTURE	7.8 J	%	7.4 J	5.26	0.40

ok: result < 5 × CRDL
D < 4 × CRDL

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

PORTSMOUTH NSY
SOIL DATA
J1792

FRACTION	CHEMICAL	OU9-SB-18-0508	UNITS	FD09141002	RPD	D	
M	LEAD	8.6 J	MG/KG	7.5 J	13.66	1.10	
M	MERCURY	0.021 J	MG/KG	0.042 J	66.67	0.02	ok
MISC	PERCENT MOISTURE	14	%	14	0.00	0.00	

ok: result < 5xCRDL
D < 4xCRDL

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

PORTSMOUTH NSY
SOIL DATA
J1792

FRACTION	CHEMICAL	OU9-SS-22-0002	UNITS	FD09141003	RPD	D	
M	ANTIMONY	0.46 J	MG/KG	ND	200.00	0.46	ok
M	LEAD	26.3 J	MG/KG	23.4 J	11.67	2.90	
M	MERCURY	0.15	MG/KG	0.03 J	133.33	0.12	ok
MISC	PERCENT MOISTURE	8 J	%	9.4 J	16.09	1.40	

ok: result < 5 x CRDL
D < 4 x CRDL

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

REPORT NARRATIVE

Mitkem Laboratories, a Division of Spectrum Analytical, Inc.

Client : Tetra Tech NUS, Inc.

Project: CTO-533, Site 34 Portsmouth

Laboratory Workorder / SDG #: J1792

SW846 6010C, SW846 7470A, SW846 7471B

I. SAMPLE RECEIPT

No exceptions or unusual conditions were encountered unless a Sample Condition Notification Form, or other record of communication is included with the Sample Receipt Documentation.

II. HOLDING TIMES

A. Sample Preparation:

All samples were prepared within the method-specified holding times.

B. Sample Analysis:

All samples were analyzed within the method-specified holding times.

III. METHODS

Samples were analyzed following procedures in laboratory test code: SW846 6010C, SW846 7470A, SW846 7471B

IV. PREPARATION

Aqueous Samples were prepared following procedures in laboratory test code: ICP_W_PR(3005A)
Soil Samples were prepared following procedures in laboratory test code: ICP_S_PR(3050B)
Soil Samples were prepared following procedures in laboratory test code: SW7471A_PR(7471B)

V. INSTRUMENTATION

The following instrumentation was used to perform
Instrument Code: FIMS1
Instrument Type: CVAA
Description: FIMS
Manufacturer: Perkin-Elmer
Model: FIMS

Instrument Code: OPTIMA2
Instrument Type: ICP
Description: Optima 3100 XL
Manufacturer: Perkin-Elmer
Model: 3100 XL

VI. ANALYSIS

A. Calibration:

Calibrations met the method/SOP acceptance criteria.

B. Blanks:

All method blanks were within the acceptance criteria.

C. Spikes:

1. Laboratory Control Spikes (LCS):

Percent recoveries for lab control samples were within the QC limits.

2. Matrix spike (MS):

Matrix spikes were performed on samples: OU9-SB-25-0508 (J1792-31AMS), OU9-SS-16-0002 (J1792-01AMS), OU9-SS-19-0002 (J1792-12AMS), OU9-SS-22-0002 (J1792-21AMS)
Percent recoveries were within the QC limits with the following exceptions:

OU9-SS-16-0002 (J1792-01AMS), Spike sample recovery is not within control limits, recovery is above criteria for Lead at 217% with criteria of (75-125) and recovery is below criteria for Antimony at 27% with criteria of (75-125).

OU9-SS-22-0002 (J1792-21AMS), Spike sample recovery is not within control limits, recovery is below criteria for Antimony at 31% with criteria of (75-125) and Lead at 49% with criteria of (75-125).

D. Post Digestion/Distillation Spike (PDS):

OU9-SS-16-0002 (J1792-01APDS), Post Digestion Spike was performed for Antimony and Lead due to failure in the matrix spike.

OU9-SS-22-0002 (J1792-21APDS), Post Digestion Spike was performed for Antimony and Lead due to failure in the matrix spike.

E. Duplicate sample:

Relative percent differences were within the QC limits with the following exceptions:

OU9-SS-16-0002 (J1792-01ADUP), Duplicate analysis not within control limit for Lead.

F. Serial Dilution (SD):

Percent differences were within the QC limits with the following exceptions:

OU9-SS-16-0002 (J1792-01ASD), Serial Dilution analysis not within control limit for Lead.

OU9-SS-22-0002 (J1792-21ASD), Serial Dilution analysis not within control limit for Lead.

G. Samples:

No other unusual occurrences were noted during sample analysis.

No sample in this SDG required reanalysis.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Mitkem, both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Signed: _____

Date: 10/8/10

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER № 028276 | PAGE 1 OF 3

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G01456	PNS	DEBBIE COHEN	412-921-7090	MITKEM ED. LAWLER
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Fred W Ramser		FRED W. RAMSER	412-921-8838	175 METRO CENTER BLVD
		CARRIER/WAYBILL NUMBER		CITY, STATE
		PICK UP BY MITKEM		WARWICK, RI 02886

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G
PRESERVATIVE USED: — — —

	DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PAH's	SIM	SELECTED METALS: Sb, Pb, Hg						COMMENTS
01	9/14	0915	OU9-SS-16-0002	OU9-16	0	2	SO	G	1	✓	✓	✓						
02		0945	OU9-SB-16-0205	OU9 16	2	5	SO	G	1	✓	✓	✓						
03		0955	OU9-SB-16-0508	"	5	8	SO	G	1	✓	✓	✓						
04		1005	OU9-SS-17-0002	OU9 17	0	2	SO	G	1	✓	✓	✓						
05		1020	OU9-SB-17-0205	"	2	5	SO	G	1	✓	✓	✓						
06		1025	FD09141001	—	2	5	SO	G	1	✓	✓	✓						
07		1030	OU9-SB-17-0508	OU9 17	5	8	SO	G	1	✓	✓	✓						
08		1105	OU9-SS-18-0002	OU9 18	0	2	SO	G	1	✓	✓	✓						
09		1115	OU9-SB-18-0205	OU9 18	2	5	SO	G	1	✓	✓	✓						
10		1125	OU9-SB-18-0508	"	5	8	SO	G	1	✓	✓	✓						
11		1130	FD09141002	—	5	8	SO	G	1	✓	✓	✓						
12		1155	OU9-SS-19-0002	OU9 19	0	2	SO	G	1	✓	✓	✓						RUN MS/MSD *
13	9/14	1200	OU9-SB-19-0205	OU9 19	2	5	SO	G	1	✓	✓	✓						

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Fred W Ramser	9/15/10	1500	1. RECEIVED BY:	9-15-10	1500
2. RELINQUISHED BY:			2. RECEIVED BY:	9/16/10	16:00
3. RELINQUISHED BY:	9/16/10	15:30	3. RECEIVED BY:	9/16/10	15:30

COMMENTS: *NO EXTRA VOL PROVIDED

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

2.3

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER № 028277 | PAGE 2 OF 3

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G01456	PNS OU9 S34	DEBBIE COHEN	412 ~~937~~ 921-7090	MITKEM ED. HAULER
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Fred W Ramser		FRED W. RAMSER	412-921-8838	175 METRO CENTER BLVD
		CARRIER/WAYBILL NUMBER		CITY, STATE
		PICKED UP BY MITKEM		WARWICK, RI 02886

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G
PRESERVATIVE USED: — — —

	DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: PAHs	SVOC	SELECTED METS. Sb, Pb + Hg						COMMENTS
14	9/14	1210	OU9-SB-19-0508	OU9 SB19	5	8	SO	G	1	✓	✓	✓						
15		1310	OU9-SS-20-0002	OU9 SB20	0	2	SO	G	1	✓	✓	✓						
16		1315	OU9-SB-20-0205	OU9 SB20	2	5	SO	G	1	✓	✓	✓						
17		1325	OU9-SB-20-0508	"	5	8	SO	G	1	✓	✓	✓						
18		1330	OU9-SS-21-0002	OU9 SB21	0	2	SO	G	1	✓	✓	✓						
19		1340	OU9-SB-21-0205	"	2	5	SO	G	1	✓	✓	✓						
20		1350	OU9-SB-21-0508	"	5	8	SO	G	1	✓	✓	✓						
21		1358	OU9-SS-22-0002	OU9 SB22	0	2	SO	G	1	✓	✓	✓						
22		1400	FD091410 03	—	0	2	SO	G	1	✓	✓	✓						
23		1405	OU9-SB-22-0205	OU9 SB22	2	5	SO	G	1	✓	✓	✓						HI CONC!!
24		1410	OU9-SB-22-0508	"	5	8	SO	G	1	✓	✓	✓						HI CONC!!
25		1450	OU9-SS-23-0002	OU9 SB23	0	2	SO	G	1	✓	✓	✓						
26	9/14	1455	OU9-SB-23-0204	"	02	4	SO	G	1	✓	✓	✓						

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Fred W Ramser	9/15/10	1900	1. RECEIVED BY: [signature]	9/15/10	1800
2. RELINQUISHED BY: [signature]			2. RECEIVED BY: [signature]	9/16/10	16:00
3. RELINQUISHED BY: [signature]	9/16/10	1530	3. RECEIVED BY: [signature]	9/16/10	1530

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER № 028278

PROJECT NO: 112G01456	FACILITY: PNS OU9 S34	PROJECT MANAGER: DEBBIE COHEN	PHONE NUMBER: 412 921 7090	LABORATORY NAME AND CONTACT: MITKEM ED LAWLER
SAMPLERS (SIGNATURE): Fred W Ramser		FIELD OPERATIONS LEADER: FRED W. RAMSER	PHONE NUMBER: 412-921-8838	ADDRESS: 175 METRO CENTER BLVD
		CARRIER/WAYBILL NUMBER: PICK UP BY MITKEM		CITY, STATE: WARWICK, RI 02886

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G

PRESERVATIVE USED: / / /

TYPE OF ANALYSIS

	DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PAHs	SIM	SELECTED METALS SB, Pb, Hg	COMMENTS
27	9/14	1500	OU9-SS-24-0002	OU9 SB24	0	2	SO	G	1	✓	✓	✓	
28		1510	OU9-SB-24-0204	"	2	4	SO	G	1	✓	✓	✓	
29		1525	OU9-SS-25-0002	OU9 SB25	0	2	SO	G	1	✓	✓	✓	
30		1530	OU9-SB-25-0205	"	2	5	SO	G	1	✓	✓	✓	
31		1535	OU9-SB-25-0508	"	5	8	SO	G	1	✓	✓	✓	RUN MS/MSD*
32	9/14	1600	RB09141001	—	—	—	QC	G	3	✓	✓	✓	

1. RELINQUISHED BY: Fred W Ramser	DATE 9/15/10	TIME 1500	1. RECEIVED BY:	DATE 9-15-10	TIME 1500
2. RELINQUISHED BY:	DATE	TIME	2. RECEIVED BY:	DATE 9/16/10	TIME 16:00
3. RELINQUISHED BY:	DATE 9/16/10	TIME 15:30	3. RECEIVED BY:	DATE 9/16/10	TIME 15:30

COMMENTS *NO EXTRA VOL. PROVIDED

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

U.S.EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

SOW No.: SW846

EPA Sample No.	Lab Sample ID
FD09141001	J1792-06
FD09141002	J1792-11
OU9-SB-16-0205	J1792-02
OU9-SB-16-0508	J1792-03
OU9-SB-17-0205	J1792-05
OU9-SB-17-0508	J1792-07
OU9-SB-18-0205	J1792-09
OU9-SB-18-0508	J1792-10
OU9-SB-19-0205	J1792-13
OU9-SB-19-0508	J1792-14
OU9-SB-20-0205	J1792-16
OU9-SB-20-0508	J1792-17
OU9-SB-21-0205	J1792-19
OU9-SB-21-0508	J1792-20
OU9-SS-16-0002	J1792-01
OU9-SS-16-0002D	J1792-01DUP
OU9-SS-16-0002S	J1792-01MS
OU9-SS-17-0002	J1792-04
OU9-SS-18-0002	J1792-08
OU9-SS-19-0002	J1792-12
OU9-SS-19-0002D	J1792-12DUP
OU9-SS-19-0002S	J1792-12MS
OU9-SS-20-0002	J1792-15
OU9-SS-21-0002	J1792-18

Were ICP interelement corrections applied? Yes/No Yes

Were background corrections applied? Yes/No Yes

If yes-were raw data generated before application of background corrections? Yes/No No

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature

Signature: Name: Dawne E Smart

Date: 10/8/10 Title:

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Mercury	5.0	5.17	103.5	5.0	5.29	105.9	5.26	105.2	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Mercury				5.0	5.29	105.8			CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony	500.0	493.43	98.7	500.0	490.41	98.1	484.38	96.9	P
Lead	500.0	489.58	97.9	500.0	473.95	94.8	472.99	94.6	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				500.0	473.90	94.8	486.83	97.4	P
Lead				500.0	467.69	93.5	479.79	96.0	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Preparation Blank Matrix (soil/water): SOIL Method Blank ID: MB-54275

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

FIMS1_100923A

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Mercury	0.028	U	0.028	U	0.028	U	0.028	U	0.002	U	CV

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3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Preparation Blank Matrix (soil/water): SOIL Method Blank ID: MB-54223

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

OPTIMA2_100921A

	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
Analyte		C	1	C	2	C	3	C		C	M
Antimony	9.3	U	9.3	U	9.3	U	9.3	U	0.380	U	P
Lead	4.2	U	4.2	U	4.2	U	4.2	U	0.170	U	P

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3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Preparation Blank Matrix (soil/water): Method Blank ID:

Preparation Blank Concentration Units (ug/L or mg/kg):

OPTIMA2_100921A

	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
Analyte		C	1	C	2	C	3	C		C	M
Antimony			9.3	U							P
Lead			4.2	U							P

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

ICP ID Number: OPTIMA2 ICS Source:

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	%R	Final Found Sol. AB	%R
Antimony	0	600	-4	568.3	94.7	6		602.9	100.5
Lead	0	500	-2	448.5	89.7	-4		454.9	91.0

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

ICP ID Number: OPTIMA2 ICS Source:

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	%R	Final Found Sol. AB	%R
Antimony	0	600	-4	594.7	99.1				
Lead	0	500	-2	444.6	88.9				

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Solid LCS Source: LCS(D) ID:

Aqueous LCS Source: LCS-54223

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/Kg) True	Found	C	Limits		%R
Antimony				22.8	23.1		18.2	27.3	101.3
Lead				22.8	22.2		18.2	27.3	97.4

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Solid LCS Source: LCS(D) ID: LCS-54275

Aqueous LCS Source:

Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	C	Limits		%R
Mercury				0.8	0.8		0.6	0.9	100.0

U.S. EPA - CLP

5A

SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

OU9-SS-16-0002S

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Level (low/med): MED

% Solids for Sample: 93.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75-125	3.6		0.23	U	13.6	27	N	P
Lead	75-125	51.6		22.1		13.6	217	N	P

Comments:

U.S. EPA - CLP

5A

SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

OU9-SS-19-0002S

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Level (low/med): MED

% Solids for Sample: 92.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	75-125	1.1		0.10		0.95	106		CV

Comments:

U.S. EPA - CLP

5B

POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

OU9-SS-16-0002A

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Level (low/med): MED

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

Analyte	Control Limit %R	Spike Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony		415.50		4.19	U	455.0	91		P
Lead		1136.95		755.66		455.0	84		P

Comments:

U.S. EPA - CLP

6

DUPLICATES

EPA SAMPLE NO.

OU9-SS-16-0002D

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Level (low/med): MED

% Solids for Sample: 93.0 % Solids for Duplicate: 93.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Antimony		0.2300	U	0.2400	U			P
Lead		22.0798		34.7156		44.5	*	P

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U.S. EPA - CLP

6

DUPLICATES

EPA SAMPLE NO.

OU9-SS-19-0002D

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Level (low/med): MED

% Solids for Sample: 92.0 % Solids for Duplicate: 92.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Mercury	0.0	0.1037		0.0962		7.5		CV

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

EPA SAMPLE NO.

OU9-SS-16-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Matrix (soil/water): SOIL Level (low/med): MED

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

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Antimony	9.30	U	46.50	U			P
Lead	755.66		838.64		11	E	P

U.S. EPA - CLP

10

METHOD DETECTION LIMITS (ANUALLY)

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Instrument Type: CV InstrumentID: FIMS1 Date: 03/04/2010

Preparation Method: ~~7471B~~ 7470A DS 10/8/10

Concentration Units (ug/L or mg/kg): ug/L

Analyte	Wavelength /Mass	CRDL	MDL
Mercury	253.70	0.2	0.028

Comments:

U.S. EPA - CLP

10

METHOD DETECTION LIMITS (ANUALLY)

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Instrument Type: CV InstrumentID: FIMS1 Date: 02/11/2010

Preparation Method: 7471B

Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Wavelength /Mass	CRDL	MDL
Mercury	253.70	0.03	0.0020

Comments:

U.S. EPA - CLP

10

METHOD DETECTION LIMITS (ANUALLY)

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Instrument Type: P InstrumentID: OPTIMA2 Date: 03/03/2010

Preparation Method: 3005A

Concentration Units (ug/L or mg/kg): ug/L

Analyte	Wavelength /Mass	CRDL	MDL
Antimony	206.83	20	9.3
Lead	220.35	10	4.2

Comments:

U.S. EPA - CLP

10

METHOD DETECTION LIMITS (ANUALLY)

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Instrument Type: P InstrumentID: OPTIMA2 Date: 06/03/2010

Preparation Method: 3050B

Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Wavelength /Mass	CRDL	MDL
Antimony	206.83	1.0	0.38
Lead	220.35	0.50	0.17

Comments:

U.S. EPA - CLP

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PREPARATION LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Preparation Method: 3050B Batch ID: 54223

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
FD09141001	09/20/2010	1.11	50
FD09141002	09/20/2010	1.64	50
LCSS	09/20/2010	1.00	50
OU9-SB-16-0205	09/20/2010	1.14	50
OU9-SB-16-0508	09/20/2010	1.56	50
OU9-SB-17-0205	09/20/2010	1.21	50
OU9-SB-17-0508	09/20/2010	1.52	50
OU9-SB-18-0205	09/20/2010	1.57	50
OU9-SB-18-0508	09/20/2010	1.59	50
OU9-SB-19-0205	09/20/2010	1.47	50
OU9-SB-19-0508	09/20/2010	1.50	50
OU9-SB-20-0205	09/20/2010	1.33	50
OU9-SB-20-0508	09/20/2010	1.35	50
OU9-SB-21-0205	09/20/2010	1.72	50
OU9-SB-21-0508	09/20/2010	1.59	50
OU9-SS-16-0002	09/20/2010	1.84	50
OU9-SS-16-0002D	09/20/2010	1.75	50
OU9-SS-16-0002S	09/20/2010	1.80	50
OU9-SS-17-0002	09/20/2010	1.16	50
OU9-SS-18-0002	09/20/2010	1.62	50
OU9-SS-19-0002	09/20/2010	1.13	50
OU9-SS-20-0002	09/20/2010	1.46	50
OU9-SS-21-0002	09/20/2010	1.36	50
PBS	09/20/2010	1.00	50

Comments:

U.S. EPA - CLP

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PREPARATION LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Preparation Method: 7471B Batch ID: 54275

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
CCB	09/22/2010	0.60	100
CCV	09/22/2010	0.60	100
ICB	09/22/2010	0.60	100
ICV	09/22/2010	0.60	100
S0	09/22/2010	0.60	100
S0.2	09/22/2010	0.60	100
S1.0	09/22/2010	0.60	100
S10.0	09/22/2010	0.60	100
S2.0	09/22/2010	0.60	100
S5.0	09/22/2010	0.60	100
FD09141001	09/22/2010	0.60	100
FD09141002	09/22/2010	0.54	100
LCSS	09/22/2010	0.60	100
OU9-SB-16-0205	09/22/2010	0.53	100
OU9-SB-16-0508	09/22/2010	0.60	100
OU9-SB-17-0205	09/22/2010	0.51	100
OU9-SB-17-0508	09/22/2010	0.52	100
OU9-SB-18-0205	09/22/2010	0.58	100
OU9-SB-18-0508	09/22/2010	0.55	100
OU9-SB-19-0205	09/22/2010	0.60	100
OU9-SB-19-0508	09/22/2010	0.59	100
OU9-SB-20-0205	09/22/2010	0.50	100
OU9-SB-20-0508	09/22/2010	0.53	100
OU9-SB-21-0205	09/22/2010	0.60	100
OU9-SB-21-0508	09/22/2010	0.53	100
OU9-SS-16-0002	09/22/2010	0.50	100
OU9-SS-17-0002	09/22/2010	0.51	100
OU9-SS-18-0002	09/22/2010	0.55	100
OU9-SS-19-0002	09/22/2010	0.54	100
OU9-SS-19-0002D	09/22/2010	0.55	100
OU9-SS-19-0002S	09/22/2010	0.52	100

Comments:

U.S. EPA - CLP

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PREPARATION LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Preparation Method: 7471B Batch ID: 54275

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
OU9-SS-20-0002	09/22/2010	0.59	100
OU9-SS-21-0002	09/22/2010	0.57	100
PBS	09/22/2010	0.60	100

Comments:

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Instrument ID Number: FIMS1 Method: CV

Start Date: 09/23/2010 End Date: 09/23/2010

FIMS1_100923A

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.0	1027																X									
S0.2	1.0	1029																X									
S1.0	1.0	1030																X									
S2.0	1.0	1032																X									
S5.0	1.0	1033																X									
S10.0	1.0	1035																X									
ICV	1.0	1036																X									
ICB	1.0	1037																X									
PBS	1.0	1039																X									
LCSS	1.0	1040																X									
OU9-SS-16-0002	1.0	1042																X									
OU9-SB-16-0205	1.0	1043																X									
OU9-SB-16-0508	1.0	1045																X									
OU9-SS-17-0002	1.0	1046																X									
OU9-SB-17-0205	1.0	1048																X									
FD09141001	1.0	1049																X									
CCV	1.0	1051																X									
CCB	1.0	1052																X									
OU9-SB-17-0508	1.0	1054																X									
OU9-SS-18-0002	1.0	1055																X									
OU9-SB-18-0205	1.0	1057																X									
OU9-SB-18-0508	1.0	1058																X									
FD09141002	1.0	1100																X									
OU9-SS-19-0002	1.0	1101																X									
OU9-SS-19-0002D	1.0	1103																X									
OU9-SS-19-0002S	1.0	1104																X									
CCV	1.0	1106																X									
CCB	1.0	1107																X									
OU9-SB-19-0205	1.0	1109																X									
OU9-SB-19-0508	1.0	1110																X									
OU9-SS-20-0002	1.0	1112																X									

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Instrument ID Number: FIMS1 Method: CV

Start Date: 09/23/2010 End Date: 09/23/2010

FIMS1_100923A

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
OU9-SB-20-0205	1.0	1113																X									
OU9-SB-20-0508	1.0	1115																X									
OU9-SS-21-0002	1.0	1116																X									
OU9-SB-21-0205	1.0	1118																X									
OU9-SB-21-0508	1.0	1119																X									
CCV	1.0	1121																X									
CCB	1.0	1122																X									

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14

ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Instrument ID Number: OPTIMA2 Method: P

Start Date: 09/21/2010 End Date: 09/21/2010

OPTIMA2_100921A

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.0	1124			X										X												
S1	1.0	1127			X										X												
S2	1.0	1129			X										X												
S3	1.0	1132			X										X												
ICV	1.0	1133			X										X												
ICB	1.0	1137			X										X												
ZZZZZZ	1.0	1139																									
ICSA	1.0	1142			X										X												
ICSAB	1.0	1145			X										X												
PBS	1.0	1147			X										X												
LCSS	1.0	1150			X										X												
OU9-SS-16-0002	1.0	1153			X										X												
OU9-SS-16-0002D	1.0	1155			X										X												
OU9-SS-16-0002S	1.0	1158			X										X												
OU9-SS-16-0002L	5.0	1200			X										X												
CCV	1.0	1202			X										X												
CCB	1.0	1204			X										X												
OU9-SS-16-0002A	1.0	1207			X										X												
OU9-SB-16-0205	1.0	1210			X										X												
OU9-SB-16-0508	1.0	1212			X										X												
OU9-SS-17-0002	1.0	1214			X										X												
OU9-SB-17-0205	1.0	1217			X										X												
FD09141001	1.0	1218			X										X												
ICSA	1.0	1222			X										X												
ICSAB	1.0	1224			X										X												
CCV	1.0	1227			X										X												
CCB	1.0	1229			X										X												
OU9-SB-17-0508	1.0	1232			X										X												
OU9-SS-18-0002	1.0	1235			X										X												

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792

Instrument ID Number: OPTIMA2 Method: P

Start Date: 09/21/2010 End Date: 09/21/2010

OPTIMA2_100921A

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
OU9-SB-18-0205	1.0	1237			X										X												
OU9-SB-18-0508	1.0	1240			X										X												
FD09141002	1.0	1242			X										X												
OU9-SS-19-0002	1.0	1245			X										X												
OU9-SB-19-0205	1.0	1247			X										X												
CCV	1.0	1250			X										X												
CCB	1.0	1252			X										X												
OU9-SB-19-0508	1.0	1255			X										X												
OU9-SS-20-0002	1.0	1257			X										X												
OU9-SB-20-0205	1.0	1300			X										X												
OU9-SB-20-0508	1.0	1302			X										X												
OU9-SS-21-0002	1.0	1304			X										X												
OU9-SB-21-0205	1.0	1307			X										X												
OU9-SB-21-0508	1.0	1310			X										X												
ICSA	1.0	1312			X										X												
ICSAB	1.0	1315			X										X												
CCV	1.0	1317			X										X												
CCB	1.0	1320			X										X												

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

SOW No.: SW846

EPA Sample No.	Lab Sample ID
FD09141003	J1792-22
OU9-SB-22-0205	J1792-23
OU9-SB-22-0508	J1792-24
OU9-SB-23-0204	J1792-26
OU9-SB-24-0204	J1792-28
OU9-SB-25-0205	J1792-30
OU9-SB-25-0508	J1792-31
OU9-SB-25-0508D	J1792-31DUP
OU9-SB-25-0508S	J1792-31MS
OU9-SS-22-0002	J1792-21
OU9-SS-22-0002D	J1792-21DUP
OU9-SS-22-0002S	J1792-21MS
OU9-SS-23-0002	J1792-25
OU9-SS-24-0002	J1792-27
OU9-SS-25-0002	J1792-29
RB09141001	J1792-32

Were ICP interelement corrections applied?	Yes/No	Yes
Were background corrections applied?	Yes/No	Yes
If yes-were raw data generated before application of background corrections?	Yes/No	No

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature

Signature: Name: Dianne E Smart

Date: 10/8/10 Title:

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Mercury	5.0	4.95	99.1	5.0	5.15	103.1	5.19	103.7	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Mercury				5.0	5.21	104.1			CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Mercury	5.0	5.17	103.5	5.0	5.29	105.9	5.26	105.2	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Mercury				5.0	5.29	105.8	5.20	104.0	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Mercury				5.0	5.32	106.3	5.32	106.3	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Mercury				5.0	5.25	105.0			CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony	500.0	493.43	98.7	500.0	490.41	98.1	484.38	96.9	P
Lead	500.0	489.58	97.9	500.0	473.95	94.8	472.99	94.6	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				500.0	473.90	94.8	486.83	97.4	P
Lead				500.0	467.69	93.5	479.79	96.0	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				500.0	488.02	97.6	482.69	96.5	P
Lead				500.0	477.91	95.6	474.51	94.9	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				500.0	496.54	99.3			P
Lead				500.0	485.58	97.1			P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony	500.0	494.73	98.9	500.0	503.74	100.7	511.25	102.3	P
Lead	500.0	487.46	97.5	500.0	483.34	96.7	481.57	96.3	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Blank Matrix (soil/water): WATER Method Blank ID: MB-54247

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

FIMS1_100921C

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Mercury	0.028	U	0.028	U	0.028	U	0.028	U	0.028	U	CV

U.S. EPA - CLP

3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Blank Matrix (soil/water): SOIL Method Blank ID: MB-54276

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

FIMS1_100923A

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Mercury	0.028	U	0.028	U	0.028	U	0.028	U	0.002	U	CV

U.S. EPA - CLP

3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Blank Matrix (soil/water): Method Blank ID:

Preparation Blank Concentration Units (ug/L or mg/kg):

FIMS1_100923A

	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
Analyte		C	1	C	2	C	3	C		C	M
Mercury			0.028	U	0.028	U	0.028	U			CV

U.S. EPA - CLP

3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Blank Matrix (soil/water): Method Blank ID:

Preparation Blank Concentration Units (ug/L or mg/kg):

FIMS1_100923A

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	1	C	2	C	3	C		C	M
Mercury			0.028	U							CV

U.S. EPA - CLP

3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Blank Matrix (soil/water): SOIL Method Blank ID: MB-54224

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

OPTIMA2_100921A

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	9.3	U	9.3	U	9.3	U	9.3	U	0.380	U	P
Lead	4.2	U	4.2	U	4.2	U	4.2	U	0.170	U	P

U.S. EPA - CLP

3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Blank Matrix (soil/water): Method Blank ID:

Preparation Blank Concentration Units (ug/L or mg/kg):

OPTIMA2_100921A

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			9.3	U	9.3	U	9.3	U			P
Lead			4.2	U	4.2	U	4.2	U			P

U.S. EPA - CLP

3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Blank Matrix (soil/water): Method Blank ID:

Preparation Blank Concentration Units (ug/L or mg/kg):

OPTIMA2_100921A

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	1	C	2	C	3	C		C	M
Antimony			9.3	U							P
Lead			4.2	U							P

U.S. EPA - CLP

3

BLANKS

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Blank Matrix (soil/water): WATER Method Blank ID: MB-54243

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

OPTIMA2_100922A

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	9.3	U	9.3	U	9.3	U			9.300	U	P
Lead	4.2	U	4.2	U	4.2	U			4.200	U	P

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

ICP ID Number: OPTIMA2 ICS Source:

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	%R	Final Found Sol. AB	%R
Antimony	0	600	-4	568.3	94.7	6		602.9	100.5
Lead	0	500	-2	448.5	89.7	-4		454.9	91.0

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

ICP ID Number: OPTIMA2 ICS Source:

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	%R	Final Found Sol. AB	%R
Antimony	0	600	-4	594.7	99.1	-6		601.3	100.2
Lead	0	500	-2	444.6	88.9	0		458.8	91.8

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

ICP ID Number: OPTIMA2 ICS Source:

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	%R	Final Found Sol. AB	%R
Antimony	0	600	0	602.7	100.5				
Lead	0	500	-2	452	90.4				

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

ICP ID Number: OPTIMA2 ICS Source:

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	%R	Final Found Sol. AB	%R
Antimony	0	600	-13	568.5	94.8	-9		615.9	102.6
Lead	0	500	-8	447.7	89.5	-1		451.1	90.2

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Solid LCS Source: LCS(D) ID:

Aqueous LCS Source: LCS-54224

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/Kg) True	Found	C	Limits		%R
Antimony				22.8	23.0		18.2	27.3	100.9
Lead				22.8	21.6		18.2	27.3	94.7

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Solid LCS Source:

Aqueous LCS Source:

LCS(D) ID:
LCS-54243

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/Kg) True	Found	C	Limits		%R
Antimony	455.0	488.02	107.3						
Lead	455.0	451.90	99.3						

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Solid LCS Source: LCS(D) ID: LCS-54247

Aqueous LCS Source:

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/Kg) True	Found	C	Limits		%R
Mercury	4.6	4.67	101.5						

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Solid LCS Source: LCS(D) ID:

Aqueous LCS Source: LCS-54276

Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	C	Limits		%R
Mercury				0.8	0.8		0.6	0.9	100.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Solid LCS Source:

Aqueous LCS Source:

LCS(D) ID:
LCSD-54243

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/Kg) True	Found	C	Limits		%R
Antimony	455.0	490.62	107.8						
Lead	455.0	450.57	99.0						

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Solid LCS Source: LCS(D) ID:

Aqueous LCS Source: LCSD-54247

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/Kg) True	Found	C	Limits		%R
Mercury	4.6	4.72	102.6						

U.S. EPA - CLP

5A

SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

OU9-SS-22-0002S

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Level (low/med): MED

% Solids for Sample: 92.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75-125	5.5		0.46	B	16.2	31	N	P
Lead	75-125	34.2		26.3		16.2	49	N	P

Comments:

U.S. EPA - CLP

5A

SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

OU9-SB-25-0508S

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Level (low/med): MED

% Solids for Sample: 91.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	75-125	0.94		0.0023	U	0.93	101		CV

Comments:

U.S. EPA - CLP

5B

POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

OU9-SS-22-0002A

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Level (low/med): MED

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

Analyte	Control Limit %R	Spike Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony		423.88		13.42	B	455.0	90		P
Lead		1129.12		765.29		455.0	80		P

Comments:

U.S. EPA - CLP

6

DUPLICATES

EPA SAMPLE NO.

OU9-SS-22-0002D

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Level (low/med): MED

% Solids for Sample: 92.0 % Solids for Duplicate: 92.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Antimony		0.4618	B	0.2600	U	200		P
Lead		26.3238		21.5617		19.9		P

ok result < 5 xCRDL
D < 1xCRDL

U.S. EPA - CLP

6

DUPLICATES

EPA SAMPLE NO.

OU9-SB-25-0508D

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Level (low/med): MED

% Solids for Sample: 91.0 % Solids for Duplicate: 91.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Mercury		0.0023	U	0.0025	U			CV

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

EPA SAMPLE NO.

OU9-SS-22-0002

Lab Name: Mitkem Laboratories Contract: 1045445, 11

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Matrix (soil/water): SOIL Level (low/med): MED

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

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M	
Antimony	13.42	B	46.50	U	100		P	ok result < 50 x IDL
Lead	765.29		860.14		12	E	P	

ISM_002

FORM IX - IN

SW846

U.S. EPA - CLP

10

METHOD DETECTION LIMITS (ANUALLY)

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument Type: CV InstrumentID: FIMS1 Date: 03/04/2010

Preparation Method: ~~7471B~~ 7470A DCS 10/9/10

Concentration Units (ug/L or mg/kg): ug/L

Analyte	Wavelength /Mass	CRDL	MDL
Mercury	253.70	0.2	0.028

Comments:

ISM_002

FORM X - IN SW846

U.S. EPA - CLP

10

METHOD DETECTION LIMITS (ANUALLY)

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument Type: CV InstrumentID: FIMS1 Date: 02/11/2010

Preparation Method: 7471B

Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Wavelength /Mass	CRDL	MDL
Mercury	253.70	0.03	0.0020

Comments:

U.S. EPA - CLP

10

METHOD DETECTION LIMITS (ANUALLY)

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument Type: P InstrumentID: OPTIMA2 Date: 03/03/2010

Preparation Method: 3005A

Concentration Units (ug/L or mg/kg): ug/L

Analyte	Wavelength /Mass	CRDL	MDL
Antimony	206.83	20	9.3
Lead	220.35	10	4.2

Comments:

U.S. EPA - CLP

10

METHOD DETECTION LIMITS (ANUALLY)

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument Type: P InstrumentID: OPTIMA2 Date: 06/03/2010

Preparation Method: 3050B

Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Wavelength /Mass	CRDL	MDL
Antimony	206.83	1.0	0.38
Lead	220.35	0.50	0.17

Comments:

U.S. EPA - CLP

12

ICP LINEAR RANGES (QUARTERLY)

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

ICP ID Number: OPTIMA2 Date: 8/12/2010

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Antimony	0.20	50000	P
Lead	0.20	100000	P

Comments:

U.S. EPA - CLP

13

PREPARATION LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Method: 3050B Batch ID: 54224

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
FD09141003	09/20/2010	1.31	50
LCSS	09/20/2010	1.00	50
OU9-SB-22-0205	09/20/2010	1.86	50
OU9-SB-22-0508	09/20/2010	1.60	50
OU9-SB-23-0204	09/20/2010	1.09	50
OU9-SB-24-0204	09/20/2010	1.43	50
OU9-SB-25-0205	09/20/2010	1.33	50
OU9-SB-25-0508	09/20/2010	1.30	50
OU9-SS-22-0002	09/20/2010	1.58	50
OU9-SS-22-0002D	09/20/2010	1.57	50
OU9-SS-22-0002S	09/20/2010	1.53	50
OU9-SS-23-0002	09/20/2010	1.49	50
OU9-SS-24-0002	09/20/2010	1.69	50
OU9-SS-25-0002	09/20/2010	1.12	50
PBS	09/20/2010	1.00	50

Comments:

U.S. EPA - CLP

13

PREPARATION LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Method: 3005A Batch ID: 54243

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSW	09/21/2010		50
LCSW02	09/21/2010		50
PBW	09/21/2010		50
RB09141001	09/21/2010		50

Comments:

ISM_002

FORM XIII - IN SW846

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PREPARATION LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Method: 7470A Batch ID: 54247

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
CCB	09/21/2010		100
CCV	09/21/2010		100
ICB	09/21/2010		100
ICV	09/21/2010		100
S0	09/21/2010		100
S0.2	09/21/2010		100
S1.0	09/21/2010		100
S10.0	09/21/2010		100
S2.0	09/21/2010		100
S5.0	09/21/2010		100
LCSW	09/21/2010		100
LCSW02	09/21/2010		100
PBW	09/21/2010		100
RB09141001	09/21/2010		100

Comments:

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PREPARATION LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Method: 7471B Batch ID: 54275

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
CCB	09/22/2010	0.60	100
CCV	09/22/2010	0.60	100
ICB	09/22/2010	0.60	100
ICV	09/22/2010	0.60	100
S0	09/22/2010	0.60	100
S0.2	09/22/2010	0.60	100
S1.0	09/22/2010	0.60	100
S10.0	09/22/2010	0.60	100
S2.0	09/22/2010	0.60	100
S5.0	09/22/2010	0.60	100

Comments:

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PREPARATION LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Preparation Method: 7471B Batch ID: 54276

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
FD09141003	09/22/2010	0.55	100
LCSS	09/22/2010	0.60	100
OU9-SB-22-0205	09/22/2010	0.52	100
OU9-SB-22-0508	09/22/2010	0.58	100
OU9-SB-23-0204	09/22/2010	0.50	100
OU9-SB-24-0204	09/22/2010	0.58	100
OU9-SB-25-0205	09/22/2010	0.55	100
OU9-SB-25-0508	09/22/2010	0.58	100
OU9-SB-25-0508D	09/22/2010	0.52	100
OU9-SB-25-0508S	09/22/2010	0.54	100
OU9-SS-22-0002	09/22/2010	0.51	100
OU9-SS-23-0002	09/22/2010	0.60	100
OU9-SS-24-0002	09/22/2010	0.52	100
OU9-SS-25-0002	09/22/2010	0.52	100
PBS	09/22/2010	0.60	100

Comments:

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument ID Number: FIMS1 Method: CV

Start Date: 09/21/2010 End Date: 09/21/2010

FIMS1_100921C

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.0	1623																X									
S0.2	1.0	1625																X									
S1.0	1.0	1626																X									
S2.0	1.0	1628																X									
S5.0	1.0	1629																X									
S10.0	1.0	1631																X									
ICV	1.0	1632																X									
ICB	1.0	1634																X									
PBW	1.0	1635																X									
LCSW	1.0	1637																X									
LCSW02	1.0	1638																X									
ZZZZZZ	1.0	1640																									
ZZZZZZ	1.0	1641																									
ZZZZZZ	1.0	1643																									
ZZZZZZ	1.0	1644																									
ZZZZZZ	1.0	1646																									
CCV	1.0	1647																X									
CCB	1.0	1649																X									
ZZZZZZ	1.0	1650																									
ZZZZZZ	1.0	1652																									
ZZZZZZ	1.0	1653																									
ZZZZZZ	1.0	1655																									
ZZZZZZ	1.0	1656																									
ZZZZZZ	1.0	1658																									
ZZZZZZ	1.0	1659																									
ZZZZZZ	1.0	1701																									
CCV	1.0	1702																X									
CCB	1.0	1704																X									
RB09141001	1.0	1705																X									
ZZZZZZ	1.0	1707																									
ZZZZZZ	1.0	1708																									
ZZZZZZ	1.0	1710																									

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument ID Number: FIMS1 Method: CV

Start Date: 09/21/2010 End Date: 09/21/2010

FIMS1_100921C

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.0	1711																									
ZZZZZZ	1.0	1713																									
ZZZZZZ	1.0	1714																									
CCV	1.0	1716																X									
CCB	1.0	1717																X									

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument ID Number: FIMS1 Method: CV

Start Date: 09/23/2010 End Date: 09/23/2010

FIMS1_100923A

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.0	1027																X									
S0.2	1.0	1029																X									
S1.0	1.0	1030																X									
S2.0	1.0	1032																X									
S5.0	1.0	1033																X									
S10.0	1.0	1035																X									
ICV	1.0	1036																X									
ICB	1.0	1037																X									
ZZZZZZ	1.0	1039																									
ZZZZZZ	1.0	1040																									
ZZZZZZ	1.0	1042																									
ZZZZZZ	1.0	1043																									
ZZZZZZ	1.0	1045																									
ZZZZZZ	1.0	1046																									
ZZZZZZ	1.0	1048																									
ZZZZZZ	1.0	1049																									
CCV	1.0	1051																X									
CCB	1.0	1052																X									
ZZZZZZ	1.0	1054																									
ZZZZZZ	1.0	1055																									
ZZZZZZ	1.0	1057																									
ZZZZZZ	1.0	1058																									
ZZZZZZ	1.0	1100																									
ZZZZZZ	1.0	1101																									
ZZZZZZ	1.0	1103																									
ZZZZZZ	1.0	1104																									
CCV	1.0	1106																X									
CCB	1.0	1107																X									
ZZZZZZ	1.0	1109																									
ZZZZZZ	1.0	1110																									
ZZZZZZ	1.0	1112																									
ZZZZZZ	1.0	1113																									

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument ID Number: FIMS1 Method: CV

Start Date: 09/23/2010 End Date: 09/23/2010

FIMS1_100923A

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.0	1115																									
ZZZZZZ	1.0	1116																									
ZZZZZZ	1.0	1118																									
ZZZZZZ	1.0	1119																									
CCV	1.0	1121																X									
CCB	1.0	1122																X									
PBS	1.0	1124																X									
LCSS	1.0	1125																X									
OU9-SS-22-0002	1.0	1127																X									
FD09141003	1.0	1128																X									
ZZZZZZ	1.0	1130																									
OU9-SB-22-0508	1.0	1131																X									
OU9-SS-23-0002	1.0	1133																X									
OU9-SB-23-0204	1.0	1134																X									
CCV	1.0	1136																X									
CCB	1.0	1137																X									
OU9-SS-24-0002	1.0	1139																X									
OU9-SB-24-0204	1.0	1140																X									
OU9-SS-25-0002	1.0	1142																X									
OU9-SB-25-0205	1.0	1143																X									
OU9-SB-25-0508	1.0	1145																X									
OU9-SB-25-0508D	1.0	1146																X									
OU9-SB-25-0508S	1.0	1148																X									
ZZZZZZ	1.0	1149																									
CCV	1.0	1151																X									
CCB	1.0	1152																X									
ZZZZZZ	1.0	1154																									
ZZZZZZ	1.0	1155																									
ZZZZZZ	1.0	1157																									
ZZZZZZ	1.0	1158																									
ZZZZZZ	1.0	1159																									

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument ID Number: FIMS1 Method: CV

Start Date: 09/23/2010 End Date: 09/23/2010

FIMS1_100923A

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.0	1201																									
CCV	1.0	1202																X									
CCB	1.0	1204																X									
ZZZZZZ	1.0	1248																									
ZZZZZZ	1.0	1250																									
OU9-SB-22-0205	10.0	1251																X									
CCV	1.0	1253																X									
CCB	1.0	1254																X									

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument ID Number: OPTIMA2 Method: P

Start Date: 09/21/2010 End Date: 09/21/2010

OPTIMA2_100921A

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.0	1124			X										X												
S1	1.0	1127			X										X												
S2	1.0	1129			X										X												
S3	1.0	1132			X										X												
ICV	1.0	1133			X										X												
ICB	1.0	1137			X										X												
ZZZZZZ	1.0	1139																									
ICSA	1.0	1142			X										X												
ICSAB	1.0	1145			X										X												
ZZZZZZ	1.0	1147																									
ZZZZZZ	1.0	1150																									
ZZZZZZ	1.0	1153																									
ZZZZZZ	1.0	1155																									
ZZZZZZ	1.0	1158																									
ZZZZZZ	5.0	1200																									
CCV	1.0	1202			X										X												
CCB	1.0	1204			X										X												
ZZZZZZ	1.0	1207																									
ZZZZZZ	1.0	1210																									
ZZZZZZ	1.0	1212																									
ZZZZZZ	1.0	1214																									
ZZZZZZ	1.0	1217																									
ZZZZZZ	1.0	1218																									
ICSA	1.0	1222			X										X												
ICSAB	1.0	1224			X										X												
CCV	1.0	1227			X										X												
CCB	1.0	1229			X										X												
ZZZZZZ	1.0	1232																									
ZZZZZZ	1.0	1235																									
ZZZZZZ	1.0	1237																									
ZZZZZZ	1.0	1240																									
ZZZZZZ	1.0	1242																									

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument ID Number: OPTIMA2 Method: P

Start Date: 09/21/2010 End Date: 09/21/2010

OPTIMA2_100921A

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.0	1245																									
ZZZZZZ	1.0	1247																									
CCV	1.0	1250			X										X												
CCB	1.0	1252			X										X												
ZZZZZZ	1.0	1255																									
ZZZZZZ	1.0	1257																									
ZZZZZZ	1.0	1300																									
ZZZZZZ	1.0	1302																									
ZZZZZZ	1.0	1304																									
ZZZZZZ	1.0	1307																									
ZZZZZZ	1.0	1310																									
ICSA	1.0	1312			X										X												
ICSAB	1.0	1315			X										X												
CCV	1.0	1317			X										X												
CCB	1.0	1320			X										X												
PBS	1.0	1323			X										X												
LCSS	1.0	1325			X										X												
OU9-SS-22-0002	1.0	1328			X										X												
OU9-SS-22-0002D	1.0	1331			X										X												
OU9-SS-22-0002S	1.0	1333			X										X												
OU9-SS-22-0002L	5.0	1336			X										X												
CCV	1.0	1338			X										X												
CCB	1.0	1340			X										X												
OU9-SS-22-0002A	1.0	1343			X										X												
FD09141003	1.0	1345			X										X												
OU9-SB-22-0205	1.0	1347			X										X												
OU9-SB-22-0508	1.0	1350			X										X												
OU9-SS-23-0002	1.0	1353			X										X												
OU9-SB-23-0204	1.0	1355			X										X												

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument ID Number: OPTIMA2 Method: P

Start Date: 09/21/2010 End Date: 09/21/2010

OPTIMA2_100921A

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ICSA	1.0	1358			X										X												
ICSAB	1.0	1401			X										X												
CCV	1.0	1403			X										X												
CCB	1.0	1406			X										X												
OU9-SS-24-0002	1.0	1409			X										X												
OU9-SB-24-0204	1.0	1411			X										X												
OU9-SS-25-0002	1.0	1414			X										X												
OU9-SB-25-0205	1.0	1416			X										X												
OU9-SB-25-0508	1.0	1419			X										X												
ICSA	1.0	1421			X										X												
ICSAB	1.0	1424			X										X												
CCV	1.0	1426			X										X												
CCB	1.0	1429			X										X												

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ANALYSIS RUN LOG

Lab Name: Mitkem Laboratories Contract: 1045445, 11-CTO-533, 112G01456

Lab Code: MITKEM Case No.: SAS No.: SDG No.: SJ1792-A

Instrument ID Number: OPTIMA2 Method: P

Start Date: 09/22/2010 End Date: 09/22/2010

OPTIMA2_100922A

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.0	0845			X										X												
S1	1.0	0847			X										X												
S2	1.0	0850			X										X												
S3	1.0	0852			X										X												
ICV	1.0	0855			X										X												
ICB	1.0	0857			X										X												
ZZZZZZ	1.0	0900																									
ICSA	1.0	0902			X										X												
ICSAB	1.0	0905			X										X												
ZZZZZZ	1.0	0907																									
PBW	1.0	0912			X										X												
LCSW	1.0	0915			X										X												
LCSW02	1.0	0917			X										X												
RB09141001	1.0	0921			X										X												
CCV	1.0	0924			X										X												
CCB	1.0	0926			X										X												
ZZZZZZ	1.0	0929																									
ZZZZZZ	1.0	0932																									
ZZZZZZ	1.0	0934																									
ZZZZZZ	1.0	0937																									
ZZZZZZ	1.0	0940																									
ZZZZZZ	5.0	0943																									
ZZZZZZ	20.0	0946																									
ICSA	1.0	0949			X										X												
ICSAB	1.0	0952			X										X												
CCV	1.0	0954			X										X												
CCB	1.0	0956			X										X												

Sample Calc.

Sequence No.: 11
Sample ID: LCS-54223-LCS
Analyst:
Logged In Analyst (Original) : MITOptima2
Initial Sample Wt:
Dilution:

Autosampler Location: 41
Date Collected: 9/21/2010 11:50:25 AM
Data Type: Reprocessed on 9/21/2010 2:32:53 PM

Initial Sample Vol:
Sample Prep Vol:

Mean Data: LCS-54223-LCS

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Y 360.073	2714857.7	97.83	%	0.416				0.43%
Al 308.215†	303630.4	8.7664	mg/L	0.00517	8.7664	mg/L	0.00517	0.06%
Cr 267.716†	221856.1	0.9088	mg/L	0.00627	0.9088	mg/L	0.00627	0.69%
Cu 324.752†	460228.3	1.1470	mg/L	0.00041	1.1470	mg/L	0.00041	0.04%
Fe 273.955†	193285.4	4.5954	mg/L	0.02756	4.5954	mg/L	0.02756	0.60%
Mg 279.077†	919146.9	22.381	mg/L	0.1855	22.381	mg/L	0.1855	0.83%
Mn 257.610†	1682022.4	2.3481	mg/L	0.01988	2.3481	mg/L	0.01988	0.85%
Ni 231.604†	128762.3	2.1637	mg/L	0.02088	2.1637	mg/L	0.02088	0.96%
Pb 220.353†	8334.8	0.4445	mg/L	0.00170	0.4445	mg/L	0.00170	0.38%
Sb 206.836†	2898.2	0.4625	mg/L	0.00178	0.4625	mg/L	0.00178	0.38%
Tl 190.801†	1197.0	0.4395	mg/L	0.00152	0.4395	mg/L	0.00152	0.34%
V 292.402†	488560.8	2.2396	mg/L	0.00120	2.2396	mg/L	0.00120	0.05%
Ti 334.940†	478.0	0.0002	mg/L	0.00003	0.0002	mg/L	0.00003	13.44%
Ca 227.546†	14423.0	21.784	mg/L	0.0333	21.784	mg/L	0.0333	0.15%

Sequence No.: 12
Sample ID: J1792-01A-OU9-SS-16-0002
Analyst:
Logged In Analyst (Original) : MITOptima2
Initial Sample Wt:
Dilution:

Autosampler Location: 42
Date Collected: 9/21/2010 11:53:15 AM
Data Type: Reprocessed on 9/21/2010 2:32:54 PM

Initial Sample Vol:
Sample Prep Vol:

lead reported result: 22.1 mg/kg

Mean Data: J1792-01A-OU9-SS-16-0002

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Y 360.073	2925084.8	105.4	%	1.18				1.12%
Al 308.215†	5187601.1	150.29	mg/L	1.207	150.29	mg/L	1.207	0.80%
Cr 267.716†	74747.4	0.3040	mg/L	0.00377	0.3040	mg/L	0.00377	1.24%
Cu 324.752†	168193.8	0.4294	mg/L	0.00502	0.4294	mg/L	0.00502	1.17%
Fe 273.955†	9486188.7	226.86	mg/L	1.275	226.86	mg/L	1.275	0.56%
Mg 279.077†	2061793.5	50.345	mg/L	0.6198	50.345	mg/L	0.6198	1.23%
Mn 257.610†	3238762.5	4.5212	mg/L	0.03801	4.5212	mg/L	0.03801	0.84%
Ni 231.604†	14615.5	0.2361	mg/L	0.00549	0.2361	mg/L	0.00549	2.32%
Pb 220.353†	14072.6	0.7557	mg/L	0.00583	0.7557	mg/L	0.00583	0.77%
Sb 206.836†	46.8	0.0042	mg/L	0.00030	0.0042	mg/L	0.00030	7.18%
Tl 190.801†	-80.8	-0.0143	mg/L	0.00836	-0.0143	mg/L	0.00836	58.35%
V 292.402†	82354.1	0.3967	mg/L	0.00642	0.3967	mg/L	0.00642	1.62%
Ti 334.940†	6604185.2	8.0816	mg/L	0.04666	8.0816	mg/L	0.04666	0.58%
Ca 227.546†	32240.4	51.162	mg/L	0.4790	51.162	mg/L	0.4790	0.94%

Sequence No.: 13
Sample ID: J1792-01ADUP-OU9-SS-16-0
Analyst:
Logged In Analyst (Original) : MITOptima2
Initial Sample Wt:
Dilution:

Autosampler Location: 43
Date Collected: 9/21/2010 11:55:32 AM
Data Type: Reprocessed on 9/21/2010 2:32:55 PM

Initial Sample Vol:
Sample Prep Vol:

Mean Data: J1792-01ADUP-OU9-SS-16-0

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Y 360.073	3003397.0	108.2	%	0.63				0.58%
Al 308.215†	6081840.4	176.13	mg/L	0.066	176.13	mg/L	0.066	0.04%
Cr 267.716†	96439.7	0.3900	mg/L	0.00220	0.3900	mg/L	0.00220	0.56%
Cu 324.752†	197764.0	0.5083	mg/L	0.00460	0.5083	mg/L	0.00460	0.91%
Fe 273.955†	14148255.8	338.36	mg/L	0.165	338.36	mg/L	0.165	0.05%
Mg 279.077†	3507980.5	85.634	mg/L	0.0896	85.634	mg/L	0.0896	0.10%

$$0.7557\,\frac{mg}{L} \otimes \frac{0.05\,L}{1.84\,g} \otimes \frac{1}{0.93} \otimes \frac{1000\,g}{1\,kg} = 22.08\,\frac{mg}{kg}$$

% solids

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. COHEN**	**DATE:**	**NOVEMBER 19, 2010**
FROM:	**JOSEPH KALINYAK**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – PAH PORTSMOUTH NSY, CTO 533 SDG J1792**		

SAMPLES: 31 / Soil / PAH

FD09141001	FD09141002	FD09141003
OU9-SB-16-0205	OU9-SB-16-0508	OU9-SB-17-0205
OU9-SB-17-0508	OU9-SB-18-0205	OU9-SB-18-0508
OU9-SB-19-0205	OU9-SB-19-0508	OU9-SB-20-0205
OU9-SB-20-0508	OU9-SB-21-0205	OU9-SB-21-0508
OU9-SB-22-0205	OU9-SB-22-0508	OU9-SB-23-0204
OU9-SB-24-0204	OU9-SB-25-0205	OU9-SB-25-0508
OU9-SS-16-0002	OU9-SS-17-0002	OU9-SS-18-0002
OU9-SS-19-0002	OU9-SS-20-0002	OU9-SS-21-0002
OU9-SS-22-0002	OU9-SS-23-0002	OU9-SS-24-0002
OU9-SS-25-0002		

1 / Aqueous / PAH

RB09141001

Overview

The sample set for Portsmouth NSY, CTO 533 SDG J1792 consisted of thirty-one (31) soil environmental samples and one (1) aqueous sample. All samples were analyzed for polynuclear aromatic hydrocarbons (PAH). There were three (3) field duplicate pairs associated with this sample delivery group (SDG), FD09141001 / OU9-SB-17-0205, FD09141002 / OU9-SB-18-0508, and FD09141003 / OU9-SS-22-0002.

The samples were collected by Tetra Tech NUS on September 14, 2010 and were analyzed by Mitkem Laboratories. All of the samples were analyzed in accordance with the USEPA SW-846 Method 8270D SIM analytical method.

Data were evaluated based on the following parameters:

- Data Completeness
- * Holding Times
- * GC/MS Instrument Tuning and System Performance
- * Blank Results
- Initial and Continuing Calibration
- Blank Spike / Blanks Spike Duplicate Results
- * Surrogate Spike Recoveries
- Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate Results
- Field Duplicate Precision

* • Detection Limits
* • Compound Identification and Quantification

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region I worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report. The text of this report has been formulated to address only those problem areas affecting data quality.

INITIAL AND CONTINUING CALIBRATION

The initial calibration relative percent standard deviation (RPD) was greater than the 20% quality control limit for naphthalene and benzo(g,h,i)perylene on instrument S4 on 10/04/10 affecting samples OU9-SB-17-0205, FD09141001, OU9-SB-17-0508, OU9-SB-18-0508, FD09141002, OU9-SB-19-0508, OU9-SS-17-0002, OU9-SS-18-0002, OU9-SB-18-0205, OU9-SS-19-0002, OU9-SB-19-0205, OU9-SS-20-0002, OU9-SB-20-0508, OU9-SS-21-0002, OU9-SB-21-0205, OU9-SB-21-0508, OU9-SB-16-0205, OU9-SS-16-0002, OU9-SS-22-0002, FD09141003, OU9-SS-23-0002, OU9-SS-24-0002, and OU9-SB-25-0508. The positive and non-detected naphthalene and benzo(g,h,i)perylene results for the aforementioned samples were qualified estimated, (J) and (UJ), respectively.

The continuing calibration verification (CCV) %D was greater than the 20% quality control limit for 2-methylnaphthalene, naphthalene and benzo(b)fluoranthene on 10/05/10 @ 10:36 on instrument S4 affecting soil samples OU9-SB-17-0205, FD09141001, OU9-SB-17-0508, OU9-SB-18-0508, FD09141002, and OU9-SB-19-0508. The positive and non-detected 2-methylnaphthalene, naphthalene and benzo(b)fluoranthene results for the aforementioned samples were qualified estimated, (J) and (UJ), respectively.

The continuing calibration verification (CCV) %D was greater than the 20% quality control limit for 2-methylnaphthalene, naphthalene and benzo(b)fluoranthene on 10/05/10 @ 16:18 on instrument S4 affecting soil samples OU9-SS-17-0002, OU9-SS-18-0002, OU9-SB-18-0205, OU9-SS-19-0002, OU9-SB-19-0205, OU9-SS-20-0002, OU9-SB-20-0508, OU9-SS-21-0002, OU9-SB-21-0205, OU9-SB-21-0508, OU9-SB-16-0205, OU9-SS-16-0002, OU9-SS-22-0002, FD09141003, OU9-SS-23-0002, OU9-SS-24-0002, and OU9-SB-25-0508. The positive and non-detected 2-methylnaphthalene, naphthalene and benzo(b)fluoranthene results for the aforementioned samples were qualified estimated, (J) and (UJ), respectively.

The initial calibration RPD was greater than the 20% quality control limit for fluoranthene and pyrene on instrument S4 on 10/06/10 affecting samples OU9-SB-16-0508, OU9-SB-23-0204, OU9-SB-24-0204, OU9-SS-25-0002, and OU9-SB-25-0205. The positive and non-detected fluoranthene and pyrene results for the aforementioned samples were qualified estimated, (J) and (UJ), respectively.

The initial calibration RPD was greater than the 20% quality control limit for benzo(a)anthracene and pyrene on instrument S4 on 10/08/10 affecting samples OU9-SS-18-0002DL, OU9-SS-19-0002DL, OU9-SS-20-0002DL, OU9-SS-21-0002DL, OU9-SS-22-0002DL, OU9-SS-23-0002DL, OU9-SS-24-0002DL, RB09141001, FD09141003DL, OU9-SB-22-0205, OU9-SB-22-0205DL, OU9-SB-22-0508, OU9-SB-22-0508DL, and OU9-SB-20-0205DL. The positive and non-detected benzo(a)anthracene and pyrene results for the aforementioned samples were qualified estimated, (J) and (UJ), respectively.

The continuing calibration verification (CCV) %D was greater than the 20% quality control limit for 2-methylnaphthalene, pyrene and benzo(k)fluoranthene on 10/09/10 @ 21:27 on instrument S4 affecting soil samples OU9-SS-22-0002DL, OU9-SB-22-0205DL, OU9-SB-22-0508DL, and OU9-SB-20-0205DL. The positive 2-methylnaphthalene, pyrene and benzo(k)fluoranthene results reported for the aforementioned samples were qualified estimated, (J).

LABORATORY CONTROL SAMPLE (LCS) / LCS DUPLICATE (LCSD)

The %Rs for 2-methylnaphthalene for the LCS and the LCSD were greater than the quality control limit affecting sample RB09141001. No action was taken as the 2-methylnaphthalene result for the sample was non-detected.

SURROGATE %R

Samples with dilution analyses had surrogate %Rs less than the quality control limit. No action was taken as the surrogates were diluted out.

INTERNAL STANDARD RECOVERY

The internal standard recoveries and retention times were not listed on the Form VIIIs for 1,4-dichlorobenzene-d4 by the laboratory. The area recoveries and retention times were manually entered on the forms. No compounds were quantified using the first internal standard therefore the exclusion of this data has no consequences.

The internal standard recoveries were less than the quality control limit for naphthalene-d8 for samples OU9-SS-24-0002 and OU9-SB-25-0508 affecting the quantitation of the associated PAHs naphthalene and 2-methylnaphthalene. The positive results for naphthalene for samples OU9-SS-24-0002 and OU9-SB-25-0508 were qualified estimated, (J). The positive and non-detected results for 2-methylnaphthalene for samples OU9-SS-24-0002 and OU9-SB-25-0508 were qualified estimated, (J) and (UJ), respectively.

Sample OU9-SS-23-0002 analyzed on 10/05/10 (undiluted analysis) contained internal standard recoveries less than the quality control limit for naphthalene-d8, acenaphthene-d10, and phenanthrene-d10. The positive 2-methyl-naphthalene, naphthalene, acenaphthylene, acenaphthene, fluorene, and anthracene results for sample OU9-SS-23-0002 were qualified estimated, (J), for the associated internal standard quality control limit non-compliances.

MATRIX SPIKE (MS) / MATRIX SPIKE DUPLICATE (MSD)

The PAH analyte % recoveries were less than the quality control limits for the matrix spike (MS) and matrix spike duplicate (MSD) for indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene for the associated spiked sample OU9-SB-25-0508. The non-detected for indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene results for sample OU9-SB-25-0508 were qualified estimated, (UJ).

The MS and MSD PAH analyte %Rs were less than the quality control limits for most PAHs for spiked sample OU9-SS-19-0002. The sample had concentrations of PAHs much greater than the spike concentrations for all PAHs (the original sample was re-analyzed at a dilution due to the high PAH levels) and was analyzed undiluted with most PAHs exceeding the calibration range for both the MS and the MSD. Due to this issue no action was taken for these PAH analyte MS/MSD quality control limit exceedances.

FIELD DUPLICATE PRECISION

The relative percent difference (RPD) was greater than the quality control limit for the field duplicate pair samples FD09141003 and OU9-SS-22-0002 for all PAHs except phenanthrene. The positive results for all PAHs except phenanthrene were qualified estimated, (J), for samples FD09141003 and OU9-SS-22-0002 due to field duplicate imprecision.

NOTES

Some samples were analyzed diluted due to high PAH concentrations as listed below. Samples not listed were analyzed undiluted (1X) only. Results from the undiluted and diluted analyses were combined in the Appendix A reported sample results.

Sample	Dilution(s)
FD09141003	1X, 5X
OU9-SB-20-0205	1X, 40X
OU9-SB-22-0205	5X, 40X
OU9-SB-22-0508	10X, 400X
OU9-SS-18-0002	1X, 20X
OU9-SS-19-0002	1X, 20X
OU9-SS-20-0002	1X, 2X
OU9-SS-21-0002	1X, 2X
OU9-SS-22-0002	1X, 40X
OU9-SS-23-0002	1X, 5X
OU9-SS-24-0002	1X, 4X

Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J).

The laboratory analyzed and reported 2-methylnaphthalene sample results although the analyte analysis was not specified in the Sample and Analysis Plan (SAP). Sample results for 2-methylnaphthalene were included in this report as positive 2-methylnaphthalene results were reported by the laboratory for some samples.

EXECUTIVE SUMMARY

Laboratory Performance: Initial calibration RSD and continuing calibration verification %D quality control limit exceedances resulted in sample data qualifications. Internal standard recoveries less than the quality control limits resulted in sample data qualifications.

Other Factors Affecting Data Quality: Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J). Field duplicate precision quality control exceedances resulted in PAH data qualifications. MS/MSD %Rs were outside the quality control limits for some PAHs for spiked sample OU9-SB-25-0508 and resulted in data qualification of these sample PAHs.

The data for these analyses were reviewed with reference to the criteria for SW-846 8270D SIM listed in the project specific SAP, the "USEPA Region 1 Laboratory Data Validation Functional Guidelines – Part II" (12/96), and the Department of Defense (DOD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Tetra Tech NUS
Joseph Kalinyak
Environmental Chemist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C – Regional Worksheets
4. Appendix D - Support Documentation

APPENDIX A

QUALIFIED LABORATORY RESULTS

Value Qualifier Key (Val Qual)

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's r < 0.995 / ICP PDS Recovery Noncompliance
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient r < 0.995
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 01456	NSAMPLE	RB09141001		
SDG: J1792	LAB_ID	J1792-32B		
FRACTION: PAH	SAMP_DATE	9/14/2010		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.1	U	
ACENAPHTHENE		0.1	U	
ACENAPHTHYLENE		0.1	U	
ANTHRACENE		0.1	U	
BENZO(A)ANTHRACENE		0.1	UJ	C
BENZO(A)PYRENE		0.1	U	
BENZO(B)FLUORANTHENE		0.1	U	
BENZO(G,H,I)PERYLENE		0.1	U	
BENZO(K)FLUORANTHENE		0.1	U	
CHRYSENE		0.1	U	
DIBENZO(A,H)ANTHRACENE		0.1	U	
FLUORANTHENE		0.1	U	
FLUORENE		0.1	U	
INDENO(1,2,3-CD)PYRENE		0.1	U	
NAPHTHALENE		0.1	U	
PHENANTHRENE		0.1	U	
PYRENE		0.1	UJ	C

PROJ_NO: 01456	NSAMPLE	FD09141001			FD09141002			FD09141003			FD09141003DL		
SDG: J1792	LAB_ID	J1792-06A			J1792-11A			J1792-22A			J1792-22ADL		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	93.0			86.0			91.0			91.0		
	DUP_OF	OU9-SB-17-0205			OU9-SB-18-0508			OU9-SS-22-0002			OU9-SS-22-0002		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		3.5	UJ	C	3.8	UJ	C	26	J	CG			
ACENAPHTHENE		3.5	U		3.8	U		31	J	G			
ACENAPHTHYLENE		3.5	U		3.8	U		230	J	G			
ANTHRACENE		3.5	U		3.8	U					470	J	G
BENZO(A)ANTHRACENE		3.5	U		3.8	U					1000	J	CG
BENZO(A)PYRENE		3.5	U		3.8	U					820	J	G
BENZO(B)FLUORANTHENE		3.5	UJ	C	3.8	UJ	C				800	J	G
BENZO(G,H,I)PERYLENE		3.5	UJ	C	3.8	UJ	C	280	J	CG			
BENZO(K)FLUORANTHENE		3.5	U		3.8	U					690	J	G
CHRYSENE		3.5	U		3.8	U					850	J	G
DIBENZO(A,H)ANTHRACENE		3.5	U		3.8	U		130	J	G			
FLUORANTHENE		3.5	U		3.8	U					1100	J	G
FLUORENE		3.5	U		3.8	U		170	J	G			
INDENO(1,2,3-CD)PYRENE		3.5	U		3.8	U		220	J	G			
NAPHTHALENE		3.5	UJ	C	3.8	UJ	C	32	J	CG			
PHENANTHRENE		3.5	U		3.8	U					1000	J	G
PYRENE		3.5	U		3.8	U					1100	J	CG

PROJ_NO: 01456	NSAMPLE	OU9-SB-16-0205			OU9-SB-16-0508			OU9-SB-17-0205			OU9-SB-17-0508		
SDG: J1792	LAB_ID	J1792-02A			J1792-03A			J1792-05A			J1792-07A		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.0			94.0			92.0			93.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		3.8	UJ	C	3.5	U		3.5	UJ	C	3.5	UJ	C
ACENAPHTHENE		3.8	U		3.5	U		3.5	U		3.5	U	
ACENAPHTHYLENE		3.8	U		3.5	U		3.5	U		3.5	U	
ANTHRACENE		3.8	U		3.5	U		3.5	U		3.5	U	
BENZO(A)ANTHRACENE		3.8	U		3.5	U		3.5	U		3.5	U	
BENZO(A)PYRENE		3.8	U		3.5	U		3.5	U		3.5	U	
BENZO(B)FLUORANTHENE		3.8	UJ	C	3.5	U		3.5	UJ	C	3.5	UJ	C
BENZO(G,H,I)PERYLENE		3.8	UJ	C	3.5	U		5.4	J	C	3.5	UJ	C
BENZO(K)FLUORANTHENE		3.8	U		3.5	U		3.5	U		3.5	U	
CHRYSENE		3.8	U		3.5	U		3.5	U		3.5	U	
DIBENZO(A,H)ANTHRACENE		3.8	U		3.5	U		3.5	U		3.5	U	
FLUORANTHENE		3.8	U		3.5	UJ	C	3.5	U		3.5	U	
FLUORENE		3.8	U		3.5	U		3.5	U		3.5	U	
INDENO(1,2,3-CD)PYRENE		3.8	U		3.5	U		3.5	U		3.5	U	
NAPHTHALENE		3.8	UJ	C	3.5	U		3.5	UJ	C	3.5	UJ	C
PHENANTHRENE		3.8	U		3.5	U		3.5	U		3.5	U	
PYRENE		3.8	U		3.5	UJ	C	3.5	U		3.5	U	

PROJ_NO: 01456	NSAMPLE	OU9-SB-18-0205			OU9-SB-18-0508			OU9-SB-19-0205			OU9-SB-19-0508		
SDG: J1792	LAB_ID	J1792-09A			J1792-10A			J1792-13A			J1792-14A		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			86.0			83.0			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		16	J	C	3.8	UJ	C	3.9	UJ	C	3.6	UJ	C
ACENAPHTHENE		45			3.8	U		3.9	U		3.6	U	
ACENAPHTHYLENE		34			3.8	U		22			3.6	U	
ANTHRACENE		91			3.8	U		17			3.6	U	
BENZO(A)ANTHRACENE		170			3.8	U		41			4		
BENZO(A)PYRENE		140			3.8	U		35			3.6	U	
BENZO(B)FLUORANTHENE		120	J	C	3.8	UJ	C	41	J	C	4.3	J	C
BENZO(G,H,I)PERYLENE		83	J	C	3.8	UJ	C	23	J	C	3.7	J	C
BENZO(K)FLUORANTHENE		150			3.8	U		30			3.1	J	P
CHRYSENE		160			3.8	U		47			5.4		
DIBENZO(A,H)ANTHRACENE		28			3.8	U		8.6			3.6	U	
FLUORANTHENE		240			3.8	U		85			6.9		
FLUORENE		43			3.8	U		9.8			3.6	U	
INDENO(1,2,3-CD)PYRENE		71			3.8	U		19			3.6	U	
NAPHTHALENE		35	J	C	3.8	UJ	C	5.2	J	C	3.6	UJ	C
PHENANTHRENE		290			3.8	U		65			5.3		
PYRENE		230			3.8	U		76			5.8		

PROJ_NO: 01456	NSAMPLE	OU9-SB-20-0205			OU9-SB-20-0205DL1			OU9-SB-20-0508			OU9-SB-21-0205		
SDG: J1792	LAB_ID	J1792-16A			J1792-16ADL			J1792-17A			J1792-19A		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			82.0			89.0			83.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		270	J	C				3.7	UJ	C	4	UJ	C
ACENAPHTHENE					830			3.7	U		4	U	
ACENAPHTHYLENE					800			9.7			27		
ANTHRACENE					1500			7.1			15		
BENZO(A)ANTHRACENE					4200	J	C	22			55		
BENZO(A)PYRENE					4000			24			68		
BENZO(B)FLUORANTHENE					4800			30	J	C	72	J	C
BENZO(G,H,I)PERYLENE					2500			24	J	C	50	J	C
BENZO(K)FLUORANTHENE					2400	J	C	24			56		
CHRYSENE					5300			37			75		
DIBENZO(A,H)ANTHRACENE					860			7.4			14		
FLUORANTHENE					7900			43			110		
FLUORENE					830			3.7	U		4.3		
INDENO(1,2,3-CD)PYRENE					2100			15			37		
NAPHTHALENE					1100			4.2	J	C	7.4	J	C
PHENANTHRENE					7200			30			54		
PYRENE					6500	J	C	36			100		

PROJ_NO: 01456	NSAMPLE	OU9-SB-21-0508			OU9-SB-22-0205			OU9-SB-22-0205DL			OU9-SB-22-0508DL		
SDG: J1792	LAB_ID	J1792-20A			J1792-23A			J1792-23ADL			J1792-24ADL		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	94.0			85.0			85.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		3.5	UJ	C	14000	J	C				560000	J	C
ACENAPHTHENE		3.5	U		16000						100000		
ACENAPHTHYLENE		3.5	U		7300						370000		
ANTHRACENE		3.5	U					38000			290000		
BENZO(A)ANTHRACENE		6.2						54000	J	C	410000	J	C
BENZO(A)PYRENE		8.5						51000			450000		
BENZO(B)FLUORANTHENE		9	J	C				58000			360000		
BENZO(G,H,I)PERYLENE		8	J	C				29000			230000		
BENZO(K)FLUORANTHENE		6.5						25000	J	C	130000	J	C
CHRYSENE		9.3						54000			420000		
DIBENZO(A,H)ANTHRACENE		3.5	U		13000						66000		
FLUORANTHENE		11						91000			550000		
FLUORENE		3.5	U		18000						320000		
INDENO(1,2,3-CD)PYRENE		4.9			19000						160000		
NAPHTHALENE		3.5	UJ	C	15000						640000		
PHENANTHRENE		6.9						110000			1300000		
PYRENE		11						85000	J	C	910000	J	C

PROJ_NO: 01456	NSAMPLE	OU9-SB-23-0204			OU9-SB-24-0204			OU9-SB-25-0205			OU9-SB-25-0508		
SDG: J1792	LAB_ID	J1792-26A			J1792-28A			J1792-30A			J1792-31A		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.0			89.0			90.0			91.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		3.6	U		3.7	U		3.6	U		3.6	UJ	CN
ACENAPHTHENE		3.6	U		3.7	U		3.6	U		3.6	U	
ACENAPHTHYLENE		3.6	U		3.7	U		3.6	U		3.6	U	
ANTHRACENE		3.6	U		3.7	U		3.6	U		3.6	U	
BENZO(A)ANTHRACENE		3.6	U		3.7	U		3.6	U		4.2		
BENZO(A)PYRENE		3.7			3.7	U		3.6	U		4.3		
BENZO(B)FLUORANTHENE		3.6	U		4			3.6	U		4.2	J	C
BENZO(G,H,I)PERYLENE		4.3			3.7	U		3.6	U		3.6	UJ	CD
BENZO(K)FLUORANTHENE		3.6	U		3.7	U		3.6	U		3.6	U	
CHRYSENE		3.6	U		3.7	U		3.6	U		7.8		
DIBENZO(A,H)ANTHRACENE		3.6	U		3.7	U		3.6	U		3.6	UJ	D
FLUORANTHENE		4.1	J	C	6.5	J	C	5.3	J	C	9.9		
FLUORENE		3.6	U		3.7	U		3.6	U		3.6	U	
INDENO(1,2,3-CD)PYRENE		3.6	U		3.7	U		3.6	U		3.6	UJ	D
NAPHTHALENE		3.6	U		3.7	U		3.6	U		3.9	J	CN
PHENANTHRENE		4.1			5			4.1			8.7		
PYRENE		5	J	C	6.5	J	C	4.8	J	C	9.9		

PROJ_NO: 01456	NSAMPLE	OU9-SS-16-0002			OU9-SS-17-0002			OU9-SS-18-0002			OU9-SS-18-0002DL		
SDG: J1792	LAB_ID	J1792-01A			J1792-04A			J1792-08A			J1792-08ADL		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	93.0			89.0			78.0			78.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		3.5	UJ	C	3.7	UJ	C	81	J	C			
ACENAPHTHENE		3.5	U		3.7	U					530		
ACENAPHTHYLENE		4.4			3.7	U		390					
ANTHRACENE		6			3.7	U					1500		
BENZO(A)ANTHRACENE		21			10						2700	J	C
BENZO(A)PYRENE		22			11						2400		
BENZO(B)FLUORANTHENE		22	J	C	9.5	J	C				2800		
BENZO(G,H,I)PERYLENE		14	J	C	11	J	C				1400		
BENZO(K)FLUORANTHENE		18			6.7						2000		
CHRYSENE		24			12						2900		
DIBENZO(A,H)ANTHRACENE		4.3			3.7	U		290					
FLUORANTHENE		45			13						4700		
FLUORENE		3.5	U		3.7	U					690		
INDENO(1,2,3-CD)PYRENE		11			7.1						1200		
NAPHTHALENE		3.5	UJ	C	3.7	UJ	C	96	J	C			
PHENANTHRENE		23			11						5100		
PYRENE		46			17						4000	J	C

PROJ_NO: 01456	NSAMPLE	OU9-SS-19-0002			OU9-SS-19-0002DL			OU9-SS-20-0002			OU9-SS-20-0002DL		
SDG: J1792	LAB_ID	J1792-12A			J1792-12ADL			J1792-15A			J1792-15ADL		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.0			92.0			93.0			93.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		140	J	C				5.9	J	C			
ACENAPHTHENE					420			32					
ACENAPHTHYLENE					870			33					
ANTHRACENE					2400			120					
BENZO(A)ANTHRACENE					3600	J	C	230					
BENZO(A)PYRENE					3000			180					
BENZO(B)FLUORANTHENE					3400			170	J	C			
BENZO(G,H,I)PERYLENE					1400			78	J	C			
BENZO(K)FLUORANTHENE					2600			140					
CHRYSENE					3900			210					
DIBENZO(A,H)ANTHRACENE		260						35					
FLUORANTHENE					5200						430		
FLUORENE					1100			43					
INDENO(1,2,3-CD)PYRENE					1400			74					
NAPHTHALENE		240	J	C				9	J	C			
PHENANTHRENE					5500			330					
PYRENE					4100	J	C				350	J	C

PROJ_NO: 01456	NSAMPLE	OU9-SS-21-0002			OU9-SS-21-0002DL			OU9-SS-22-0002			OU9-SS-22-0002DL		
SDG: J1792	LAB_ID	J1792-18A			J1792-18ADL			J1792-21A			J1792-21ADL		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	94.0			94.0			92.0			92.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		32	J	C				87	J	CG			
ACENAPHTHENE		91						120	J	G			
ACENAPHTHYLENE		47									2100	J	G
ANTHRACENE		170									1800	J	G
BENZO(A)ANTHRACENE		280									7500	J	CG
BENZO(A)PYRENE		250									7400	J	G
BENZO(B)FLUORANTHENE		230	J	C							8500	J	G
BENZO(G,H,I)PERYLENE		120	J	C							3600	J	G
BENZO(K)FLUORANTHENE		220									4800	J	CG
CHRYSENE		300									8700	J	G
DIBENZO(A,H)ANTHRACENE		42									1600	J	G
FLUORANTHENE					450						11000	J	G
FLUORENE		110									320	J	G
INDENO(1,2,3-CD)PYRENE		110									3500	J	G
NAPHTHALENE		70	J	C				210	J	CG			
PHENANTHRENE					600						1100	J	G
PYRENE					420	J	C				9700	J	CG

PROJ_NO: 01456	NSAMPLE	OU9-SS-23-0002			OU9-SS-23-0002DL			OU9-SS-24-0002			OU9-SS-24-0002DL		
SDG: J1792	LAB_ID	J1792-25A			J1792-25ADL			J1792-27A			J1792-27ADL		
FRACTION: PAH	SAMP_DATE	9/14/2010			9/14/2010			9/14/2010			9/14/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.0			89.0			87.0			87.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		23	J	CN				39	J	CN			
ACENAPHTHENE		140	J	N				59					
ACENAPHTHYLENE		43	J	N				190					
ANTHRACENE		300	J	N				190					
BENZO(A)ANTHRACENE					560	J	C				670	J	C
BENZO(A)PYRENE		290									680		
BENZO(B)FLUORANTHENE		250	J	C							810		
BENZO(G,H,I)PERYLENE		140	J	C				350	J	C			
BENZO(K)FLUORANTHENE		360						290					
CHRYSENE					630						660		
DIBENZO(A,H)ANTHRACENE		77						170					
FLUORANTHENE					1000						690		
FLUORENE		190	J	N				100					
INDENO(1,2,3-CD)PYRENE		130						240					
NAPHTHALENE		48	J	CN				60	J	CN			
PHENANTHRENE					1200						590		
PYRENE					770	J	C				680	J	C

PROJ_NO: 01456	NSAMPLE	OU9-SS-25-0002
SDG: J1792	LAB_ID	J1792-29A
FRACTION: PAH	SAMP_DATE	9/14/2010
MEDIA: SOIL	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	83.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE	4	U	
ACENAPHTHENE	4	U	
ACENAPHTHYLENE	4	U	
ANTHRACENE	4.4		
BENZO(A)ANTHRACENE	10		
BENZO(A)PYRENE	11		
BENZO(B)FLUORANTHENE	11		
BENZO(G,H,I)PERYLENE	7.5		
BENZO(K)FLUORANTHENE	4.3		
CHRYSENE	11		
DIBENZO(A,H)ANTHRACENE	4	U	
FLUORANTHENE	17	J	C
FLUORENE	4	U	
INDENO(1,2,3-CD)PYRENE	5.2		
NAPHTHALENE	4	U	
PHENANTHRENE	18		
PYRENE	20	J	C

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

RB09141001

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: J1792-32B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S4E2576.D

Extraction: (Type) SEPF

% Moisture: Decanted: (Y/N) Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/21/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/L	Q	DL	LOD	LOQ
91-20-3	Naphthalene	0.10	U	0.015	0.10	0.10
91-57-6	2-Methylnaphthalene	0.10	U	0.012	0.10	0.10
208-96-8	Acenaphthylene	0.10	U	0.015	0.10	0.10
83-32-9	Acenaphthene	0.10	U	0.014	0.10	0.10
86-73-7	Fluorene	0.10	U	0.018	0.10	0.10
85-01-8	Phenanthrene	0.10	U	0.016	0.10	0.10
120-12-7	Anthracene	0.10	U	0.017	0.10	0.10
206-44-0	Fluoranthene	0.10	U	0.025	0.10	0.10
129-00-0	Pyrene	0.10	U	0.025	0.10	0.10
56-55-3	Benzo(a)anthracene	0.10	U	0.024	0.10	0.10
218-01-9	Chrysene	0.10	U	0.0054	0.10	0.10
205-99-2	Benzo(b)fluoranthene	0.10	U	0.033	0.10	0.10
207-08-9	Benzo(k)fluoranthene	0.10	U	0.022	0.10	0.10
50-32-8	Benzo(a)pyrene	0.10	U	0.0024	0.10	0.10
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	U	0.024	0.10	0.10
53-70-3	Dibenzo(a,h)anthracene	0.10	U	0.026	0.10	0.10
191-24-2	Benzo(g,h,i)perylene	0.10	U	0.022	0.10	0.10

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FD09141001

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-06A

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S4E2453.D

Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.5	U	0.75	3.5	3.5
91-57-6	2-Methylnaphthalene	3.5	U	0.27	3.5	3.5
208-96-8	Acenaphthylene	3.5	U	0.26	3.5	3.5
83-32-9	Acenaphthene	3.5	U	0.31	3.5	3.5
86-73-7	Fluorene	3.5	U	0.61	3.5	3.5
85-01-8	Phenanthrene	3.5	U	2.8	3.5	3.5
120-12-7	Anthracene	3.5	U	2.7	3.5	3.5
206-44-0	Fluoranthene	3.5	U	2.1	3.5	3.5
129-00-0	Pyrene	3.5	U	1.8	3.5	3.5
56-55-3	Benzo(a)anthracene	3.5	U	1.3	3.5	3.5
218-01-9	Chrysene	3.5	U	1.0	3.5	3.5
205-99-2	Benzo(b)fluoranthene	3.5	U	1.9	3.5	3.5
207-08-9	Benzo(k)fluoranthene	3.5	U	1.2	3.5	3.5
50-32-8	Benzo(a)pyrene	3.5	U	0.83	3.5	3.5
193-39-5	Indeno(1,2,3-cd)pyrene	3.5	U	0.77	3.5	3.5
53-70-3	Dibenzo(a,h)anthracene	3.5	U	0.74	3.5	3.5
191-24-2	Benzo(g,h,i)perylene	3.5	U	0.92	3.5	3.5

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FD09141002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-11A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S4E2456.D

Extraction: (Type) SONC

% Moisture: 14 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.8	U	0.81	3.8	3.8
91-57-6	2-Methylnaphthalene	3.8	U	0.29	3.8	3.8
208-96-8	Acenaphthylene	3.8	U	0.28	3.8	3.8
83-32-9	Acenaphthene	3.8	U	0.33	3.8	3.8
86-73-7	Fluorene	3.8	U	0.66	3.8	3.8
85-01-8	Phenanthrene	3.8	U	3.0	3.8	3.8
120-12-7	Anthracene	3.8	U	2.9	3.8	3.8
206-44-0	Fluoranthene	3.8	U	2.3	3.8	3.8
129-00-0	Pyrene	3.8	U	2.0	3.8	3.8
56-55-3	Benzo(a)anthracene	3.8	U	1.4	3.8	3.8
218-01-9	Chrysene	3.8	U	1.1	3.8	3.8
205-99-2	Benzo(b)fluoranthene	3.8	U	2.1	3.8	3.8
207-08-9	Benzo(k)fluoranthene	3.8	U	1.3	3.8	3.8
50-32-8	Benzo(a)pyrene	3.8	U	0.89	3.8	3.8
193-39-5	Indeno(1,2,3-cd)pyrene	3.8	U	0.83	3.8	3.8
53-70-3	Dibenzo(a,h)anthracene	3.8	U	0.80	3.8	3.8
191-24-2	Benzo(g,h,i)perylene	3.8	U	0.99	3.8	3.8

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FD09141003

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-22A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S4E2479.D

Extraction: (Type) SONC

% Moisture: 9.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	32		0.76	3.6	3.6
91-57-6	2-Methylnaphthalene	26		0.27	3.6	3.6
208-96-8	Acenaphthylene	230		0.26	3.6	3.6
83-32-9	Acenaphthene	31		0.31	3.6	3.6
86-73-7	Fluorene	170		0.62	3.6	3.6
85-01-8	Phenanthrene	810	E	2.8	3.6	3.6
120-12-7	Anthracene	440	E	2.7	3.6	3.6
206-44-0	Fluoranthene	930	E	2.2	3.6	3.6
129-00-0	Pyrene	990	E	1.8	3.6	3.6
56-55-3	Benzo(a)anthracene	680	E	1.3	3.6	3.6
218-01-9	Chrysene	600	E	1.0	3.6	3.6
205-99-2	Benzo(b)fluoranthene	470	E	2.0	3.6	3.6
207-08-9	Benzo(k)fluoranthene	380	E	1.2	3.6	3.6
50-32-8	Benzo(a)pyrene	510	E	0.84	3.6	3.6
193-39-5	Indeno(1,2,3-cd)pyrene	220		0.78	3.6	3.6
53-70-3	Dibenzo(a,h)anthracene	130		0.75	3.6	3.6
191-24-2	Benzo(g,h,i)perylene	280		0.93	3.6	3.6

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FD09141003DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-22ADL

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S4E2581.D

Extraction: (Type) SONC

% Moisture: 9.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	30	D	3.8	18	18
91-57-6	2-Methylnaphthalene	36	D	1.4	18	18
208-96-8	Acenaphthylene	180	D	1.3	18	18
83-32-9	Acenaphthene	33	D	1.6	18	18
86-73-7	Fluorene	160	D	3.1	18	18
85-01-8	Phenanthrene	1000	D	14	18	18
120-12-7	Anthracene	470	D	14	18	18
206-44-0	Fluoranthene	1100	D	11	18	18
129-00-0	Pyrene	1100	D	9.2	18	18
56-55-3	Benzo(a)anthracene	1000	D	6.5	18	18
218-01-9	Chrysene	850	D	5.1	18	18
205-99-2	Benzo(b)fluoranthene	800	D	9.8	18	18
207-08-9	Benzo(k)fluoranthene	690	D	6.0	18	18
50-32-8	Benzo(a)pyrene	820	D	4.2	18	18
193-39-5	Indeno(1,2,3-cd)pyrene	390	D	3.9	18	18
53-70-3	Dibenzo(a,h)anthracene	200	D	3.7	18	18
191-24-2	Benzo(g,h,i)perylene	510	D	4.7	18	18

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-16-0205

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: J1792-02A

Sample wt/vol: 30.3 (g/mL) G

Lab File ID: S4E2476.D

Extraction: (Type) SONC

% Moisture: 14 Decanted: (Y/N) N

Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00

Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH:

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.8	U	0.81	3.8	3.8
91-57-6	2-Methylnaphthalene	3.8	U	0.29	3.8	3.8
208-96-8	Acenaphthylene	3.8	U	0.28	3.8	3.8
83-32-9	Acenaphthene	3.8	U	0.33	3.8	3.8
86-73-7	Fluorene	3.8	U	0.66	3.8	3.8
85-01-8	Phenanthrene	3.8	U	3.0	3.8	3.8
120-12-7	Anthracene	3.8	U	2.9	3.8	3.8
206-44-0	Fluoranthene	3.8	U	2.3	3.8	3.8
129-00-0	Pyrene	3.8	U	2.0	3.8	3.8
56-55-3	Benzo(a)anthracene	3.8	U	1.4	3.8	3.8
218-01-9	Chrysene	3.8	U	1.1	3.8	3.8
205-99-2	Benzo(b)fluoranthene	3.8	U	2.1	3.8	3.8
207-08-9	Benzo(k)fluoranthene	3.8	U	1.3	3.8	3.8
50-32-8	Benzo(a)pyrene	3.8	U	0.89	3.8	3.8
193-39-5	Indeno(1,2,3-cd)pyrene	3.8	U	0.83	3.8	3.8
53-70-3	Dibenzo(a,h)anthracene	3.8	U	0.79	3.8	3.8
191-24-2	Benzo(g,h,i)perylene	3.8	U	0.99	3.8	3.8

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-16-0508

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-03A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S4E2507A.D

Extraction: (Type) SONC

% Moisture: 6.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/06/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.5	U	0.74	3.5	3.5
91-57-6	2-Methylnaphthalene	3.5	U	0.26	3.5	3.5
208-96-8	Acenaphthylene	3.5	U	0.25	3.5	3.5
83-32-9	Acenaphthene	3.5	U	0.31	3.5	3.5
86-73-7	Fluorene	3.5	U	0.60	3.5	3.5
85-01-8	Phenanthrene	3.5	U	2.7	3.5	3.5
120-12-7	Anthracene	3.5	U	2.6	3.5	3.5
206-44-0	Fluoranthene	3.5	U	2.1	3.5	3.5
129-00-0	Pyrene	3.5	U	1.8	3.5	3.5
56-55-3	Benzo(a)anthracene	3.5	U	1.3	3.5	3.5
218-01-9	Chrysene	3.5	U	0.99	3.5	3.5
205-99-2	Benzo(b)fluoranthene	3.5	U	1.9	3.5	3.5
207-08-9	Benzo(k)fluoranthene	3.5	U	1.2	3.5	3.5
50-32-8	Benzo(a)pyrene	3.5	U	0.81	3.5	3.5
193-39-5	Indeno(1,2,3-cd)pyrene	3.5	U	0.76	3.5	3.5
53-70-3	Dibenzo(a,h)anthracene	3.5	U	0.73	3.5	3.5
191-24-2	Benzo(g,h,i)perylene	3.5	U	0.91	3.5	3.5

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-17-0205

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-05A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S4E2452.D

Extraction: (Type) SONC

% Moisture: 8.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.5	U	0.75	3.5	3.5
91-57-6	2-Methylnaphthalene	3.5	U	0.27	3.5	3.5
208-96-8	Acenaphthylene	3.5	U	0.26	3.5	3.5
83-32-9	Acenaphthene	3.5	U	0.31	3.5	3.5
86-73-7	Fluorene	3.5	U	0.61	3.5	3.5
85-01-8	Phenanthrene	3.5	U	2.8	3.5	3.5
120-12-7	Anthracene	3.5	U	2.7	3.5	3.5
206-44-0	Fluoranthene	3.5	U	2.1	3.5	3.5
129-00-0	Pyrene	3.5	U	1.8	3.5	3.5
56-55-3	Benzo(a)anthracene	3.5	U	1.3	3.5	3.5
218-01-9	Chrysene	3.5	U	1.0	3.5	3.5
205-99-2	Benzo(b)fluoranthene	3.5	U	1.9	3.5	3.5
207-08-9	Benzo(k)fluoranthene	3.5	U	1.2	3.5	3.5
50-32-8	Benzo(a)pyrene	3.5	U	0.83	3.5	3.5
193-39-5	Indeno(1,2,3-cd)pyrene	3.5	U	0.77	3.5	3.5
53-70-3	Dibenzo(a,h)anthracene	3.5	U	0.74	3.5	3.5
191-24-2	Benzo(g,h,i)perylene	5.4		0.92	3.5	3.5

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-17-0508

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-07A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S4E2454.D

Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.5	U	0.75	3.5	3.5
91-57-6	2-Methylnaphthalene	3.5	U	0.27	3.5	3.5
208-96-8	Acenaphthylene	3.5	U	0.26	3.5	3.5
83-32-9	Acenaphthene	3.5	U	0.31	3.5	3.5
86-73-7	Fluorene	3.5	U	0.61	3.5	3.5
85-01-8	Phenanthrene	3.5	U	2.8	3.5	3.5
120-12-7	Anthracene	3.5	U	2.7	3.5	3.5
206-44-0	Fluoranthene	3.5	U	2.1	3.5	3.5
129-00-0	Pyrene	3.5	U	1.8	3.5	3.5
56-55-3	Benzo(a)anthracene	3.5	U	1.3	3.5	3.5
218-01-9	Chrysene	3.5	U	1.0	3.5	3.5
205-99-2	Benzo(b)fluoranthene	3.5	U	1.9	3.5	3.5
207-08-9	Benzo(k)fluoranthene	3.5	U	1.2	3.5	3.5
50-32-8	Benzo(a)pyrene	3.5	U	0.82	3.5	3.5
193-39-5	Indeno(1,2,3-cd)pyrene	3.5	U	0.77	3.5	3.5
53-70-3	Dibenzo(a,h)anthracene	3.5	U	0.73	3.5	3.5
191-24-2	Benzo(g,h,i)perylene	3.5	U	0.92	3.5	3.5

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-18-0205

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-09A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S4E2465.D

Extraction: (Type) SONC

% Moisture: 25 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	35		0.92	4.3	4.3
91-57-6	2-Methylnaphthalene	16		0.33	4.3	4.3
208-96-8	Acenaphthylene	34		0.32	4.3	4.3
83-32-9	Acenaphthene	45		0.38	4.3	4.3
86-73-7	Fluorene	43		0.75	4.3	4.3
85-01-8	Phenanthrene	290		3.4	4.3	4.3
120-12-7	Anthracene	91		3.3	4.3	4.3
206-44-0	Fluoranthene	240		2.6	4.3	4.3
129-00-0	Pyrene	230		2.2	4.3	4.3
56-55-3	Benzo(a)anthracene	170		1.6	4.3	4.3
218-01-9	Chrysene	160		1.2	4.3	4.3
205-99-2	Benzo(b)fluoranthene	120		2.4	4.3	4.3
207-08-9	Benzo(k)fluoranthene	150		1.4	4.3	4.3
50-32-8	Benzo(a)pyrene	140		1.0	4.3	4.3
193-39-5	Indeno(1,2,3-cd)pyrene	71		0.95	4.3	4.3
53-70-3	Dibenzo(a,h)anthracene	28		0.91	4.3	4.3
191-24-2	Benzo(g,h,i)perylene	83		1.1	4.3	4.3

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-18-0508

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-10A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S4E2455.D

Extraction: (Type) SONC

% Moisture: 14 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.8	U	0.81	3.8	3.8
91-57-6	2-Methylnaphthalene	3.8	U	0.29	3.8	3.8
208-96-8	Acenaphthylene	3.8	U	0.28	3.8	3.8
83-32-9	Acenaphthene	3.8	U	0.34	3.8	3.8
86-73-7	Fluorene	3.8	U	0.66	3.8	3.8
85-01-8	Phenanthrene	3.8	U	3.0	3.8	3.8
120-12-7	Anthracene	3.8	U	2.9	3.8	3.8
206-44-0	Fluoranthene	3.8	U	2.3	3.8	3.8
129-00-0	Pyrene	3.8	U	2.0	3.8	3.8
56-55-3	Benzo(a)anthracene	3.8	U	1.4	3.8	3.8
218-01-9	Chrysene	3.8	U	1.1	3.8	3.8
205-99-2	Benzo(b)fluoranthene	3.8	U	2.1	3.8	3.8
207-08-9	Benzo(k)fluoranthene	3.8	U	1.3	3.8	3.8
50-32-8	Benzo(a)pyrene	3.8	U	0.90	3.8	3.8
193-39-5	Indeno(1,2,3-cd)pyrene	3.8	U	0.84	3.8	3.8
53-70-3	Dibenzo(a,h)anthracene	3.8	U	0.80	3.8	3.8
191-24-2	Benzo(g,h,i)perylene	3.8	U	1.0	3.8	3.8

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-19-0205

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-13A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S4E2469.D

Extraction: (Type) SONC

% Moisture: 17 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	5.2		0.84	3.9	3.9
91-57-6	2-Methylnaphthalene	3.9	U	0.30	3.9	3.9
208-96-8	Acenaphthylene	22		0.29	3.9	3.9
83-32-9	Acenaphthene	3.9	U	0.35	3.9	3.9
86-73-7	Fluorene	9.8		0.68	3.9	3.9
85-01-8	Phenanthrene	65		3.1	3.9	3.9
120-12-7	Anthracene	17		3.0	3.9	3.9
206-44-0	Fluoranthene	85		2.4	3.9	3.9
129-00-0	Pyrene	76		2.0	3.9	3.9
56-55-3	Benzo(a)anthracene	41		1.4	3.9	3.9
218-01-9	Chrysene	47		1.1	3.9	3.9
205-99-2	Benzo(b)fluoranthene	41		2.2	3.9	3.9
207-08-9	Benzo(k)fluoranthene	30		1.3	3.9	3.9
50-32-8	Benzo(a)pyrene	35		0.92	3.9	3.9
193-39-5	Indeno(1,2,3-cd)pyrene	19		0.86	3.9	3.9
53-70-3	Dibenzo(a,h)anthracene	8.6		0.83	3.9	3.9
191-24-2	Benzo(g,h,i)perylene	23		1.0	3.9	3.9

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-19-0508

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: J1792-14A

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: S4E2457.D

Extraction: (Type) SONC

% Moisture: 10 Decanted: (Y/N) N

Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00

Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH:

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.6	U	0.77	3.6	3.6
91-57-6	2-Methylnaphthalene	3.6	U	0.27	3.6	3.6
208-96-8	Acenaphthylene	3.6	U	0.26	3.6	3.6
83-32-9	Acenaphthene	3.6	U	0.32	3.6	3.6
86-73-7	Fluorene	3.6	U	0.62	3.6	3.6
85-01-8	Phenanthrene	5.3		2.8	3.6	3.6
120-12-7	Anthracene	3.6	U	2.7	3.6	3.6
206-44-0	Fluoranthene	6.9		2.2	3.6	3.6
129-00-0	Pyrene	5.8		1.9	3.6	3.6
56-55-3	Benzo(a)anthracene	4.0		1.3	3.6	3.6
218-01-9	Chrysene	5.4		1.0	3.6	3.6
205-99-2	Benzo(b)fluoranthene	4.3		2.0	3.6	3.6
207-08-9	Benzo(k)fluoranthene	3.1	J	1.2	3.6	3.6
50-32-8	Benzo(a)pyrene	3.6	U	0.84	3.6	3.6
193-39-5	Indeno(1,2,3-cd)pyrene	3.6	U	0.79	3.6	3.6
53-70-3	Dibenzo(a,h)anthracene	3.6	U	0.75	3.6	3.6
191-24-2	Benzo(g,h,i)perylene	3.7		0.94	3.6	3.6

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-20-0205

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-16A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S4E2471.D

Extraction: (Type) SONC

% Moisture: 18 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	620	E	0.85	4.0	4.0
91-57-6	2-Methylnaphthalene	270		0.30	4.0	4.0
208-96-8	Acenaphthylene	530	E	0.29	4.0	4.0
83-32-9	Acenaphthene	610	E	0.35	4.0	4.0
86-73-7	Fluorene	660	E	0.69	4.0	4.0
85-01-8	Phenanthrene	2900	E	3.1	4.0	4.0
120-12-7	Anthracene	900	E	3.0	4.0	4.0
206-44-0	Fluoranthene	2900	E	2.4	4.0	4.0
129-00-0	Pyrene	2900	E	2.1	4.0	4.0
56-55-3	Benzo(a)anthracene	1700	E	1.5	4.0	4.0
218-01-9	Chrysene	2100	E	1.1	4.0	4.0
205-99-2	Benzo(b)fluoranthene	1600	E	2.2	4.0	4.0
207-08-9	Benzo(k)fluoranthene	1600	E	1.3	4.0	4.0
50-32-8	Benzo(a)pyrene	1800	E	0.93	4.0	4.0
193-39-5	Indeno(1,2,3-cd)pyrene	810	E	0.87	4.0	4.0
53-70-3	Dibenzo(a,h)anthracene	550	E	0.84	4.0	4.0
191-24-2	Benzo(g,h,i)perylene	970	E	1.0	4.0	4.0

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-20-0205DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-16ADL

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S4E2592.D

Extraction: (Type) SONC

% Moisture: 18 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/09/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 40.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	1100	D	34	160	160
91-57-6	2-Methylnaphthalene	640	D	12	160	160
208-96-8	Acenaphthylene	800	D	12	160	160
83-32-9	Acenaphthene	830	D	14	160	160
86-73-7	Fluorene	830	D	28	160	160
85-01-8	Phenanthrene	7200	D	130	160	160
120-12-7	Anthracene	1500	D	120	160	160
206-44-0	Fluoranthene	7900	D	97	160	160
129-00-0	Pyrene	6500	D	82	160	160
56-55-3	Benzo(a)anthracene	4200	D	58	160	160
218-01-9	Chrysene	5300	D	46	160	160
205-99-2	Benzo(b)fluoranthene	4800	D	87	160	160
207-08-9	Benzo(k)fluoranthene	2400	D	53	160	160
50-32-8	Benzo(a)pyrene	4000	D	37	160	160
193-39-5	Indeno(1,2,3-cd)pyrene	2100	D	35	160	160
53-70-3	Dibenzo(a,h)anthracene	860	D	33	160	160
191-24-2	Benzo(g,h,i)perylene	2500	D	42	160	160

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-20-0508

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-17A

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S4E2472.D

Extraction: (Type) SONC

% Moisture: 11 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	4.2		0.78	3.7	3.7
91-57-6	2-Methylnaphthalene	3.7	U	0.28	3.7	3.7
208-96-8	Acenaphthylene	9.7		0.27	3.7	3.7
83-32-9	Acenaphthene	3.7	U	0.32	3.7	3.7
86-73-7	Fluorene	3.7	U	0.64	3.7	3.7
85-01-8	Phenanthrene	30		2.9	3.7	3.7
120-12-7	Anthracene	7.1		2.8	3.7	3.7
206-44-0	Fluoranthene	43		2.2	3.7	3.7
129-00-0	Pyrene	36		1.9	3.7	3.7
56-55-3	Benzo(a)anthracene	22		1.3	3.7	3.7
218-01-9	Chrysene	37		1.1	3.7	3.7
205-99-2	Benzo(b)fluoranthene	30		2.0	3.7	3.7
207-08-9	Benzo(k)fluoranthene	24		1.2	3.7	3.7
50-32-8	Benzo(a)pyrene	24		0.86	3.7	3.7
193-39-5	Indeno(1,2,3-cd)pyrene	15		0.81	3.7	3.7
53-70-3	Dibenzo(a,h)anthracene	7.4		0.77	3.7	3.7
191-24-2	Benzo(g,h,i)perylene	24		0.96	3.7	3.7

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-21-0205

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: J1792-19A

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: S4E2474.D

Extraction: (Type) SONC

% Moisture: 17 Decanted: (Y/N) N

Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00

Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH:

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	7.4		0.84	4.0	4.0
91-57-6	2-Methylnaphthalene	4.0	U	0.30	4.0	4.0
208-96-8	Acenaphthylene	27		0.29	4.0	4.0
83-32-9	Acenaphthene	4.0	U	0.35	4.0	4.0
86-73-7	Fluorene	4.3		0.69	4.0	4.0
85-01-8	Phenanthrene	54		3.1	4.0	4.0
120-12-7	Anthracene	15		3.0	4.0	4.0
206-44-0	Fluoranthene	110		2.4	4.0	4.0
129-00-0	Pyrene	100		2.0	4.0	4.0
56-55-3	Benzo(a)anthracene	55		1.4	4.0	4.0
218-01-9	Chrysene	75		1.1	4.0	4.0
205-99-2	Benzo(b)fluoranthene	72		2.2	4.0	4.0
207-08-9	Benzo(k)fluoranthene	56		1.3	4.0	4.0
50-32-8	Benzo(a)pyrene	68		0.93	4.0	4.0
193-39-5	Indeno(1,2,3-cd)pyrene	37		0.87	4.0	4.0
53-70-3	Dibenzo(a,h)anthracene	14		0.83	4.0	4.0
191-24-2	Benzo(g,h,i)perylene	50		1.0	4.0	4.0

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-21-0508

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-20A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S4E2475.D

Extraction: (Type) SONC

% Moisture: 6.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.5	U	0.73	3.5	3.5
91-57-6	2-Methylnaphthalene	3.5	U	0.26	3.5	3.5
208-96-8	Acenaphthylene	3.5	U	0.25	3.5	3.5
83-32-9	Acenaphthene	3.5	U	0.30	3.5	3.5
86-73-7	Fluorene	3.5	U	0.60	3.5	3.5
85-01-8	Phenanthrene	6.9		2.7	3.5	3.5
120-12-7	Anthracene	3.5	U	2.6	3.5	3.5
206-44-0	Fluoranthene	11		2.1	3.5	3.5
129-00-0	Pyrene	11		1.8	3.5	3.5
56-55-3	Benzo(a)anthracene	6.2		1.3	3.5	3.5
218-01-9	Chrysene	9.3		0.98	3.5	3.5
205-99-2	Benzo(b)fluoranthene	9.0		1.9	3.5	3.5
207-08-9	Benzo(k)fluoranthene	6.5		1.2	3.5	3.5
50-32-8	Benzo(a)pyrene	8.5		0.81	3.5	3.5
193-39-5	Indeno(1,2,3-cd)pyrene	4.9		0.75	3.5	3.5
53-70-3	Dibenzo(a,h)anthracene	3.5	U	0.72	3.5	3.5
191-24-2	Benzo(g,h,i)perylene	8.0		0.90	3.5	3.5

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-22-0205

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: J1792-23A

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: S4E2586.D

Extraction: (Type) SONC

% Moisture: 15 Decanted: (Y/N) N

Date Received: 09/16/2010

Concentrated Extract Volume: 10000 (uL)

Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00

Date Analyzed: 10/08/2010

GPC Cleanup: (Y/N) N pH:

Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	15000		41	190	190
91-57-6	2-Methylnaphthalene	14000		15	190	190
208-96-8	Acenaphthylene	7300		14	190	190
83-32-9	Acenaphthene	16000		17	190	190
86-73-7	Fluorene	18000		33	190	190
85-01-8	Phenanthrene	82000	E	150	190	190
120-12-7	Anthracene	28000	E	150	190	190
206-44-0	Fluoranthene	54000	E	120	190	190
129-00-0	Pyrene	55000	E	100	190	190
56-55-3	Benzo(a)anthracene	42000	E	70	190	190
218-01-9	Chrysene	47000	E	55	190	190
205-99-2	Benzo(b)fluoranthene	36000	E	110	190	190
207-08-9	Benzo(k)fluoranthene	35000	E	64	190	190
50-32-8	Benzo(a)pyrene	39000	E	45	190	190
193-39-5	Indeno(1,2,3-cd)pyrene	19000		42	190	190
53-70-3	Dibenzo(a,h)anthracene	13000		40	190	190
191-24-2	Benzo(g,h,i)perylene	24000	E	50	190	190

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-22-0205DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-23ADL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S4E2594.D

Extraction: (Type) SONC

% Moisture: 15 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 10000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/09/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 40.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	7100	D	330	1500	1500
91-57-6	2-Methylnaphthalene	8200	D	120	1500	1500
208-96-8	Acenaphthylene	11000	D	110	1500	1500
83-32-9	Acenaphthene	19000	D	140	1500	1500
86-73-7	Fluorene	21000	D	270	1500	1500
85-01-8	Phenanthrene	110000	D	1200	1500	1500
120-12-7	Anthracene	38000	D	1200	1500	1500
206-44-0	Fluoranthene	91000	D	940	1500	1500
129-00-0	Pyrene	85000	D	800	1500	1500
56-55-3	Benzo(a)anthracene	54000	D	560	1500	1500
218-01-9	Chrysene	54000	D	440	1500	1500
205-99-2	Benzo(b)fluoranthene	58000	D	840	1500	1500
207-08-9	Benzo(k)fluoranthene	25000	D	520	1500	1500
50-32-8	Benzo(a)pyrene	51000	D	360	1500	1500
193-39-5	Indeno(1,2,3-cd)pyrene	23000	D	340	1500	1500
53-70-3	Dibenzo(a,h)anthracene	10000	D	320	1500	1500
191-24-2	Benzo(g,h,i)perylene	29000	D	400	1500	1500

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-22-0508

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-24A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S4E2587.D

Extraction: (Type) SONC

% Moisture: 28 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 10000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 ~~Date Analyzed:~~ 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 10.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	560000	E	96	450	450
91-57-6	2-Methylnaphthalene	210000	E	34	450	450
208-96-8	Acenaphthylene	200000	E	33	450	450
83-32-9	Acenaphthene	76000	E	40	450	450
86-73-7	Fluorene	210000	E	78	450	450
85-01-8	Phenanthrene	810000	E	360	450	450
120-12-7	Anthracene	190000	E	340	450	450
206-44-0	Fluoranthene	270000	E	270	450	450
129-00-0	Pyrene	560000	E	230	450	450
56-55-3	Benzo(a)anthracene	260000	E	160	450	450
218-01-9	Chrysene	250000	E	130	450	450
205-99-2	Benzo(b)fluoranthene	170000	E	250	450	450
207-08-9	Benzo(k)fluoranthene	260000	E	150	450	450
50-32-8	Benzo(a)pyrene	390000	E	110	450	450
193-39-5	Indeno(1,2,3-cd)pyrene	130000	E	98	450	450
53-70-3	Dibenzo(a,h)anthracene	76000	E	94	450	450
191-24-2	Benzo(g,h,i)perylene	210000	E	120	450	450

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SB-22-0508DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-24ADL

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S4E2595.D

Extraction: (Type) SONC

% Moisture: 28 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 10000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/09/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 400.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	640000	D	3800	3000	3000
91-57-6	2-Methylnaphthalene	560000	D	1400	3000	3000
208-96-8	Acenaphthylene	370000	D	1300	3000	3000
83-32-9	Acenaphthene	100000	D	1600	3000	3000
86-73-7	Fluorene	320000	D	3100	3000	3000
85-01-8	Phenanthrene	1300000	D	4000	3000	3000
120-12-7	Anthracene	290000	D	4000	3000	3000
206-44-0	Fluoranthene	550000	D	1000	3000	3000
129-00-0	Pyrene	910000	D	9300	3000	3000
56-55-3	Benzo(a)anthracene	410000	D	6600	3000	3000
218-01-9	Chrysene	420000	D	5100	3000	3000
205-99-2	Benzo(b)fluoranthene	360000	D	9800	3000	3000
207-08-9	Benzo(k)fluoranthene	130000	D	6000	3000	3000
50-32-8	Benzo(a)pyrene	450000	D	4200	3000	3000
193-39-5	Indeno(1,2,3-cd)pyrene	160000	D	3900	3000	3000
53-70-3	Dibenzo(a,h)anthracene	66000	D	3800	3000	3000
191-24-2	Benzo(g,h,i)perylene	230000	D	4700	3000	3000

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-23-0204

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-26A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S4E2508A.D

Extraction: (Type) SONC

% Moisture: 9.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/06/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.6	U	0.76	3.6	3.6
91-57-6	2-Methylnaphthalene	3.6	U	0.27	3.6	3.6
208-96-8	Acenaphthylene	3.6	U	0.26	3.6	3.6
83-32-9	Acenaphthene	3.6	U	0.31	3.6	3.6
86-73-7	Fluorene	3.6	U	0.62	3.6	3.6
85-01-8	Phenanthrene	4.1		2.8	3.6	3.6
120-12-7	Anthracene	3.6	U	2.7	3.6	3.6
206-44-0	Fluoranthene	4.1		2.2	3.6	3.6
129-00-0	Pyrene	5.0		1.8	3.6	3.6
56-55-3	Benzo(a)anthracene	3.6	U	1.3	3.6	3.6
218-01-9	Chrysene	3.6	U	1.0	3.6	3.6
205-99-2	Benzo(b)fluoranthene	3.6	U	1.9	3.6	3.6
207-08-9	Benzo(k)fluoranthene	3.6	U	1.2	3.6	3.6
50-32-8	Benzo(a)pyrene	3.7		0.83	3.6	3.6
193-39-5	Indeno(1,2,3-cd)pyrene	3.6	U	0.78	3.6	3.6
53-70-3	Dibenzo(a,h)anthracene	3.6	U	0.75	3.6	3.6
191-24-2	Benzo(g,h,i)perylene	4.3		0.93	3.6	3.6

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-24-0204

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-28A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S4E2509.D

Extraction: (Type) SONC

% Moisture: 11 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/06/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.7	U	0.78	3.7	3.7
91-57-6	2-Methylnaphthalene	3.7	U	0.28	3.7	3.7
208-96-8	Acenaphthylene	3.7	U	0.27	3.7	3.7
83-32-9	Acenaphthene	3.7	U	0.32	3.7	3.7
86-73-7	Fluorene	3.7	U	0.63	3.7	3.7
85-01-8	Phenanthrene	5.0		2.9	3.7	3.7
120-12-7	Anthracene	3.7	U	2.8	3.7	3.7
206-44-0	Fluoranthene	6.5		2.2	3.7	3.7
129-00-0	Pyrene	6.5		1.9	3.7	3.7
56-55-3	Benzo(a)anthracene	3.7	U	1.3	3.7	3.7
218-01-9	Chrysene	3.7	U	1.0	3.7	3.7
205-99-2	Benzo(b)fluoranthene	4.0		2.0	3.7	3.7
207-08-9	Benzo(k)fluoranthene	3.7	U	1.2	3.7	3.7
50-32-8	Benzo(a)pyrene	3.7	U	0.86	3.7	3.7
193-39-5	Indeno(1,2,3-cd)pyrene	3.7	U	0.80	3.7	3.7
53-70-3	Dibenzo(a,h)anthracene	3.7	U	0.77	3.7	3.7
191-24-2	Benzo(g,h,i)perylene	3.7	U	0.96	3.7	3.7

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-25-0205

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-30A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S4E2511.D

Extraction: (Type) SONC

% Moisture: 10 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/06/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.6	U	0.77	3.6	3.6
91-57-6	2-Methylnaphthalene	3.6	U	0.28	3.6	3.6
208-96-8	Acenaphthylene	3.6	U	0.26	3.6	3.6
83-32-9	Acenaphthene	3.6	U	0.32	3.6	3.6
86-73-7	Fluorene	3.6	U	0.63	3.6	3.6
85-01-8	Phenanthrene	4.1		2.9	3.6	3.6
120-12-7	Anthracene	3.6	U	2.8	3.6	3.6
206-44-0	Fluoranthene	5.3		2.2	3.6	3.6
129-00-0	Pyrene	4.8		1.9	3.6	3.6
56-55-3	Benzo(a)anthracene	3.6	U	1.3	3.6	3.6
218-01-9	Chrysene	3.6	U	1.0	3.6	3.6
205-99-2	Benzo(b)fluoranthene	3.6	U	2.0	3.6	3.6
207-08-9	Benzo(k)fluoranthene	3.6	U	1.2	3.6	3.6
50-32-8	Benzo(a)pyrene	3.6	U	0.85	3.6	3.6
193-39-5	Indeno(1,2,3-cd)pyrene	3.6	U	0.79	3.6	3.6
53-70-3	Dibenzo(a,h)anthracene	3.6	U	0.76	3.6	3.6
191-24-2	Benzo(g,h,i)perylene	3.6	U	0.95	3.6	3.6

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SB-25-0508

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-31A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S4E2487.D

Extraction: (Type) SONC

% Moisture: 9.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/06/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.9		0.76	3.6	3.6
91-57-6	2-Methylnaphthalene	3.6	U	0.27	3.6	3.6
208-96-8	Acenaphthylene	3.6	U	0.26	3.6	3.6
83-32-9	Acenaphthene	3.6	U	0.31	3.6	3.6
86-73-7	Fluorene	3.6	U	0.62	3.6	3.6
85-01-8	Phenanthrene	8.7		2.8	3.6	3.6
120-12-7	Anthracene	3.6	U	2.7	3.6	3.6
206-44-0	Fluoranthene	9.9		2.2	3.6	3.6
129-00-0	Pyrene	9.9		1.8	3.6	3.6
56-55-3	Benzo(a)anthracene	4.2		1.3	3.6	3.6
218-01-9	Chrysene	7.8		1.0	3.6	3.6
205-99-2	Benzo(b)fluoranthene	4.2		1.9	3.6	3.6
207-08-9	Benzo(k)fluoranthene	3.6	U	1.2	3.6	3.6
50-32-8	Benzo(a)pyrene	4.3		0.83	3.6	3.6
193-39-5	Indeno(1,2,3-cd)pyrene	3.6	U	0.78	3.6	3.6
53-70-3	Dibenzo(a,h)anthracene	3.6	U	0.75	3.6	3.6
191-24-2	Benzo(g,h,i)perylene	3.6	U	0.93	3.6	3.6

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-16-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-01A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S4E2477.D

Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.5	U	0.75	3.5	3.5
91-57-6	2-Methylnaphthalene	3.5	U	0.27	3.5	3.5
208-96-8	Acenaphthylene	4.4		0.26	3.5	3.5
83-32-9	Acenaphthene	3.5	U	0.31	3.5	3.5
86-73-7	Fluorene	3.5	U	0.61	3.5	3.5
85-01-8	Phenanthrene	23		2.8	3.5	3.5
120-12-7	Anthracene	6.0		2.7	3.5	3.5
206-44-0	Fluoranthene	45		2.2	3.5	3.5
129-00-0	Pyrene	46		1.8	3.5	3.5
56-55-3	Benzo(a)anthracene	21		1.3	3.5	3.5
218-01-9	Chrysene	24		1.0	3.5	3.5
205-99-2	Benzo(b)fluoranthene	22		1.9	3.5	3.5
207-08-9	Benzo(k)fluoranthene	18		1.2	3.5	3.5
50-32-8	Benzo(a)pyrene	22		0.83	3.5	3.5
193-39-5	Indeno(1,2,3-cd)pyrene	11		0.77	3.5	3.5
53-70-3	Dibenzo(a,h)anthracene	4.3		0.74	3.5	3.5
191-24-2	Benzo(g,h,i)perylene	14		0.92	3.5	3.5

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-17-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-04A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S4E2463.D

Extraction: (Type) SONC

% Moisture: 11 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.7	U	0.78	3.7	3.7
91-57-6	2-Methylnaphthalene	3.7	U	0.28	3.7	3.7
208-96-8	Acenaphthylene	3.7	U	0.27	3.7	3.7
83-32-9	Acenaphthene	3.7	U	0.32	3.7	3.7
86-73-7	Fluorene	3.7	U	0.63	3.7	3.7
85-01-8	Phenanthrene	11		2.9	3.7	3.7
120-12-7	Anthracene	3.7	U	2.8	3.7	3.7
206-44-0	Fluoranthene	13		2.2	3.7	3.7
129-00-0	Pyrene	17		1.9	3.7	3.7
56-55-3	Benzo(a)anthracene	10		1.3	3.7	3.7
218-01-9	Chrysene	12		1.0	3.7	3.7
205-99-2	Benzo(b)fluoranthene	9.5		2.0	3.7	3.7
207-08-9	Benzo(k)fluoranthene	6.7		1.2	3.7	3.7
50-32-8	Benzo(a)pyrene	11		0.85	3.7	3.7
193-39-5	Indeno(1,2,3-cd)pyrene	7.1		0.80	3.7	3.7
53-70-3	Dibenzo(a,h)anthracene	3.7	U	0.77	3.7	3.7
191-24-2	Benzo(g,h,i)perylene	11		0.95	3.7	3.7

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-18-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-08A

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S4E2464.D

Extraction: (Type) SONC

% Moisture: 22 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	96		0.89	4.2	4.2
91-57-6	2-Methylnaphthalene	81		0.32	4.2	4.2
208-96-8	Acenaphthylene	390		0.31	4.2	4.2
83-32-9	Acenaphthene	470	E	0.37	4.2	4.2
86-73-7	Fluorene	560	E	0.73	4.2	4.2
85-01-8	Phenanthrene	2500	E	3.3	4.2	4.2
120-12-7	Anthracene	1100	E	3.2	4.2	4.2
206-44-0	Fluoranthene	2600	E	2.6	4.2	4.2
129-00-0	Pyrene	2200	E	2.2	4.2	4.2
56-55-3	Benzo(a)anthracene	1400	E	1.5	4.2	4.2
218-01-9	Chrysene	1400	E	1.2	4.2	4.2
205-99-2	Benzo(b)fluoranthene	1100	E	2.3	4.2	4.2
207-08-9	Benzo(k)fluoranthene	1200	E	1.4	4.2	4.2
50-32-8	Benzo(a)pyrene	1200	E	0.98	4.2	4.2
193-39-5	Indeno(1,2,3-cd)pyrene	590	E	0.92	4.2	4.2
53-70-3	Dibenzo(a,h)anthracene	290		0.88	4.2	4.2
191-24-2	Benzo(g,h,i)perylene	710	E	1.1	4.2	4.2

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-18-0002DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-08ADL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S4E2577.D

Extraction: (Type) SONC

% Moisture: 22 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	150	D	18	84	84
91-57-6	2-Methylnaphthalene	220	D	6.4	84	84
208-96-8	Acenaphthylene	320	D	6.1	84	84
83-32-9	Acenaphthene	530	D	7.4	84	84
86-73-7	Fluorene	690	D	15	84	84
85-01-8	Phenanthrene	5100	D	66	84	84
120-12-7	Anthracene	1500	D	64	84	84
206-44-0	Fluoranthene	4700	D	51	84	84
129-00-0	Pyrene	4000	D	43	84	84
56-55-3	Benzo(a)anthracene	2700	D	31	84	84
218-01-9	Chrysene	2900	D	24	84	84
205-99-2	Benzo(b)fluoranthene	2800	D	46	84	84
207-08-9	Benzo(k)fluoranthene	2000	D	28	84	84
50-32-8	Benzo(a)pyrene	2400	D	20	84	84
193-39-5	Indeno(1,2,3-cd)pyrene	1200	D	18	84	84
53-70-3	Dibenzo(a,h)anthracene	550	D	18	84	84
191-24-2	Benzo(g,h,i)perylene	1400	D	22	84	84

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-19-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-12A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S4E2466.D

Extraction: (Type) SONC

% Moisture: 8.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	240		0.75	3.5	3.5
91-57-6	2-Methylnaphthalene	140		0.27	3.5	3.5
208-96-8	Acenaphthylene	880	E	0.26	3.5	3.5
83-32-9	Acenaphthene	380	E	0.31	3.5	3.5
86-73-7	Fluorene	900	E	0.61	3.5	3.5
85-01-8	Phenanthrene	2700	E	2.8	3.5	3.5
120-12-7	Anthracene	1400	E	2.7	3.5	3.5
206-44-0	Fluoranthene	2800	E	2.1	3.5	3.5
129-00-0	Pyrene	2700	E	1.8	3.5	3.5
56-55-3	Benzo(a)anthracene	1700	E	1.3	3.5	3.5
218-01-9	Chrysene	1600	E	1.0	3.5	3.5
205-99-2	Benzo(b)fluoranthene	1100	E	1.9	3.5	3.5
207-08-9	Benzo(k)fluoranthene	750	E	1.2	3.5	3.5
50-32-8	Benzo(a)pyrene	1100	E	0.83	3.5	3.5
193-39-5	Indeno(1,2,3-cd)pyrene	450	E	0.77	3.5	3.5
53-70-3	Dibenzo(a,h)anthracene	260		0.74	3.5	3.5
191-24-2	Benzo(g,h,i)perylene	500	E	0.92	3.5	3.5

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-19-0002DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-12ADL

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S4E2578.D

Extraction: (Type) SONC

% Moisture: 8.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	360	D	15	71	71
91-57-6	2-Methylnaphthalene	300	D	5.4	71	71
208-96-8	Acenaphthylene	870	D	5.1	71	71
83-32-9	Acenaphthene	420	D	6.2	71	71
86-73-7	Fluorene	1100	D	12	71	71
85-01-8	Phenanthrene	5500	D	56	71	71
120-12-7	Anthracene	2400	D	54	71	71
206-44-0	Fluoranthene	5200	D	43	71	71
129-00-0	Pyrene	4100	D	36	71	71
56-55-3	Benzo(a)anthracene	3600	D	26	71	71
218-01-9	Chrysene	3900	D	20	71	71
205-99-2	Benzo(b)fluoranthene	3400	D	39	71	71
207-08-9	Benzo(k)fluoranthene	2600	D	24	71	71
50-32-8	Benzo(a)pyrene	3000	D	17	71	71
193-39-5	Indeno(1,2,3-cd)pyrene	1400	D	15	71	71
53-70-3	Dibenzo(a,h)anthracene	710	D	15	71	71
191-24-2	Benzo(g,h,i)perylene	1400	D	18	71	71

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-20-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-15A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S4E2470.D

Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	9.0		0.74	3.5	3.5
91-57-6	2-Methylnaphthalene	5.9		0.26	3.5	3.5
208-96-8	Acenaphthylene	33		0.25	3.5	3.5
83-32-9	Acenaphthene	32		0.31	3.5	3.5
86-73-7	Fluorene	43		0.60	3.5	3.5
85-01-8	Phenanthrene	330		2.7	3.5	3.5
120-12-7	Anthracene	120		2.6	3.5	3.5
206-44-0	Fluoranthene	420	E	2.1	3.5	3.5
129-00-0	Pyrene	370	E	1.8	3.5	3.5
56-55-3	Benzo(a)anthracene	230		1.3	3.5	3.5
218-01-9	Chrysene	210		0.99	3.5	3.5
205-99-2	Benzo(b)fluoranthene	170		1.9	3.5	3.5
207-08-9	Benzo(k)fluoranthene	140		1.2	3.5	3.5
50-32-8	Benzo(a)pyrene	180		0.81	3.5	3.5
193-39-5	Indeno(1,2,3-cd)pyrene	74		0.76	3.5	3.5
53-70-3	Dibenzo(a,h)anthracene	35		0.73	3.5	3.5
191-24-2	Benzo(g,h,i)perylene	78		0.91	3.5	3.5

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-20-0002DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-15ADL

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S4E2571.D

Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date ~~Analyzed:~~ 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	8.6	D	1.5	7.0	7.0
91-57-6	2-Methylnaphthalene	8.4	D	0.53	7.0	7.0
208-96-8	Acenaphthylene	24	D	0.51	7.0	7.0
83-32-9	Acenaphthene	32	D	0.61	7.0	7.0
86-73-7	Fluorene	43	D	1.2	7.0	7.0
85-01-8	Phenanthrene	360	D	5.5	7.0	7.0
120-12-7	Anthracene	120	D	5.3	7.0	7.0
206-44-0	Fluoranthene	430	D	4.2	7.0	7.0
129-00-0	Pyrene	350	D	3.6	7.0	7.0
56-55-3	Benzo(a)anthracene	250	D	2.5	7.0	7.0
218-01-9	Chrysene	260	D	2.0	7.0	7.0
205-99-2	Benzo(b)fluoranthene	250	D	3.8	7.0	7.0
207-08-9	Benzo(k)fluoranthene	180	D	2.3	7.0	7.0
50-32-8	Benzo(a)pyrene	210	D	1.6	7.0	7.0
193-39-5	Indeno(1,2,3-cd)pyrene	100	D	1.5	7.0	7.0
53-70-3	Dibenzo(a,h)anthracene	43	D	1.5	7.0	7.0
191-24-2	Benzo(g,h,i)perylene	110	D	1.8	7.0	7.0

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-21-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-18A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S4E2473.D

Extraction: (Type) SONC

% Moisture: 6.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	70		0.73	3.5	3.5
91-57-6	2-Methylnaphthalene	32		0.26	3.5	3.5
208-96-8	Acenaphthylene	47		0.25	3.5	3.5
83-32-9	Acenaphthene	91		0.30	3.5	3.5
86-73-7	Fluorene	110		0.60	3.5	3.5
85-01-8	Phenanthrene	550	E	2.7	3.5	3.5
120-12-7	Anthracene	170		2.6	3.5	3.5
206-44-0	Fluoranthene	440	E	2.1	3.5	3.5
129-00-0	Pyrene	420	E	1.8	3.5	3.5
56-55-3	Benzo(a)anthracene	280		1.3	3.5	3.5
218-01-9	Chrysene	300		0.98	3.5	3.5
205-99-2	Benzo(b)fluoranthene	230		1.9	3.5	3.5
207-08-9	Benzo(k)fluoranthene	220		1.2	3.5	3.5
50-32-8	Benzo(a)pyrene	250		0.81	3.5	3.5
193-39-5	Indeno(1,2,3-cd)pyrene	110		0.75	3.5	3.5
53-70-3	Dibenzo(a,h)anthracene	42		0.72	3.5	3.5
191-24-2	Benzo(g,h,i)perylene	120		0.90	3.5	3.5

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-21-0002DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-18ADL

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S4E2579.D

Extraction: (Type) SONC

% Moisture: 6.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	75	D	1.5	6.9	6.9
91-57-6	2-Methylnaphthalene	47	D	0.52	6.9	6.9
208-96-8	Acenaphthylene	42	D	0.50	6.9	6.9
83-32-9	Acenaphthene	89	D	0.61	6.9	6.9
86-73-7	Fluorene	100	D	1.2	6.9	6.9
85-01-8	Phenanthrene	600	D	5.4	6.9	6.9
120-12-7	Anthracene	170	D	5.2	6.9	6.9
206-44-0	Fluoranthene	450	D	4.2	6.9	6.9
129-00-0	Pyrene	420	D	3.6	6.9	6.9
56-55-3	Benzo(a)anthracene	320	D	2.5	6.9	6.9
218-01-9	Chrysene	360	D	2.0	6.9	6.9
205-99-2	Benzo(b)fluoranthene	320	D	3.8	6.9	6.9
207-08-9	Benzo(k)fluoranthene	250	D	2.3	6.9	6.9
50-32-8	Benzo(a)pyrene	300	D	1.6	6.9	6.9
193-39-5	Indeno(1,2,3-cd)pyrene	150	D	1.5	6.9	6.9
53-70-3	Dibenzo(a,h)anthracene	62	D	1.4	6.9	6.9
191-24-2	Benzo(g,h,i)perylene	180	D	1.8	6.9	6.9

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-22-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-21A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S4E2478.D

Extraction: (Type) SONC

% Moisture: 8.0 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	210		0.76	3.6	3.6
91-57-6	2-Methylnaphthalene	87		0.27	3.6	3.6
208-96-8	Acenaphthylene	1100	E	0.26	3.6	3.6
83-32-9	Acenaphthene	120		0.31	3.6	3.6
86-73-7	Fluorene	440	E	0.62	3.6	3.6
85-01-8	Phenanthrene	700	E	2.8	3.6	3.6
120-12-7	Anthracene	1300	E	2.7	3.6	3.6
206-44-0	Fluoranthene	4600	E	2.2	3.6	3.6
129-00-0	Pyrene	4600	E	1.8	3.6	3.6
56-55-3	Benzo(a)anthracene	2700	E	1.3	3.6	3.6
218-01-9	Chrysene	2500	E	1.0	3.6	3.6
205-99-2	Benzo(b)fluoranthene	2800	E	1.9	3.6	3.6
207-08-9	Benzo(k)fluoranthene	3200	E	1.2	3.6	3.6
50-32-8	Benzo(a)pyrene	3300	E	0.83	3.6	3.6
193-39-5	Indeno(1,2,3-cd)pyrene	1200	E	0.78	3.6	3.6
53-70-3	Dibenzo(a,h)anthracene	840	E	0.75	3.6	3.6
191-24-2	Benzo(g,h,i)perylene	1200	E	0.93	3.6	3.6

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

OU9-SS-22-0002DL

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: J1792-21ADL

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: S4E2593.D

Extraction: (Type) SONC

% Moisture: 8.0 Decanted: (Y/N) N

Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00

~~Date Analyzed:~~ 10/09/2010

GPC Cleanup: (Y/N) N pH:

Dilution Factor: 40.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	140	U	30	140	140
91-57-6	2-Methylnaphthalene	140	U	11	140	140
208-96-8	Acenaphthylene	2100	D	10	140	140
83-32-9	Acenaphthene	140	U	13	140	140
86-73-7	Fluorene	320	D	25	140	140
85-01-8	Phenanthrene	1100	D	110	140	140
120-12-7	Anthracene	1800	D	110	140	140
206-44-0	Fluoranthene	11000	D	86	140	140
129-00-0	Pyrene	9700	D	73	140	140
56-55-3	Benzo(a)anthracene	7500	D	52	140	140
218-01-9	Chrysene	8700	D	41	140	140
205-99-2	Benzo(b)fluoranthene	8500	D	78	140	140
207-08-9	Benzo(k)fluoranthene	4800	D	48	140	140
50-32-8	Benzo(a)pyrene	7400	D	33	140	140
193-39-5	Indeno(1,2,3-cd)pyrene	3500	D	31	140	140
53-70-3	Dibenzo(a,h)anthracene	1600	D	30	140	140
191-24-2	Benzo(g,h,i)perylene	3600	D	37	140	140

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-23-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-25A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S4E2482.D

Extraction: (Type) SONC

% Moisture: 11 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	48		0.78	3.7	3.7
91-57-6	2-Methylnaphthalene	23		0.28	3.7	3.7
208-96-8	Acenaphthylene	43		0.27	3.7	3.7
83-32-9	Acenaphthene	140		0.32	3.7	3.7
86-73-7	Fluorene	190		0.63	3.7	3.7
85-01-8	Phenanthrene	970	E	2.9	3.7	3.7
120-12-7	Anthracene	300		2.8	3.7	3.7
206-44-0	Fluoranthene	920	E	2.2	3.7	3.7
129-00-0	Pyrene	770	E	1.9	3.7	3.7
56-55-3	Benzo(a)anthracene	440	E	1.3	3.7	3.7
218-01-9	Chrysene	450	E	1.0	3.7	3.7
205-99-2	Benzo(b)fluoranthene	250		2.0	3.7	3.7
207-08-9	Benzo(k)fluoranthene	360		1.2	3.7	3.7
50-32-8	Benzo(a)pyrene	290		0.85	3.7	3.7
193-39-5	Indeno(1,2,3-cd)pyrene	130		0.80	3.7	3.7
53-70-3	Dibenzo(a,h)anthracene	77		0.77	3.7	3.7
191-24-2	Benzo(g,h,i)perylene	140		0.95	3.7	3.7

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-23-0002DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-25ADL

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S4E2584.D

Extraction: (Type) SONC

% Moisture: 11 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	37	D	3.9	18	18
91-57-6	2-Methylnaphthalene	29	D	1.4	18	18
208-96-8	Acenaphthylene	20	D	1.3	18	18
83-32-9	Acenaphthene	160	D	1.6	18	18
86-73-7	Fluorene	170	D	3.2	18	18
85-01-8	Phenanthrene	1200	D	14	18	18
120-12-7	Anthracene	320	D	14	18	18
206-44-0	Fluoranthene	1000	D	11	18	18
129-00-0	Pyrene	770	D	9.4	18	18
56-55-3	Benzo(a)anthracene	560	D	6.7	18	18
218-01-9	Chrysene	630	D	5.2	18	18
205-99-2	Benzo(b)fluoranthene	610	D	10	18	18
207-08-9	Benzo(k)fluoranthene	440	D	6.1	18	18
50-32-8	Benzo(a)pyrene	480	D	4.3	18	18
193-39-5	Indeno(1,2,3-cd)pyrene	250	D	4.0	18	18
53-70-3	Dibenzo(a,h)anthracene	110	D	3.8	18	18
191-24-2	Benzo(g,h,i)perylene	300	D	4.8	18	18

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-24-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-27A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S4E2484.D

Extraction: (Type) SONC

% Moisture: 13 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	60		0.80	3.8	3.8
91-57-6	2-Methylnaphthalene	39		0.29	3.8	3.8
208-96-8	Acenaphthylene	190		0.28	3.8	3.8
83-32-9	Acenaphthene	59		0.33	3.8	3.8
86-73-7	Fluorene	100		0.66	3.8	3.8
85-01-8	Phenanthrene	480	E	3.0	3.8	3.8
120-12-7	Anthracene	190		2.9	3.8	3.8
206-44-0	Fluoranthene	570	E	2.3	3.8	3.8
129-00-0	Pyrene	680	E	2.0	3.8	3.8
56-55-3	Benzo(a)anthracene	460	E	1.4	3.8	3.8
218-01-9	Chrysene	530	E	1.1	3.8	3.8
205-99-2	Benzo(b)fluoranthene	450	E	2.1	3.8	3.8
207-08-9	Benzo(k)fluoranthene	290		1.3	3.8	3.8
50-32-8	Benzo(a)pyrene	490	E	0.89	3.8	3.8
193-39-5	Indeno(1,2,3-cd)pyrene	240		0.83	3.8	3.8
53-70-3	Dibenzo(a,h)anthracene	170		0.79	3.8	3.8
191-24-2	Benzo(g,h,i)perylene	350		0.99	3.8	3.8

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-24-0002DL

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-27ADL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S4E2585.D

Extraction: (Type) SONC

% Moisture: 13 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	50	D	3.2	15	15
91-57-6	2-Methylnaphthalene	53	D	1.1	15	15
208-96-8	Acenaphthylene	150	D	1.1	15	15
83-32-9	Acenaphthene	66	D	1.3	15	15
86-73-7	Fluorene	82	D	2.6	15	15
85-01-8	Phenanthrene	590	D	12	15	15
120-12-7	Anthracene	190	D	11	15	15
206-44-0	Fluoranthene	690	D	9.2	15	15
129-00-0	Pyrene	680	D	7.8	15	15
56-55-3	Benzo(a)anthracene	670	D	5.5	15	15
218-01-9	Chrysene	660	D	4.3	15	15
205-99-2	Benzo(b)fluoranthene	810	D	8.3	15	15
207-08-9	Benzo(k)fluoranthene	330	D	5.1	15	15
50-32-8	Benzo(a)pyrene	680	D	3.5	15	15
193-39-5	Indeno(1,2,3-cd)pyrene	480	D	3.3	15	15
53-70-3	Dibenzo(a,h)anthracene	230	D	3.2	15	15
191-24-2	Benzo(g,h,i)perylene	710	D	4.0	15	15

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

OU9-SS-25-0002

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: J1792-29A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S4E2510.D

Extraction: (Type) SONC

% Moisture: 17 Decanted: (Y/N) N Date Received: 09/16/2010

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/06/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	4.0	U	0.84	4.0	4.0
91-57-6	2-Methylnaphthalene	4.0	U	0.30	4.0	4.0
208-96-8	Acenaphthylene	4.0	U	0.29	4.0	4.0
83-32-9	Acenaphthene	4.0	U	0.35	4.0	4.0
86-73-7	Fluorene	4.0	U	0.69	4.0	4.0
85-01-8	Phenanthrene	18		3.1	4.0	4.0
120-12-7	Anthracene	4.4		3.0	4.0	4.0
206-44-0	Fluoranthene	17		2.4	4.0	4.0
129-00-0	Pyrene	20		2.0	4.0	4.0
56-55-3	Benzo(a)anthracene	10		1.4	4.0	4.0
218-01-9	Chrysene	11		1.1	4.0	4.0
205-99-2	Benzo(b)fluoranthene	11		2.2	4.0	4.0
207-08-9	Benzo(k)fluoranthene	4.3		1.3	4.0	4.0
50-32-8	Benzo(a)pyrene	11		0.93	4.0	4.0
193-39-5	Indeno(1,2,3-cd)pyrene	5.2		0.87	4.0	4.0
53-70-3	Dibenzo(a,h)anthracene	4.0	U	0.83	4.0	4.0
191-24-2	Benzo(g,h,i)perylene	7.5		1.0	4.0	4.0

APPENDIX C

REGIONAL WORKSHEETS

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name _____
Reference No. _____

REGION I ORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name MitKem
Case/Project No. 01456
SDG No. J1792
No. of Samples/Matrix 31/Soil 1/Aq

SOW/Method No. _____
Sampling Date(s) _____
Shipping Date(s) _____
Date Rec'd by lab _____

Traffic Report Sample Nos. _____

Trip Blank No. _____
Equipment Blank No. _____
Bottle Blank No. _____
Field Duplicate Nos. _____

PES Nos. _____

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision _____ was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPjP or amendment to QAPjP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc. that received partial Tier III validation

_____

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation & Technical Holding Times
- GC/MS & GC/ECD Instrument Performance Check
- Initial & Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Field Duplicates
- Sensitivity Check
- PE Samples/Accuracy Check
- Target Compound Identification
- Compound Quantitation and Reported Quantitation Limits
- TICs
- Semivolatile and Pesticide/PCB Cleanup
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with compound is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Compound not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
TB, BB, EB - Compound detected in aqueous trip blank, aqueous bottle blank, or aqueous equipment blank associated with soil/sediment samples.

Validator's Name J. Kalinyak Company Name Tetratech Phone Number _____

Date Validation Started _____ Date Validation Completed _____

EPA-NE
Data Validation Worksheet Cover Page - Page 2

Check if all criteria are met and no hard copy worksheet provided. Indicate NA if worksheet is not applicable to analytical method. Note: there is no standard worksheet for System Performance, however, the validator must document all system performance issues in the Data Validation Memorandum.

VOA/SV worksheets:

See DV Report

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	
VOA/SV-II	GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)	
VOA/SV-III	INITIAL CALIBRATION	
VOA/SV-IV	CONTINUING CALIBRATION	
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	
VOA-VI	VOA SURROGATE SPIKE RECOVERIES	
SV-VI	SV SURROGATE SPIKE RECOVERIES	
VOA/SV-VII	INTERNAL STANDARD PERFORMANCE	
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	
VOA/SV-Pest/PCB-XI	ACCURACY CHECK	
VOA/SV-Pest/PCB-XII	TARGET COMPOUND IDENTIFICATION	
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	
VOA/SV-XIV	TENTATIVELY IDENTIFIED COMPOUNDS	
VOA/SV-XV	SEMIVOLATILE CLEANUP	
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	

Pest/PCB worksheets:

N/A

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	
Pest/PCB-IIA	GC/ECD INSTRUMENT PERFORMANCE CHECK-RESOLUTION	
Pest/PCB-IIB	GC/ECD INSTRUMENT PERFORMANCE CHECK-RETENTION TIMES	
Pest/PCB-IIC	GC/ECD INSTRUMENT PERFORMANCE CHECK-ACCURACY CHECK OF INITIAL CALIBRATION	
Pest/PCB-IID	GC/ECD INSTRUMENT PERFORMANCE CHECK-PESTICIDE DEGRADATION	
Pest/PCB-III	INITIAL CALIBRATION	
Pest/PCB-IV	CONTINUING CALIBRATION	
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	
Pest/PCB-VI	SURROGATE COMPOUNDS: SPIKE RECOVERIES AND RETENTION TIME SHIFT	
Pest/PCB-VII	PESTICIDE CLEANUP	
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	
VOA/SV-Pest/PCB-XI	ACCURACY CHECK	
Pest/PCB-XII	COMPOUND IDENTIFICATION	
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	

I certify that all criteria were met for the worksheets checked above.

Signature: [signature] Name: J. Kalinyak

Date: 11/2/05

EPA-NE - Data Validation Worksheet
Overall Evaluation of Data - Data Validation Memorandum - Table II

N/A

VOLATILE ORGANICS					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: _____

Date: 11/2/10

EPA-NE - Data Validation Worksheet
Overall Evaluation of Data - Data Validation Memorandum - Table II

See DV Report

SEMIVOLATILE ORGANICS					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: _____

Date: 11/2/18

COMPLETE SDG FILE (CSF) AUDIT

Organic Fractions: _____

Missing Information	Date Lab Contacted	Date Received
See DV Report		

Validator: _____ Date: 11/2/18

EPA-NE - Data Validation
VOA/SV - Pest/PCB-I

12/96

Sampler:_____ Company:_____ Contacted: Yes No Date:_____

I. PRESERVATION AND HOLDING TIMES - Circle sample numbers with exceeded technical holding times or omitted preservation.
List all required preservation codes and circle omitted preservation codes.
Circle all exceeded technical holding times.
Identify extraction technique after "# of Days"/(*Extraction Code).

See DV Report

Sample No. (TR No.)	Matrix	Pres. Code	Date Sampled	VOA			BNA					PEST/PCB				
				Date Analyzed	# of Days from Samp. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action

Preservation Code:
1. Cool @ 4°C (± 2°)
2. Preserve with HCl to at least pH 2
3. Protect from light
4. Freeze
5. Room Temperature (Avoid excessive heat)

(*Extraction Code:)
L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Validator: _____

Date: 11/2/10

II. GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)

List all Instrument Performance Checks that are outside method QC tuning acceptance criteria.

Volatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action

Comments: N/A

Semivolatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action

Comments: See DV Report

If tuning compounds and criteria are different from those specified in CLP SOW OLM03.1, then the validator should include a copy of the method-specific tuning criteria with this worksheet.

Validator: JK

Date: 11/2/10

EPA-NE - Data Validation Worksheet
VOA/SV-III

III. INITIAL CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Instrument	Parameter	Matrix	Compound	% RSD	$\overline{RRF}$	Samples Affected	Action

Comments: See DV Report

Validator: JK

Date: 11/2/10

12/96

EPA-NE - Data Validation Worksheet
VOA/SV-IV

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action

Comments: See DV Report

Validator: JK

Date: 11/2/10

12/96

EPA-NE - Data Validation Worksheet

VOA/SV - Pest/PCB-V-A

V. BLANK ANALYSIS

List the blank contamination below.

Concentration Level:_____

Sampler: _____ Company: _____

See DV Report

Contacted: Yes No Date:_____

1. Laboratory: Method, Storage and Instrument Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

Validator: JK

Date: 11/2/18

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-B

3. **Blank Actions** - List the maximum concentrations of blank compounds. See DV Report

Compound	Type of Blank	Date Blank Sampled/Originated	Max. Conc. (units)	Action Level (units)	Sample QL	Samples Affected	Action

Comments: _____

Validator: _____ Date: 11/2/10

12/96

VI. VOA SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Volatile Method QC Acceptance Criteria				
	Toluene-d_8	BFB	DCE-d_4	Other:	
OLM03.2	Water 88-110 Soil 84-138	Water 86-115 Soil 59-113	Water 76-114 Soil 70-121		
OLC02.1	NA	80-120	NA		
Other:					
Sample Number/Matrix	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**Action**

NA

Validator: MC

Date: 11/2/18

EPA-NE - Data Validation Worksheet
SV-VI

See DV Report

VI. SV SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Base/Neutral Method QC Acceptance Criteria					
	NBZ-d_5	2-FBP	TPH-d_{14}	1,2-DCB-d_4*	Other:	
OLM03.2	Water Soil 35-114 23-120	Water Soil 43-116 30-115	Water Soil 33-141 18-137	Water Soil 16-110 20-130		
OLC02.1	40-110	30-110	20-140	NA		
Other:						
Sample Number/Matrix	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**Action**

Method	Acid Method QC Acceptance Criteria					
	Phenol-d_5	2-FP	2,4,6-TBP	2-CP-d_4*	Other:	
OLM03.2	Water Soil 10-110 24-113	Water Soil 21-110 25-121	Water Soil 10-123 19-122	Water Soil 33-110 20-130		
OLC02.1	15-115	15-110	15-130	NA		
Other:						
Sample Number/Matrix	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**Action**

* Advisory Surrogates - OLM03.2

Validator: JK

Date: 11/2/18

EPA-NE - Data Validation Worksheet
VOA/SV-VII

See DV Report

VII. INTERNAL STANDARD PERFORMANCE

List the internal standards that are outside the area count and retention time method QC acceptance criteria.
IS Area Count method QC acceptance criteria:_____
IS Retention Time method QC acceptance criteria:_____

Sample Number (TR#)	Date and Time Analyzed	Instrument	Parameter	IS Outside Area Count and/or RT Criteria	__IS Area	RT Shift	Acceptable Range (IS area or RT shift)	Action

Validator: JK

Date: 11/2/18

See DV Report

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria. Use a separate worksheet for each MS/MSD pair.

Sample # _____ Matrix _____ Concentration Level _____

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits		Concentration			% RSD	Action
					% Rec	RPD	Unspiked Sample	MS	MSD		

Validator: _____ Date: 11/2/10

IX. FIELD DUPLICATE PRECISION - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

See DV Report

Sample Number _____ Duplicate Sample Number _____ Matrix _____

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments: _____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for Contact and resolution obtained: _____

Validator: _____ Date: 11/2/10

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-X

X. SENSITIVITY CHECK (Method Detection Limit Study)

See DV Report

List all compounds, surrogates, and internal standards that are outside the MDL criteria.

- Has an appropriate MDL study been submitted with seven replicates for each compound and matrix of interest? **Y N**
- Date of Preparation/Analysis: _____ Within 1 year? **Y N**
- Instrument I.D.: _____ Same as samples? **Y N**
- Column I.D.: _____ Same as samples? **Y N**

Matrix	Compound	MDL > QL	Method QC Limits < 80% or > 120%	IS Outside Area Count and/or RT Criteria	RSD > 20%	Samples Affected	Action

If an MDL study has not been submitted, use only the LFB results to evaluate data.

(Laboratory Fortified Blank) - List all LFB compounds, surrogates and internal standards that are outside criteria.

- Has an appropriate and complete LFB been submitted at the proper frequency? **Y N**
- Does it contain all target compounds at the method-required QLs? **Y N**
- Was the LFB spiked with a standard from a source (vendor) independent of the calibration standard? **Y N**

Matrix	Compound	Method QC Limits < 60% or > 140% Other:	IS Outside Area Count and/or RT Criteria	Samples Affected	Action

Validator: _____ Date: 11/2/10

XI. ACCURACY CHECK (Performance Evaluation Results) - List all analytes that are outside criteria.

See DV Report

SDG No: _____ CASE: _____

Are more than one-half of the PES analytes within criteria for each parameter. **Y N**

PE Sample Number	Ampule Number	Parameter	Type of PES	Matrix	Analyte	Conc.	Region I EPA PES Scores*	Non-EPA PES Scores**	Samples Affected	Action

* For Region I PESs indicate the Region I PES Score Report Result: Action High; Action Low; TCL MISS; TCL CONTAMINANT; TIC HIT; TIC MISS; TIC CONTAMINANT

** For Non-EPA PESs indicate the Non-EPA PES Score: PES COMPOUND MISS; PES COMPOUND CONTAMINANT; PES COMPOUND HIT (% Recovery Limits)

Validator: _____ Date: 11/2/10

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XII

See DV Report

XII. TARGET COMPOUND IDENTIFICATION - List the analytes that are outside the acceptance criteria.

Sample Number	Compound	___MS Ions	____RRT	Action

Validator: _____

Date: 11/2/18

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XIII

See DV Report

XIII. SAMPLE QUANTITATION

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per fraction. (Note: Although Section XIII, C.1.a, requires that one calculation for each fraction in each sample be performed, the validator is only required to reproduce an example, for each fraction, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? Y N
If no, list sample numbers_____

Fraction		Calculation
VOA		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		
BNA		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		
Pesticide/PCB		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		

Validator: JK

Date: 11/2/18

XIV. TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

See DV Report

List the 5 TICs having the highest concentration for each sample parameter.

Sample Number	Parameter	Compound	____RRT	__Est. Conc.	Action

Validator: _____

Date: 11/2/10

EPA-NE - Data Validation Worksheet
VOA/SV-XV

See DV Report

XV. SEMIVOLATILE CLEANUP - List all analytes that are outside method cleanup QC criteria.

Cleanup Procedure	Instrument # or Lot #	Date/Time GPC Calibrated or Check Solution Analyzed	Compound	% Rec	QC Limits	Samples Affected	Action

Did the GPC column meet; resolution requirements? Y or N
peak shape requirements? Y or N
retention time shift requirements? Y or N

Was the GPC calibration, Silica Gel cleanup checked at the method required frequency with correct compounds and concentrations? Y or N

Were all compounds less than QL for the GPC/Silica Gel/Acid-Partition blank? Y or N

Did the blank surrogate recoveries and IS area counts and RTs (if added) meet method QC acceptance criteria? Y or N

Comments:

Validator: Date: 11/2/10

APPENDIX D

SUPPORT DOCUMENTATION

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER № 028276

PROJECT NO: 112G01456	FACILITY: PNS	PROJECT MANAGER: DEBBIE COHEN	PHONE NUMBER: 412-921-7090
LABORATORY NAME AND CONTACT: MITKEM ED. LAWLER			
SAMPLERS (SIGNATURE): Fred W Ramser		FIELD OPERATIONS LEADER: FRED W. RAMSER	PHONE NUMBER: 412-921-8838
ADDRESS: 175 METRO CENTER BLVD			
CARRIER/WAYBILL NUMBER: PICK UP BY MITKEM			
CITY, STATE: WARWICK, RI 02886			

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G

PRESERVATIVE USED: — — —

TYPE OF ANALYSIS: PAH's | SIM | SELECTED METALS: SB, Pb, Hg

	DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PAH's	SIM	SB, Pb, Hg	COMMENTS
01	9/14	0915	OU9-SS-16-0002	OU9-16	0	2	SO	G	1	✓	✓	✓	
02		0945	OU9-SB-16-0205	OU9 16	2	5	SO	G	1	✓	✓	✓	
03		0955	OU9-SB-16-0508	"	5	8	SO	G	1	✓	✓	✓	
04		1005	OU9-SS-17-0002	OU9 17	0	2	SO	G	1	✓	✓	✓	
05		1020	OU9-SB-17-0205	"	2	5	SO	G	1	✓	✓	✓	
06		1025	FD09141001	—	2	5	SO	G	1	✓	✓	✓	
07		1030	OU9-SB-17-0508	OU9 17	5	8	SO	G	1	✓	✓	✓	
08		1105	OU9-SS-18-0002	OU9 18	0	2	SO	G	1	✓	✓	✓	
09		1115	OU9-SB-18-0205	OU9 18	2	5	SO	G	1	✓	✓	✓	
10		1125	OU9-SB-18-0508	"	5	8	SO	G	1	✓	✓	✓	
11		1130	FD09141002	—	5	8	SO	G	1	✓	✓	✓	
12		1155	OU9-SS-19-0002	OU9 19	0	2	SO	G	1	✓	✓	✓	RUN MS/MSD *
13	9/14	1200	OU9-SB-19-0205	OU9 19	2	5	SO	G	1	✓	✓	✓	

1. RELINQUISHED BY: Fred W Ramser	DATE 9/05/10	TIME 1500	1. RECEIVED BY: [signature]	DATE 9-15-10	TIME 1500
2. RELINQUISHED BY: [signature]	DATE	TIME	2. RECEIVED BY: [signature]	DATE 9/16/10	TIME 16:00
3. RELINQUISHED BY: [signature]	DATE 9/16/10	TIME 15:30	3. RECEIVED BY: [signature]	DATE 9/16/10	TIME 15:30

COMMENTS: *NO EXTRA VOL PROVIDED

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

2.3

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER № 028277

PROJECT NO: 112G01456	FACILITY: PNS OU9 S34	PROJECT MANAGER: DEBBIE COHEN	PHONE NUMBER: 412 ~~937~~ 921-7090
LABORATORY NAME AND CONTACT: MITKEM ED. HAULER	SAMPLERS (SIGNATURE): Fred W Ramser	FIELD OPERATIONS LEADER: FRED W. RAMSER	PHONE NUMBER: 412-921-8838
ADDRESS: 175 METRO CENTER BLVD	CARRIER/WAYBILL NUMBER: PICKED UP BY MITKEM	CITY, STATE: WARWICK, RI 02886	

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G

PRESERVATIVE USED: — — —

	DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: PAH'S	SIM	SELECTED METS. Sb, Pb + Hg						COMMENTS
14	9/14	1210	OU9-SB-19-0508	OU9 SB19	5	8	SO	G	1	✓	✓	✓						
15		1310	OU9-SS-20-0002	OU9 SB20	0	2	SO	G	1	✓	✓	✓						
16		1315	OU9-SB-20-0205	OU9 SB20	2	5	SO	G	1	✓	✓	✓						
17		1325	OU9-SB-20-0508	"	5	8	SO	G	1	✓	✓	✓						
18		1330	OU9-SS-21-0002	OU9 SB21	0	2	SO	G	1	✓	✓	✓						
19		1340	OU9-SB-21-0205	"	2	5	SO	G	1	✓	✓	✓						
20		1350	OU9-SB-21-0508	"	5	8	SO	G	1	✓	✓	✓						
21		1358	OU9-SS-22-0002	OU9 SB22	0	2	SO	G	1	✓	✓	✓						
22		1400	FD091410 03	—	0	2	SO	G	1	✓	✓	✓						
23		1405	OU9-SB-22-0205	OU9 SB22	2	5	SO	G	1	✓	✓	✓						HI CONC!!
24		1410	OU9-SB-22-0508	"	5	8	SO	G	1	✓	✓	✓						HI CONC!!
25		1450	OU9-SS-23-0002	OU9 SB23	0	2	SO	G	1	✓	✓	✓						
26	9/14	1455	OU9-SB-23-0204	"	02	4	SO	G	1	✓	✓	✓						

1. RELINQUISHED BY: Fred W Ramser	DATE 9/15/10	TIME 1500	1. RECEIVED BY: [signature]	DATE 9/15/10	TIME 1500
2. RELINQUISHED BY: [signature]	DATE	TIME	2. RECEIVED BY: [signature]	DATE 9/16/10	TIME 16:00
3. RELINQUISHED BY: [signature]	DATE 9/16/10	TIME 1630	3. RECEIVED BY: [signature]	DATE 9/16/10	TIME 1530

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER № 028278 | PAGE 3 OF 3

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G01456	PNS OU9 S34	DEBBIE COHEN	412 921 7090	MITKEM FED LAWLER
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Fred W Ramsey		FRED W. RAMSEY	412-921-8838	175 METRO CENTER BLVD
		CARRIER/WAYBILL NUMBER		CITY, STATE
		PICK UP BY MITKEM		WARWICK, RI 02886

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G
PRESERVATIVE USED: / / /

	DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: PAHs	SIM	SELECTED METS. Sb, Pb, Hg						COMMENTS
27	9/14	1500	OU9-SS-24-0002	OU9 SB24	0	2	SO	G	1	✓	✓	✓						
28		1510	OU9-SB-24-0204	"	2	4	SO	G	1	✓	✓	✓						
29		1525	OU9-SS-25-0002	OU9 SB25	0	2	SO	G	1	✓	✓	✓						
30		1530	OU9-SB-25-0205	"	2	5	SO	G	1	✓	✓	✓						
31		1535	OU9-SB-25-0508	"	5	8	SO	G	1	✓	✓	✓						RUN MS/MSD*
32	9/14	1600	RB09141001	—	—	—	QC	G	3	✓	✓	✓						

1. RELINQUISHED BY: Fred W Ramsey	DATE 9/15/10	TIME 1500	1. RECEIVED BY:	DATE 9-15-10	TIME 1500
2. RELINQUISHED BY:	DATE	TIME	2. RECEIVED BY:	DATE 9/16/10	TIME 16:00
3. RELINQUISHED BY:	DATE 9/16/10	TIME 15:30	3. RECEIVED BY:	DATE 9/16/10	TIME 15:30

COMMENTS * NO EXTRA VOL. PROVIDED

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PMOIS	PCT	OU9-SS-16-0002	J1792-01A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-23-0002	J1792-25A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-22-0002	J1792-21A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-21-0002	J1792-18A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-20-0002	J1792-15A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-19-0002	J1792-12A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SS-18-0002	J1792-08A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
PMOIS	PCT	OU9-SB-25-0508	J1792-31A	NM	09/14/2010	09/22/2010	09/22/2010	8	0	8
SIM	UG/KG	OU9-SS-18-0002DL	J1792-08ADL	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SB-25-0508	J1792-31A	SUR	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SS-18-0002	J1792-08A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-18-0002	J1792-08A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-17-0002	J1792-04A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-17-0002	J1792-04A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-16-0002	J1792-01A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-16-0002	J1792-01A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-25-0508	J1792-31A	NM	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SB-25-0205	J1792-30A	SUR	09/14/2010	09/24/2010	10/06/2010	10	12	22

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
SIM	UG/KG	OU9-SB-25-0205	J1792-30A	NM	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SS-19-0002	J1792-12A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-24-0204	J1792-28A	NM	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SS-21-0002	J1792-18A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-23-0204	J1792-26A	SUR	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SB-23-0204	J1792-26A	NM	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SB-24-0204	J1792-28A	SUR	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SS-22-0002	J1792-21A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-25-0002	J1792-29A	SUR	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SS-25-0002	J1792-29A	NM	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SS-24-0002DL	J1792-27ADL	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SS-24-0002	J1792-27A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-24-0002	J1792-27A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-23-0002DL	J1792-25ADL	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SS-23-0002	J1792-25A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-20-0002	J1792-15A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-22-0002DL	J1792-21ADL	NM	09/14/2010	09/24/2010	10/09/2010	10	15	25
SIM	UG/KG	OU9-SS-19-0002	J1792-12A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
SIM	UG/KG	OU9-SS-22-0002	J1792-21A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-21-0002DL	J1792-18ADL	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SS-21-0002	J1792-18A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-21-0508	J1792-20A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-20-0002DL	J1792-15ADL	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SB-22-0508DL	J1792-24ADL	NM	09/14/2010	09/24/2010	10/09/2010	10	15	25
SIM	UG/KG	OU9-SS-20-0002	J1792-15A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SS-19-0002DL	J1792-12ADL	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SS-23-0002	J1792-25A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-16-0205	J1792-02A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-22-0205	J1792-23A	SUR	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SB-17-0508	J1792-07A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-17-0508	J1792-07A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-17-0205	J1792-05A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-17-0205	J1792-05A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-16-0508	J1792-03A	SUR	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SB-18-0205	J1792-09A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-16-0205	J1792-02A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
SIM	UG/KG	OU9-SB-18-0508	J1792-10A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	FD09141003DL	J1792-22ADL	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	FD09141003	J1792-22A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	FD09141003	J1792-22A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	FD09141002	J1792-11A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	FD09141002	J1792-11A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	FD09141001	J1792-06A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	FD09141001	J1792-06A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-16-0508	J1792-03A	NM	09/14/2010	09/24/2010	10/06/2010	10	12	22
SIM	UG/KG	OU9-SB-20-0205DL	J1792-16ADL	NM	09/14/2010	09/24/2010	10/09/2010	10	15	25
SIM	UG/KG	OU9-SB-22-0508	J1792-24A	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SB-22-0205DL	J1792-23ADL	NM	09/14/2010	09/24/2010	10/09/2010	10	15	25
SIM	UG/KG	OU9-SB-22-0205	J1792-23A	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SB-21-0508	J1792-20A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-21-0205	J1792-19A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-21-0205	J1792-19A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-18-0205	J1792-09A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-20-0508	J1792-17A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
SIM	UG/KG	OU9-SB-22-0508	J1792-24A	SUR	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SB-20-0205DL	J1792-16ADL	NM	09/14/2010	09/24/2010	10/08/2010	10	14	24
SIM	UG/KG	OU9-SB-20-0205	J1792-16A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-20-0205	J1792-16A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-19-0508	J1792-14A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-19-0508	J1792-14A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-19-0205	J1792-13A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-19-0205	J1792-13A	NM	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-18-0508	J1792-10A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/KG	OU9-SB-20-0508	J1792-17A	SUR	09/14/2010	09/24/2010	10/05/2010	10	11	21
SIM	UG/L	RB09141001	J1792-32B	SUR	09/14/2010	09/21/2010	10/08/2010	7	17	24
SIM	UG/L	RB09141001	J1792-32B	NM	09/14/2010	09/21/2010	10/08/2010	7	17	24

Report Date:
14-Oct-10 15:20

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☐ Revised Report

MITKEM LABORATORIES

A DIVISION OF SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY

Laboratory Report

Tetra Tech NUS, Inc.
661 Andersen Drive, Foster Plaza #7
Pittsburgh, PA 15220

Attn: Tobrena Skeen

Work Order: J1792
Project : CTO-533, Site 34 Portsmouth
Project #:

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
J1792-01	OU9-SS-16-0002	Soil	14-Sep-10 09:15	16-Sep-10 15:30
J1792-02	OU9-SB-16-0205	Soil	14-Sep-10 09:45	16-Sep-10 15:30
J1792-03	OU9-SB-16-0508	Soil	14-Sep-10 09:55	16-Sep-10 15:30
J1792-04	OU9-SS-17-0002	Soil	14-Sep-10 10:05	16-Sep-10 15:30
J1792-05	OU9-SB-17-0205	Soil	14-Sep-10 10:20	16-Sep-10 15:30
J1792-06	FD09141001	Soil	14-Sep-10 10:25	16-Sep-10 15:30
J1792-07	OU9-SB-17-0508	Soil	14-Sep-10 10:30	16-Sep-10 15:30
J1792-08	OU9-SS-18-0002	Soil	14-Sep-10 11:05	16-Sep-10 15:30
J1792-09	OU9-SB-18-0205	Soil	14-Sep-10 11:15	16-Sep-10 15:30
J1792-10	OU9-SB-18-0508	Soil	14-Sep-10 11:25	16-Sep-10 15:30
J1792-11	FD09141002	Soil	14-Sep-10 11:30	16-Sep-10 15:30
J1792-12	OU9-SS-19-0002	Soil	14-Sep-10 11:55	16-Sep-10 15:30
J1792-13	OU9-SB-19-0205	Soil	14-Sep-10 12:00	16-Sep-10 15:30
J1792-14	OU9-SB-19-0508	Soil	14-Sep-10 12:10	16-Sep-10 15:30
J1792-15	OU9-SS-20-0002	Soil	14-Sep-10 13:10	16-Sep-10 15:30
J1792-16	OU9-SB-20-0205	Soil	14-Sep-10 13:15	16-Sep-10 15:30
J1792-17	OU9-SB-20-0508	Soil	14-Sep-10 13:25	16-Sep-10 15:30
J1792-18	OU9-SS-21-0002	Soil	14-Sep-10 13:30	16-Sep-10 15:30
J1792-19	OU9-SB-21-0205	Soil	14-Sep-10 13:40	16-Sep-10 15:30
J1792-20	OU9-SB-21-0508	Soil	14-Sep-10 13:50	16-Sep-10 15:30
J1792-21	OU9-SS-22-0002	Soil	14-Sep-10 13:58	16-Sep-10 15:30
J1792-22	FD09141003	Soil	14-Sep-10 14:00	16-Sep-10 15:30
J1792-23	OU9-SB-22-0205	Soil	14-Sep-10 14:05	16-Sep-10 15:30
J1792-24	OU9-SB-22-0508	Soil	14-Sep-10 14:10	16-Sep-10 15:30
J1792-25	OU9-SS-23-0002	Soil	14-Sep-10 14:50	16-Sep-10 15:30
J1792-26	OU9-SB-23-0204	Soil	14-Sep-10 14:55	16-Sep-10 15:30
J1792-27	OU9-SS-24-0002	Soil	14-Sep-10 15:00	16-Sep-10 15:30
J1792-28	OU9-SB-24-0204	Soil	14-Sep-10 15:10	16-Sep-10 15:30
J1792-29	OU9-SS-25-0002	Soil	14-Sep-10 15:25	16-Sep-10 15:30
J1792-30	OU9-SB-25-0205	Soil	14-Sep-10 15:30	16-Sep-10 15:30
J1792-31	OU9-SB-25-0508	Soil	14-Sep-10 15:35	16-Sep-10 15:30
J1792-32	RB09141001	Aqueous	14-Sep-10 16:00	16-Sep-10 15:30

Report Date:
14-Oct-10 15:20

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

MITKEM LABORATORIES

A DIVISION OF SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY

Laboratory Report

Tetra Tech NUS, Inc.
661 Andersen Drive, Foster Plaza #7
Pittsburgh, PA 15220

Attn: Tobrena Skeen

Work Order: J1792
Project : CTO-533, Site 34 Portsmouth
Project #:

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received

I attest that the information contained within the report has been reviewed for accuracy and checked against the quaility control requirements for each method. The results relate only to the samples(s) as recevied.

All applicable NELAC or USEPA CLP requirments have been meet.

Mitkem Laboratories is accredited under the National Environmental Laboratory Approval Program (NELAP) and is certified by several States, as well as USEPA and US Department of Defense. The current list of our laboratory approvals and certifications is available on the Certifications page our web site at www.mitkem.com.

Please contact the Laboratory or Technical Director at 401-732-3400 with any questions regarding the data contained in the laboratory report.

Department of Defense	N/A
Connecticut	PH-0153
Delaware	N/A
Maine	2007037
Massachusetts	M-RI907
New Hampshire	2631
New Jersey	RI001
New York	11522
North Carolina	581
Pennsylvania	68-00520
Rhode Island	LAI00301
Texas	T104704422-08-TX
USDA	P330-08-00023
USEPA - ISM	EP-W-09-039
USEPA - SOM	EP-W-05-030

Authorized by:

Yihai Ding
Laboratory Director

Technical Reviewer's Initials: YD

REPORT NARRATIVE

Mitkem Laboratories, a Division of Spectrum Analytical, Inc.

Client : Tetra Tech NUS, Inc.

Project: CTO-533, Site 34 Portsmouth

Laboratory Workorder / SDG #: J1792

SW846 8270D SIM

I. SAMPLE RECEIPT

No exceptions or unusual conditions were encountered unless a Sample Condition Notification Form, or other record of communication is included with the Sample Receipt Documentation.

II. HOLDING TIMES

A. Sample Preparation:

All samples were prepared within the method-specified holding times.

B. Sample Analysis:

All samples were analyzed within the method-specified holding times.

III. METHODS

Samples were analyzed following procedures in laboratory test code: SW846 8270D SIM

IV. PREPARATION

Soil Samples were prepared following procedures in laboratory test code: BNA_SIM_S_PR(SONC)

V. INSTRUMENTATION

The following instrumentation was used to perform
Instrument Code: S4
Instrument Type: GCMS-SEMI
Description: HP6890 / HP5973
Manufacturer: Hewlett-Packard
Model: 6890N / 5973N
GC Column used: 30 m X 0.25 mm ID [0.25 um thickness] Rxi-5sil MS capillary column.

VI. ANALYSIS

A. Calibration:

Calibrations met the method/SOP acceptance criteria with the following exceptions:

In ICV performed on 10/5/10: 2-Methylnaphthalene and Benzo(k)fluoranthene

In ICV performed on 10/6/10: Indeno(1,2,3-cd)pyrene and Benzo(k)fluoranthene
In ICV performed on 10/5/10: Indeno(1,2,3-cd)pyrene, Dibenzo(ah)anthracene and Benzo(k)fluoranthene

B. Blanks:

All method blanks were within the acceptance criteria.

C. Surrogates:

Surrogates were diluted out in the following samples:

OU9-SS-18-0002 (J1792-08ADL)
OU9-SS-19-0002 (J1792-12ADL)
OU9-SB-20-0205 (J1792-16ADL)
OU9-SS-22-0002 (J1792-21ADL)
OU9-SB-22-0205 (J1792-23A)
OU9-SB-22-0205 (J1792-23ADL)
OU9-SB-22-0508 (J1792-24A)
OU9-SB-22-0508 (J1792-24ADL)

D. Spikes:

1. Laboratory Control Spikes (LCS):

Percent recoveries for lab control samples were within the QC limits with the following exceptions. Please note that most test procedures allow for several compounds outside of the QC limits for the LCS, although this may indicate a bias for this specific compound.

LCS-54232 in batch 54232, Percent Recovery is outside QC Limits, recovery is above criteria for 2-Methylnaphthalene at 118% with criteria of (43-115)

LCSD-54232 in batch 54232, Percent Recovery is outside QC Limits, recovery is above criteria for 2-Methylnaphthalene at 124% with criteria of (43-115)

2. Matrix Spike / Matrix Spike Duplicate (MS/MSD):

Duplicate matrix spikes were performed on samples: OU9-SB-25-0508 (J1792-31AMS), OU9-SB-25-0508 (J1792-31AMSD), OU9-SS-19-0002 (J1792-12AMS), OU9-SS-19-0002 (J1792-12AMSD)
Percent recoveries were within the QC limits with the following exceptions:

OU9-SS-19-0002 (J1792-12AMS), Percent Recovery is outside QC Limits, recovery is below criteria for 2-Methylnaphthalene at 0% with criteria of (19-112), Acenaphthene at 0% with criteria of (33-113), Acenaphthylene at 0% with criteria of (23-134), Anthracene at 0% with criteria of (35-114), Benzo(a)anthracene at 0% with criteria of (39-111), Benzo(a)pyrene at 0% with criteria of (43-119), Benzo(b)fluoranthene at 0% with criteria of (39-128), Benzo(g,h,i)perylene at 0% with criteria of (45-116), Benzo(k)fluoranthene at 0% with criteria of (30-133), Chrysene at 0% with criteria of (36-112), Dibenzo(a,h)anthracene at 0% with criteria of (48-121), Fluoranthene at 0% with criteria of (41-117), Fluorene at 0% with criteria of (32-122), Indeno(1,2,3-cd)pyrene at 0% with criteria of (48-119), Naphthalene at 0% with criteria of (19-102), Phenanthrene at 0% with criteria of

(38-108), Pyrene at 0% with criteria of (39-119)

OU9-SS-19-0002 (J1792-12AMSD), Percent Recovery is outside QC Limits, recovery is below criteria for 2-Methylnaphthalene at 0% with criteria of (19-112), Acenaphthene at 0% with criteria of (33-113), Acenaphthylene at 0% with criteria of (23-134), Anthracene at 0% with criteria of (35-114), Benzo(a)anthracene at 0% with criteria of (39-111), Benzo(a)pyrene at 0% with criteria of (43-119), Benzo(b)fluoranthene at 0% with criteria of (39-128), Benzo(g,h,i)perylene at 0% with criteria of (45-116), Chrysene at 0% with criteria of (36-112), Dibenzo(a,h)anthracene at 38% with criteria of (48-121), Fluoranthene at 0% with criteria of (41-117), Fluorene at 0% with criteria of (32-122), Indeno(1,2,3-cd)pyrene at 14% with criteria of (48-119), Naphthalene at 0% with criteria of (19-102), Phenanthrene at 0% with criteria of (38-108), Pyrene at 0% with criteria of (39-119)

OU9-SB-25-0508 (J1792-31AMS), Percent Recovery is outside QC Limits, recovery is below criteria for Benzo(g,h,i)perylene at 42% with criteria of (45-116), Dibenzo(a,h)anthracene at 46% with criteria of (48-121), Indeno(1,2,3-cd)pyrene at 44% with criteria of (48-119)

OU9-SB-25-0508 (J1792-31AMSD), Percent Recovery is outside QC Limits, recovery is below criteria for Benzo(g,h,i)perylene at 39% with criteria of (45-116), Dibenzo(a,h)anthracene at 45% with criteria of (48-121), Indeno(1,2,3-cd)pyrene at 42% with criteria of (48-119)

For OU9-SS-19-0002 (J1792-12AMSand MSD), the recovery and RPD exceedences are most likely due to sample heterogeneity together with the much higher PAH concentration in the native sample relative to the spike level.

E. **Duplicate sample:**

No client-requested laboratory duplicate analyses were included in this SDG.

F. **Internal Standards:**

Internal standard peak areas were within the QC limits with the following exceptions:

OU9-SS-23-0002 (J1792-25A), Peak area is outside QC Limits for Acenaphthene-d10, Naphthalene-d8, Phenanthrene-d10

OU9-SS-24-0002 (J1792-27A), Peak area is outside QC Limits for Naphthalene-d8

OU9-SB-25-0508 (J1792-31A), Peak area is outside QC Limits for Naphthalene-d8

OU9-SB-25-0508 (J1792-31AMS), Peak area is outside QC Limits for Naphthalene-d8

OU9-SB-25-0508 (J1792-31AMSD), Peak area is outside QC Limits for Acenaphthene-d10, Naphthalene-d8

These are due to sample matrix as confirmed by their associated dilution analyses.

G. **Dilutions:**

These two samples were initially analyzed at dilution:

OU9-SB-22-0205 (J1792-23A): Dilution Factor: 5, in addition to 10 mL final extract volume
OU9-SB-22-0508 (J1792-24A): Dilution Factor: 10, in addition to 10 mL final extract volume

The following samples were re-analyzed at dilution:

OU9-SS-18-0002 (J1792-08ADL) : Dilution Factor: 20
OU9-SS-19-0002 (J1792-12ADL) : Dilution Factor: 20
OU9-SS-20-0002 (J1792-15ADL) : Dilution Factor: 2
OU9-SB-20-0205 (J1792-16ADL) : Dilution Factor: 2
OU9-SB-20-0205 (J1792-16ADL) : Dilution Factor: 40
OU9-SS-21-0002 (J1792-18ADL) : Dilution Factor: 2
OU9-SS-22-0002 (J1792-21ADL) : Dilution Factor: 40
FD09141003 (J1792-22ADL) : Dilution Factor: 5
OU9-SB-22-0205 (J1792-23ADL) : Dilution Factor: 40
OU9-SB-22-0508 (J1792-24ADL) : Dilution Factor: 40
OU9-SS-23-0002 (J1792-25ADL) : Dilution Factor: 5
OU9-SS-24-0002 (J1792-27ADL) : Dilution Factor: 4

H. Samples:

Due to the large number of samples in this project, the data package is arranged as 2 separate SDG (SJ1792 and SJ1792-A)

No sample in this SDG required reanalysis.

Manual integrations are performed to improve data quality where necessary. Copies of ion chromatograms are included for manual integrations performed on analytes in calibrating standards, laboratory control spikes and surrogate compounds as supporting data,.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Mitkem, both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Signed: K Chin

Date: 10/14/10

REPORT NARRATIVE

Mitkem Laboratories, a Division of Spectrum Analytical, Inc.

Client : Tetra Tech NUS, Inc.

Project: CTO-533, Site 34 Portsmouth

Laboratory Workorder / SDG #: J1792

SW846 6010C, SW846 7470A, SW846 7471B

I. SAMPLE RECEIPT

No exceptions or unusual conditions were encountered unless a Sample Condition Notification Form, or other record of communication is included with the Sample Receipt Documentation.

II. HOLDING TIMES

A. Sample Preparation:

All samples were prepared within the method-specified holding times.

B. Sample Analysis:

All samples were analyzed within the method-specified holding times.

III. METHODS

Samples were analyzed following procedures in laboratory test code: SW846 6010C, SW846 7470A, SW846 7471B

IV. PREPARATION

Aqueous Samples were prepared following procedures in laboratory test code: ICP_W_PR(3005A)
Soil Samples were prepared following procedures in laboratory test code: ICP_S_PR(3050B)
Soil Samples were prepared following procedures in laboratory test code: SW7471A_PR(7471B)

V. INSTRUMENTATION

The following instrumentation was used to perform
Instrument Code: FIMS1
Instrument Type: CVAA
Description: FIMS
Manufacturer: Perkin-Elmer
Model: FIMS

Instrument Code: OPTIMA2
Instrument Type: ICP
Description: Optima 3100 XL
Manufacturer: Perkin-Elmer
Model: 3100 XL

VI. ANALYSIS

A. Calibration:

Calibrations met the method/SOP acceptance criteria.

B. Blanks:

All method blanks were within the acceptance criteria.

C. Spikes:

1. Laboratory Control Spikes (LCS):

Percent recoveries for lab control samples were within the QC limits.

2. Matrix spike (MS):

Matrix spikes were performed on samples: OU9-SB-25-0508 (J1792-31AMS), OU9-SS-16-0002 (J1792-01AMS), OU9-SS-19-0002 (J1792-12AMS), OU9-SS-22-0002 (J1792-21AMS)
Percent recoveries were within the QC limits with the following exceptions:

OU9-SS-16-0002 (J1792-01AMS), Spike sample recovery is not within control limits, recovery is above criteria for Lead at 217% with criteria of (75-125) and recovery is below criteria for Antimony at 27% with criteria of (75-125).

OU9-SS-22-0002 (J1792-21AMS), Spike sample recovery is not within control limits, recovery is below criteria for Antimony at 31% with criteria of (75-125) and Lead at 49% with criteria of (75-125).

D. Post Digestion/Distillation Spike (PDS):

OU9-SS-16-0002 (J1792-01APDS), Post Digestion Spike was performed for Antimony and Lead due to failure in the matrix spike.

OU9-SS-22-0002 (J1792-21APDS), Post Digestion Spike was performed for Antimony and Lead due to failure in the matrix spike.

E. Duplicate sample:

Relative percent differences were within the QC limits with the following exceptions:

OU9-SS-16-0002 (J1792-01ADUP), Duplicate analysis not within control limit for Lead.

F. Serial Dilution (SD):

Percent differences were within the QC limits with the following exceptions:

OU9-SS-16-0002 (J1792-01ASD), Serial Dilution analysis not within control limit for Lead.

OU9-SS-22-0002 (J1792-21ASD), Serial Dilution analysis not within control limit for Lead.

G. Samples:

No other unusual occurrences were noted during sample analysis.

No sample in this SDG required reanalysis.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Mitkem, both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Signed: [signature]

Date: 10/8/10

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.

DFTPP4H

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab File ID: S4E2430B.D DFTPP Injection Date: 10/04/2010

Instrument ID: S4 DFTPP Injection Time: 14:19

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.2
68	Less than 2.0% of mass 69	0.4 (0.7)1
69	Mass 69 relative abundance	58.0
70	Less than 2.0% of mass 69	0.3 (0.4)1
127	40.0 - 60.0% of mass 198	56.0
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.8
275	10.0 - 30.0% of mass 198	22.0
365	Greater than 1.0% of mass 198	2.4
441	Present, but less than mass 443	10.3
442	40.0 - 99.9% of mass 198	69.4
443	17.0 - 23.0% of mass 442	13.8 (19.9)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD001H4	SSTD001H4	S4E2431D.D	10/04/2010	14:31
02	SSTD0.1H4	SSTD0.1H4	S4E2432.D	10/04/2010	15:02
03	SSTD010H4	SSTD010H4	S4E2433.D	10/04/2010	15:20
04	SSTD0.5H4	SSTD0.5H4	S4E2434.D	10/04/2010	15:55
05	SSTD005H4	SSTD005H4	S4E2435B.D	10/04/2010	16:52

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.

DFTPP4H

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Lab File ID: S4E2430B.D DFTPP Injection Date: 10/04/2010

Instrument ID: S4 DFTPP Injection Time: 14:19

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.2
68	Less than 2.0% of mass 69	0.4 (0.7)1
69	Mass 69 relative abundance	58.0
70	Less than 2.0% of mass 69	0.3 (0.4)1
127	40.0 - 60.0% of mass 198	56.0
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.8
275	10.0 - 30.0% of mass 198	22.0
365	Greater than 1.0% of mass 198	2.4
441	Present, but less than mass 443	10.3
442	40.0 - 99.9% of mass 198	69.4
443	17.0 - 23.0% of mass 442	13.8 (19.9)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD001H4	SSTD001H4	S4E2431D.D	10/04/2010	14:31
02	SSTD0.1H4	SSTD0.1H4	S4E2432.D	10/04/2010	15:02
03	SSTD010H4	SSTD010H4	S4E2433.D	10/04/2010	15:20
04	SSTD0.5H4	SSTD0.5H4	S4E2434.D	10/04/2010	15:55
05	SSTD005H4	SSTD005H4	S4E2435B.D	10/04/2010	16:52

6H - FORM VI SV-SIM

SEMIVOLATILE ORGANICS SIM INITIAL CALIBRATION DATA

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792 & -A

Instrument ID: S4 Calibration Date(s): 10/04/2010 10/04/2010

Calibration Time(s): 14:31 16:52

LAB FILE ID: RRF0.1 = S4E2432.D RRF0.5 = S4E2434.D

RRF001 = S4E2431D.D RRF005 = S4E2435B.D RRF010 = S4E2433.D

COMPOUND	RRF0.1	RRF0.5	RRF001	RRF005	RRF010	$\overline{RRF}$	%RSD
Naphthalene	1.359	1.402	1.218	0.953	0.757	1.138	24.2
2-Methylnaphthalene	1.185	1.037	1.370	0.994	0.830	1.083	18.8
Acenaphthylene	2.013	1.996	1.937	1.751	1.536	1.846	11.0
Acenaphthene	1.227	1.251	1.227	1.112	1.004	1.164	9.0
Fluorene	1.298	1.516	1.564	1.372	1.247	1.399	9.8
Phenanthrene	1.439	1.509	1.514	1.336	1.199	1.399	9.5
Anthracene	1.349	1.396	1.468	1.248	1.129	1.318	10.1
Fluoranthene	2.265	2.304	2.154	2.071	1.827	2.124	8.9
Pyrene	2.461	2.504	2.270	2.221	1.979	2.287	9.2
Benzo(a)anthracene	1.558	1.564	1.273	1.094	1.128	1.323	17.2
Chrysene	1.312	1.304	1.513	1.318	0.940	1.277	16.3
Benzo(b)fluoranthene	2.137	2.053	2.072	1.678	1.406	1.869	16.9
Benzo(k)fluoranthene	1.475	1.488	1.365	1.137	1.134	1.320	13.2
Benzo(a)pyrene	1.602	1.561	1.417	1.224	1.110	1.383	15.4
Indeno(1,2,3-cd)pyrene	2.013	2.086	2.104	1.498	1.367	1.814	19.5
Dibenzo(a,h)anthracene	1.606	1.615	1.751	1.211	1.103	1.457	19.4
Benzo(g,h,i)perylene	1.756	1.874	1.899	1.250	1.236	1.603	20.8
Benzo(e)pyrene-d12	1.173	1.284	1.209	1.038	0.955	1.132	11.8

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.

DFTPP4G

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Lab File ID: S4E2440A.D DFTPP Injection Date: 10/05/2010

Instrument ID: S4 DFTPP Injection Time: 8:53

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.6
68	Less than 2.0% of mass 69	0.7 (1.2)1
69	Mass 69 relative abundance	57.6
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	56.1
197	Less than 1.0% of mass 198	0.4
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	19.3
365	Greater than 1.0% of mass 198	2.0
441	Present, but less than mass 443	9.6
442	40.0 - 99.9% of mass 198	60.6
443	17.0 - 23.0% of mass 442	13.0 (21.5)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0014G	SSTD0014G	S4E2441B.D	10/05/2010	10:36
02	ICV	ICV	S4E2442.D	10/05/2010	10:56
03	MB-54307	MB-54307	S4E2449.D	10/05/2010	13:21
04	LCS-54307	LCS-54307	S4E2450.D	10/05/2010	13:39
05	OU9-SB-17-02 05	J1792-05A	S4E2452.D	10/05/2010	14:15
06	FD09141001	J1792-06A	S4E2453.D	10/05/2010	14:32
07	OU9-SB-17-05 08	J1792-07A	S4E2454.D	10/05/2010	14:51
08	OU9-SB-18-05 08	J1792-10A	S4E2455.D	10/05/2010	15:09
09	FD09141002	J1792-11A	S4E2456.D	10/05/2010	15:27
10	OU9-SB-19-05 08	J1792-14A	S4E2457.D	10/05/2010	15:45

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

EPA SAMPLE NO.

DFTPP4G

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab File ID: S4E2440A.D DFTPP Injection Date: 10/05/2010

Instrument ID: S4 DFTPP Injection Time: 8:53

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.6
68	Less than 2.0% of mass 69	0.7 (1.2)1
69	Mass 69 relative abundance	57.6
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	56.1
197	Less than 1.0% of mass 198	0.4
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	19.3
365	Greater than 1.0% of mass 198	2.0
441	Present, but less than mass 443	9.6
442	40.0 - 99.9% of mass 198	60.6
443	17.0 - 23.0% of mass 442	13.0 (21.5)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0014G	SSTD0014G	S4E2441B.D	10/05/2010	10:36
02	ICV	ICV	S4E2442.D	10/05/2010	10:56
03	LCS-54308	LCS-54308	S4E2451.D	10/05/2010	13:57

7H - FORM VII SV-SIM

SEMIVOLATILE SIM CONTINUING CALIBRATION DATA

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792 - A

Instrument ID: S4 Calibration Date: 10/05/2010 Time: 10:36

Lab File ID: S4E2441B.D Init. Calib. Date(s): 10/04/2010 10/04/2010

EPA Sample No.(SSTD0.4##): SSTD0014G Init. Calib. Time(s): 14:31 16:52

GC Column: Rxi-5sil MS ID: 0.25 (mm)

COMPOUND	RRF	RRF001	MIN RRF	%D	MAX %D
Naphthalene	1.138	0.873	0.010	-23.3	20.0
2-Methylnaphthalene	1.083	0.612	0.010	-43.5	20.0
Acenaphthylene	1.846	2.060	0.010	11.6	20.0
Acenaphthene	1.164	1.292	0.010	11.0	20.0
Fluorene	1.399	1.634	0.010	16.8	20.0
Phenanthrene	1.399	1.559	0.010	11.4	20.0
Anthracene	1.318	1.482	0.010	12.5	20.0
Fluoranthene	2.124	2.015	0.010	-5.1	20.0
Pyrene	2.287	2.300	0.010	0.6	20.0
Benzo(a)anthracene	1.323	1.322	0.010	-0.1	20.0
Chrysene	1.277	1.232	0.010	-3.5	20.0
Benzo(b)fluoranthene	1.869	1.477	0.010	-21.0	20.0
Benzo(k)fluoranthene	1.320	1.469	0.010	11.3	20.0
Benzo(a)pyrene	1.383	1.258	0.010	-9.0	20.0
Indeno(1,2,3-cd)pyrene	1.814	1.456	0.010	-19.7	20.0
Dibenzo(a,h)anthracene	1.457	1.172	0.010	-19.6	20.0
Benzo(g,h,i)perylene	1.603	1.295	0.010	-19.2	20.0
Benzo(e)pyrene-d12	1.132	1.116	0.010	-1.4	20.0

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.

DFTPP4H

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Lab File ID: S4E2460.D DFTPP Injection Date: 10/05/2010

Instrument ID: S4 DFTPP Injection Time: 16:04

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.8
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.1
70	Less than 2.0% of mass 69	0.4 (0.6)1
127	40.0 - 60.0% of mass 198	54.6
197	Less than 1.0% of mass 198	0.4
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	8.2
275	10.0 - 30.0% of mass 198	21.4
365	Greater than 1.0% of mass 198	2.3
441	Present, but less than mass 443	8.2
442	40.0 - 99.9% of mass 198	60.1
443	17.0 - 23.0% of mass 442	11.8 (19.7)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0014H	SSTD0014H	S4E2461.D	10/05/2010	16:18
02	OU9-SS-17-0002	J1792-04A	S4E2463.D	10/05/2010	16:54
03	OU9-SS-18-0002	J1792-08A	S4E2464.D	10/05/2010	17:12
04	OU9-SB-18-0205	J1792-09A	S4E2465.D	10/05/2010	17:30
05	OU9-SS-19-0002	J1792-12A	S4E2466.D	10/05/2010	17:48
06	OU9-SS-19-0002MS	J1792-12AMS	S4E2467.D	10/05/2010	18:06
07	OU9-SS-19-0002MSD	J1792-12AMSD	S4E2468.D	10/05/2010	18:24
08	OU9-SB-19-0205	J1792-13A	S4E2469.D	10/05/2010	18:42
09	OU9-SS-20-0002	J1792-15A	S4E2470.D	10/05/2010	19:00
10	OU9-SB-20-0205	J1792-16A	S4E2471.D	10/05/2010	19:18
11	OU9-SB-20-0508	J1792-17A	S4E2472.D	10/05/2010	19:36
12	OU9-SS-21-0002	J1792-18A	S4E2473.D	10/05/2010	19:54

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.
DFTPP4H

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Lab File ID: S4E2460.D DFTPP Injection Date: 10/05/2010

Instrument ID: S4 DFTPP Injection Time: 16:04

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.8
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.1
70	Less than 2.0% of mass 69	0.4 (0.6)1
127	40.0 - 60.0% of mass 198	54.6
197	Less than 1.0% of mass 198	0.4
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	8.2
275	10.0 - 30.0% of mass 198	21.4
365	Greater than 1.0% of mass 198	2.3
441	Present, but less than mass 443	8.2
442	40.0 - 99.9% of mass 198	60.1
443	17.0 - 23.0% of mass 442	11.8 (19.7)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
13	OU9-SB-21-02 05	J1792-19A	S4E2474.D	10/05/2010	20:12
14	OU9-SB-21-05 08	J1792-20A	S4E2475.D	10/05/2010	20:30
15	OU9-SB-16-02 05	J1792-02A	S4E2476.D	10/05/2010	20:48
16	OU9-SS-16-00 02	J1792-01A	S4E2477.D	10/05/2010	21:06

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.

DFTPP4H

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab File ID: S4E2460.D DFTPP Injection Date: 10/05/2010

Instrument ID: S4 DFTPP Injection Time: 16:04

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.8
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.1
70	Less than 2.0% of mass 69	0.4 (0.6)1
127	40.0 - 60.0% of mass 198	54.6
197	Less than 1.0% of mass 198	0.4
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	8.2
275	10.0 - 30.0% of mass 198	21.4
365	Greater than 1.0% of mass 198	2.3
441	Present, but less than mass 443	8.2
442	40.0 - 99.9% of mass 198	60.1
443	17.0 - 23.0% of mass 442	11.8 (19.7)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0014H	SSTD0014H	S4E2461.D	10/05/2010	16:18
02	MB-54308	MB-54308	S4E2462.D	10/05/2010	16:36
03	OU9-SS-22-0002	J1792-21A	S4E2478.D	10/05/2010	21:24
04	FD09141003	J1792-22A	S4E2479.D	10/05/2010	21:42
05	OU9-SS-23-0002	J1792-25A	S4E2482.D	10/05/2010	22:35
06	OU9-SS-24-0002	J1792-27A	S4E2484.D	10/05/2010	23:11
07	OU9-SB-25-0508	J1792-31A	S4E2487.D	10/06/2010	0:05
08	OU9-SB-25-0508MS	J1792-31AMS	S4E2488.D	10/06/2010	0:23
09	OU9-SB-25-0508MSD	J1792-31AMSD	S4E2489.D	10/06/2010	0:41

7H - FORM VII SV-SIM

SEMIVOLATILE SIM CONTINUING CALIBRATION DATA

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792 & -A

Instrument ID: S4 Calibration Date: 10/05/2010 Time: 16:18

Lab File ID: S4E2461.D Init. Calib. Date(s): 10/04/2010 10/04/2010

EPA Sample No.(SSTD0.4##): SSTD0014H Init. Calib. Time(s): 14:31 16:52

GC Column: Rxi-5sil MS ID: 0.25 (mm)

COMPOUND	RRF	RRF001	MIN RRF	%D	MAX %D
Naphthalene	1.138	0.885	0.010	-22.2	20.0
2-Methylnaphthalene	1.083	0.612	0.010	-43.5	20.0
Acenaphthylene	1.846	2.028	0.010	9.8	20.0
Acenaphthene	1.164	1.287	0.010	10.6	20.0
Fluorene	1.399	1.555	0.010	11.2	20.0
Phenanthrene	1.399	1.525	0.010	8.9	20.0
Anthracene	1.318	1.427	0.010	8.3	20.0
Fluoranthene	2.124	1.924	0.010	-9.4	20.0
Pyrene	2.287	2.100	0.010	-8.2	20.0
Benzo(a)anthracene	1.323	1.220	0.010	-7.8	20.0
Chrysene	1.277	1.328	0.010	4.0	20.0
Benzo(b)fluoranthene	1.869	1.457	0.010	-22.1	20.0
Benzo(k)fluoranthene	1.320	1.322	0.010	0.2	20.0
Benzo(a)pyrene	1.383	1.240	0.010	-10.4	20.0
Indeno(1,2,3-cd)pyrene	1.814	1.911	0.010	5.4	20.0
Dibenzo(a,h)anthracene	1.457	1.533	0.010	5.2	20.0
Benzo(g,h,i)perylene	1.603	1.742	0.010	8.7	20.0
Benzo(e)pyrene-d12	1.132	1.087	0.010	-3.9	20.0

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

CLIENT SAMPLE NO.

DFTPP4I

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Lab File ID: S4E2500.D DFTPP Injection Date: 10/06/2010

Instrument ID: S4 DFTPP Injection Time: 11:54

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	50.9
68	Less than 2.0% of mass 69	0.4 (0.5)1
69	Mass 69 relative abundance	66.5
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	59.5
197	Less than 1.0% of mass 198	0.3
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	19.2
365	Greater than 1.0% of mass 198	2.5
441	Present, but less than mass 443	8.3
442	40.0 - 99.9% of mass 198	51.5
443	17.0 - 23.0% of mass 442	10.0 (19.3)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0014I	SSTD0014I	S4E2501A.D	10/06/2010	13:03
02	SSTD0104I	SSTD0104I	S4E2502.D	10/06/2010	13:34
03	SSTD0.14I	SSTD0.14I	S4E2503.D	10/06/2010	13:52
04	SSTD0.54I	SSTD0.54I	S4E2504.D	10/06/2010	14:09
05	SSTD0054I	SSTD0054I	S4E2505.D	10/06/2010	14:27
06	ICV	ICV	S4E2506.D	10/06/2010	14:45
07	OU9-SB-16-05 08	J1792-03A	S4E2507A.D	10/06/2010	15:57

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.

DFTPP4I

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab File ID: S4E2500.D DFTPP Injection Date: 10/06/2010

Instrument ID: S4 DFTPP Injection Time: 11:54

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	50.9
68	Less than 2.0% of mass 69	0.4 (0.5)1
69	Mass 69 relative abundance	66.5
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	59.5
197	Less than 1.0% of mass 198	0.3
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	19.2
365	Greater than 1.0% of mass 198	2.5
441	Present, but less than mass 443	8.3
442	40.0 - 99.9% of mass 198	51.5
443	17.0 - 23.0% of mass 442	10.0 (19.3)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0014I	SSTD0014I	S4E2501A.D	10/06/2010	13:03
02	SSTD0104I	SSTD0104I	S4E2502.D	10/06/2010	13:34
03	SSTD0.14I	SSTD0.14I	S4E2503.D	10/06/2010	13:52
04	SSTD0.54I	SSTD0.54I	S4E2504.D	10/06/2010	14:09
05	SSTD0054I	SSTD0054I	S4E2505.D	10/06/2010	14:27
06	ICV	ICV	S4E2506.D	10/06/2010	14:45
07	OU9-SB-23-02 04	J1792-26A	S4E2508A.D	10/06/2010	16:15
08	OU9-SB-24-02 04	J1792-28A	S4E2509.D	10/06/2010	16:33
09	OU9-SS-25-00 02	J1792-29A	S4E2510.D	10/06/2010	16:51
10	OU9-SB-25-02 05	J1792-30A	S4E2511.D	10/06/2010	17:09

6H - FORM VI SV-SIM

SEMIVOLATILE ORGANICS SIM INITIAL CALIBRATION DATA

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792 d-A

Instrument ID: S4 Calibration Date(s): 10/06/2010 10/06/2010

Calibration Time(s): 13:03 14:27

LAB FILE ID: RRF0.1 = S4E2503.D RRF0.5 = S4E2504.D

RRF001 = S4E2501A.D RRF005 = S4E2505.D RRF010 = S4E2502.D

COMPOUND	RRF0.1	RRF0.5	RRF001	RRF005	RRF010	$\overline{RRF}$	%RSD
Naphthalene	1.020	0.900	0.875	0.716	0.652	0.833	17.8
2-Methylnaphthalene	0.571	0.557	0.583	0.469	0.475	0.531	10.3
Acenaphthylene	2.123	2.153	2.075	1.760	1.468	1.916	15.4
Acenaphthene	1.242	1.294	1.245	1.140	0.998	1.184	10.0
Fluorene	1.810	1.929	1.831	1.574	1.316	1.692	14.6
Phenanthrene	1.642	1.664	1.604	1.331	1.117	1.472	16.2
Anthracene	1.549	1.605	1.481	1.269	1.001	1.381	17.9
Fluoranthene	2.505	2.314	2.201	1.798	1.458	2.055	20.5
Pyrene	2.819	2.609	2.399	1.946	1.533	2.261	23.0
Benzo(a)anthracene	1.403	1.366	1.407	1.127	0.987	1.258	15.2
Chrysene	1.501	1.450	1.296	1.204	0.947	1.280	17.2
Benzo(b)fluoranthene	1.917	1.909	1.705	1.589	1.138	1.652	19.3
Benzo(k)fluoranthene	1.489	1.529	1.547	1.276	1.248	1.418	10.2
Benzo(a)pyrene	1.445	1.424	1.387	1.202	1.011	1.294	14.3
Indeno(1,2,3-cd)pyrene	1.363	1.436	1.378	1.211	1.056	1.289	12.0
Dibenzo(a,h)anthracene	1.392	1.180	1.158	1.007	0.832	1.114	18.8
Benzo(g,h,i)perylene	1.312	1.195	1.162	1.020	0.911	1.120	14.0
Benzo(e)pyrene-d12	1.178	1.251	1.190	1.079	0.956	1.131	10.2

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

EPA SAMPLE NO.

DFTPP4L

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Lab File ID: S4E2561A.D DFTPP Injection Date: 10/08/2010

Instrument ID: S4 DFTPP Injection Time: 11:06

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.1
68	Less than 2.0% of mass 69	0.5 (0.9)1
69	Mass 69 relative abundance	57.8
70	Less than 2.0% of mass 69	0.9 (1.5)1
127	40.0 - 60.0% of mass 198	56.5
197	Less than 1.0% of mass 198	0.2
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.8
275	10.0 - 30.0% of mass 198	21.8
365	Greater than 1.0% of mass 198	2.8
441	Present, but less than mass 443	10.4
442	40.0 - 99.9% of mass 198	64.9
443	17.0 - 23.0% of mass 442	11.3 (17.3)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD001LK	SSTD001LK	S4E2562.D	10/08/2010	11:18
02	SSTD0.14L	SSTD0.14L	S4E2563.D	10/08/2010	11:58
03	SSTD0104L	SSTD0104L	S4E2564.D	10/08/2010	12:16
04	SSTD0.54L	SSTD0.54L	S4E2565.D	10/08/2010	12:34
05	SSTD0054L	SSTD0054L	S4E2566.D	10/08/2010	12:52
06	ICV	ICV	S4E2567.D	10/08/2010	13:10
07	OU9-SS-20-0002DL	J1792-15ADL	S4E2571.D	10/08/2010	14:40
08	OU9-SS-18-0002DL	J1792-08ADL	S4E2577.D	10/08/2010	16:28
09	OU9-SS-19-0002DL	J1792-12ADL	S4E2578.D	10/08/2010	16:46
10	OU9-SS-21-0002DL	J1792-18ADL	S4E2579.D	10/08/2010	17:04

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.

DFTPP4L

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab File ID: S4E2561A.D DFTPP Injection Date: 10/08/2010

Instrument ID: S4 DFTPP Injection Time: 11:06

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.1
68	Less than 2.0% of mass 69	0.5 (0.9)1
69	Mass 69 relative abundance	57.8
70	Less than 2.0% of mass 69	0.9 (1.5)1
127	40.0 - 60.0% of mass 198	56.5
197	Less than 1.0% of mass 198	0.2
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.8
275	10.0 - 30.0% of mass 198	21.8
365	Greater than 1.0% of mass 198	2.8
441	Present, but less than mass 443	10.4
442	40.0 - 99.9% of mass 198	64.9
443	17.0 - 23.0% of mass 442	11.3 (17.3)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD001LK	SSTD001LK	S4E2562.D	10/08/2010	11:18
02	SSTD0.14L	SSTD0.14L	S4E2563.D	10/08/2010	11:58
03	SSTD0104L	SSTD0104L	S4E2564.D	10/08/2010	12:16
04	SSTD0.54L	SSTD0.54L	S4E2565.D	10/08/2010	12:34
05	SSTD0054L	SSTD0054L	S4E2566.D	10/08/2010	12:52
06	ICV	ICV	S4E2567.D	10/08/2010	13:10
07	MB-54232	MB-54232	S4E2573.D	10/08/2010	15:16
08	LCS-54232	LCS-54232	S4E2574.D	10/08/2010	15:34
09	LCSD-54232	LCSD-54232	S4E2575.D	10/08/2010	15:52
10	RB09141001	J1792-32B	S4E2576.D	10/08/2010	16:10
11	FD09141003DL	J1792-22ADL	S4E2581.D	10/08/2010	17:40
12	OU9-SS-23-0002DL	J1792-25ADL	S4E2584.D	10/08/2010	18:34
13	OU9-SS-24-0002DL	J1792-27ADL	S4E2585.D	10/08/2010	18:52
14	OU9-SB-22-0205	J1792-23A	S4E2586.D	10/08/2010	19:10
15	OU9-SB-22-0508	J1792-24A	S4E2587.D	10/08/2010	19:28

6H - FORM VI SV-SIM

SEMIVOLATILE ORGANICS SIM INITIAL CALIBRATION DATA

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792 & -A

Instrument ID: S4 Calibration Date(s): 10/08/2010 10/08/2010

Calibration Time(s): 11:18 12:52

LAB FILE ID: RRF0.1 = S4E2563.D RRF0.5 = S4E2565.D

RRF001 = S4E2562.D RRF005 = S4E2566.D RRF010 = S4E2564.D

COMPOUND	RRF0.1	RRF0.5	RRF001	RRF005	RRF010	$\overline{RRF}$	%RSD
Naphthalene	1.793	1.899	1.694	1.937	1.599	1.785	7.9
2-Methylnaphthalene	1.066	1.292	1.089	1.356	1.123	1.185	11.0
Acenaphthylene	2.362	2.028	2.097	1.922	1.710	2.024	11.8
Acenaphthene	1.262	1.147	1.100	1.062	0.978	1.110	9.5
Fluorene	1.902	1.717	1.734	1.631	1.483	1.694	9.0
Phenanthrene	1.525	1.350	1.374	1.215	1.078	1.308	12.9
Anthracene	1.541	1.362	1.418	1.217	1.094	1.326	13.1
Fluoranthene	2.357	2.063	2.057	1.847	1.509	1.966	15.9
Pyrene	3.089	2.388	2.495	1.969	1.742	2.337	22.3
Benzo(a)anthracene	1.727	1.198	1.252	1.125	1.020	1.264	21.6
Chrysene	1.301	1.166	1.231	1.102	1.051	1.170	8.5
Benzo(b)fluoranthene	1.583	1.485	1.511	1.391	1.148	1.424	11.9
Benzo(k)fluoranthene	1.729	1.384	1.509	1.283	1.178	1.416	15.0
Benzo(a)pyrene	1.518	1.285	1.346	1.194	1.026	1.274	14.3
Indeno(1,2,3-cd)pyrene	1.559	1.482	1.349	1.362	1.132	1.377	11.8
Dibenzo(a,h)anthracene	1.325	1.256	1.130	1.068	0.864	1.129	15.9
Benzo(g,h,i)perylene	1.413	1.239	1.153	1.139	0.915	1.172	15.4
Benzo(e)pyrene-d12	1.975	1.771	1.805	1.643	1.448	1.728	11.4

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.
DFTPP4M

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Lab File ID: S4E2590B.D DFTPP Injection Date: 10/09/2010

Instrument ID: S4 DFTPP Injection Time: 21:13

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	53.6
68	Less than 2.0% of mass 69	0.7 (1.0)1
69	Mass 69 relative abundance	64.2
70	Less than 2.0% of mass 69	0.2 (0.3)1
127	40.0 - 60.0% of mass 198	58.6
197	Less than 1.0% of mass 198	0.4
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.6
275	10.0 - 30.0% of mass 198	18.1
365	Greater than 1.0% of mass 198	1.7
441	Present, but less than mass 443	6.2
442	40.0 - 99.9% of mass 198	47.1
443	17.0 - 23.0% of mass 442	10.6 (22.5)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD001M	SSTD001M	S4E2591.D	~~10/09/2010~~	21:27
02	OU9-SB-20-02 05DL	J1792-16ADL	S4E2592.D	10/09/2010	21:56

5B - FORM V SV
SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPINE (DFTPP)

CLIENT SAMPLE NO.

DFTPP4M

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab File ID: S4E2590B.D DFTPP Injection Date: 10/09/2010

Instrument ID: S4 DFTPP Injection Time: 21:13

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	53.6
68	Less than 2.0% of mass 69	0.7 (1.0)1
69	Mass 69 relative abundance	64.2
70	Less than 2.0% of mass 69	0.2 (0.3)1
127	40.0 - 60.0% of mass 198	58.6
197	Less than 1.0% of mass 198	0.4
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.6
275	10.0 - 30.0% of mass 198	18.1
365	Greater than 1.0% of mass 198	1.7
441	Present, but less than mass 443	6.2
442	40.0 - 99.9% of mass 198	47.1
443	17.0 - 23.0% of mass 442	10.6 (22.5)2

1 - Value is % mass 69 2 - Value is % mass 442

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD001M	SSTD001M	S4E2591.D	10/09/2010	21:27
02	OU9-SS-22-0002DL	J1792-21ADL	S4E2593.D	10/09/2010	22:14
03	OU9-SB-22-0205DL	J1792-23ADL	S4E2594.D	10/09/2010	22:32
04	OU9-SB-22-0508DL	J1792-24ADL	S4E2595.D	10/09/2010	22:50

7H - FORM VII SV-SIM

SEMIVOLATILE SIM CONTINUING CALIBRATION DATA

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792 4-A

Instrument ID: S4 Calibration Date: 10/09/2010 Time: 21:27

Lab File ID: S4E2591.D Init. Calib. Date(s): 10/08/2010 10/08/2010

EPA Sample No.(SSTD0.4##): SSTD001M Init. Calib. Time(s): 11:18 12:52

GC Column: Rxi-5sil MS ID: 0.25 (mm)

COMPOUND	RRF	RRF001	MIN RRF	%D	MAX %D
Naphthalene	1.785	1.767	0.010	-1.0	20.0
2-Methylnaphthalene	1.185	1.520	0.010	28.2	20.0
Acenaphthylene	2.024	2.092	0.010	3.4	20.0
Acenaphthene	1.110	1.250	0.010	12.6	20.0
Fluorene	1.694	1.679	0.010	-0.9	20.0
Phenanthrene	1.308	1.371	0.010	4.8	20.0
Anthracene	1.326	1.425	0.010	7.4	20.0
Fluoranthene	1.966	2.327	0.010	18.3	20.0
Pyrene	2.337	2.831	0.010	21.2	20.0
Benzo(a)anthracene	1.264	1.293	0.010	2.2	20.0
Chrysene	1.170	1.255	0.010	7.2	20.0
Benzo(b)fluoranthene	1.424	1.435	0.010	0.8	20.0
Benzo(k)fluoranthene	1.416	1.821	0.010	28.6	20.0
Benzo(a)pyrene	1.274	1.361	0.010	6.8	20.0
Indeno(1,2,3-cd)pyrene	1.377	1.369	0.010	-0.6	20.0
Dibenzo(a,h)anthracene	1.129	1.064	0.010	-5.7	20.0
Benzo(g,h,i)perylene	1.172	1.142	0.010	-2.5	20.0
Benzo(e)pyrene-d12	1.728	1.874	0.010	8.4	20.0

4D - FORM IV SV-SIM

SEMIVOLATILE SIM METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

MB-54307

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792

Lab File ID: S4E2449.D

Lab Sample ID: MB-54307

Instrument ID: S4

Date Extracted: 09/24/2010

Matrix: (SOIL/SED/WATER) SOIL

Date Analyzed: 10/05/2010

Time Analyzed: 13:21

Extraction: (Type) SONC

GPC Cleanup: (Y/N) N

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS-54307	LCS-54307	S4E2450.D	10/05/2010
02	OU9-SB-17-0205	J1792-05A	S4E2452.D	10/05/2010
03	FD09141001	J1792-06A	S4E2453.D	10/05/2010
04	OU9-SB-17-0508	J1792-07A	S4E2454.D	10/05/2010
05	OU9-SB-18-0508	J1792-10A	S4E2455.D	10/05/2010
06	FD09141002	J1792-11A	S4E2456.D	10/05/2010
07	OU9-SB-19-0508	J1792-14A	S4E2457.D	10/05/2010
08	OU9-SS-17-0002	J1792-04A	S4E2463.D	10/05/2010
09	OU9-SS-18-0002	J1792-08A	S4E2464.D	10/05/2010
10	OU9-SB-18-0205	J1792-09A	S4E2465.D	10/05/2010
11	OU9-SS-19-0002	J1792-12A	S4E2466.D	10/05/2010
12	OU9-SS-19-0002MS	J1792-12AMS	S4E2467.D	10/05/2010
13	OU9-SS-19-0002MSD	J1792-12AMSD	S4E2468.D	10/05/2010
14	OU9-SB-19-0205	J1792-13A	S4E2469.D	10/05/2010
15	OU9-SS-20-0002	J1792-15A	S4E2470.D	10/05/2010
16	OU9-SB-20-0205	J1792-16A	S4E2471.D	10/05/2010
17	OU9-SB-20-0508	J1792-17A	S4E2472.D	10/05/2010

COMMENTS:

4D - FORM IV SV-SIM

SEMIVOLATILE SIM METHOD BLANK SUMMARY

EPA SAMPLE NO.

MB-54307

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792

Lab File ID: S4E2449.D

Lab Sample ID: MB-54307

Instrument ID: S4

Date Extracted: 09/24/2010

Matrix: (SOIL/SED/WATER) SOIL

Date Analyzed: 10/05/2010

Time Analyzed: 13:21

Extraction: (Type) SONC

GPC Cleanup: (Y/N) N

18	OU9-SS-21-0002	J1792-18A	S4E2473.D	10/05/2010
19	OU9-SB-21-0205	J1792-19A	S4E2474.D	10/05/2010
20	OU9-SB-21-0508	J1792-20A	S4E2475.D	10/05/2010
21	OU9-SB-16-0205	J1792-02A	S4E2476.D	10/05/2010
22	OU9-SS-16-0002	J1792-01A	S4E2477.D	10/05/2010
23	OU9-SB-16-0508	J1792-03A	S4E2507A.D	10/06/2010
24	OU9-SS-20-0002DL	J1792-15ADL	S4E2571.D	10/08/2010
25	OU9-SS-18-0002DL	J1792-08ADL	S4E2577.D	10/08/2010
26	OU9-SS-19-0002DL	J1792-12ADL	S4E2578.D	10/08/2010
27	OU9-SS-21-0002DL	J1792-18ADL	S4E2579.D	10/08/2010
28	OU9-SB-20-0205DL	J1792-16ADL	S4E2592.D	10/09/2010

COMMENTS:

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
MB-54307

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: MB-54307

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S4E2449.D

Extraction: (Type) SONC

% Moisture: Decanted: (Y/N) Date Received:

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.3	U	1.0	3.3	3.3
91-57-6	2-Methylnaphthalene	3.3	U	1.0	3.3	3.3
208-96-8	Acenaphthylene	3.3	U	0.88	3.3	3.3
83-32-9	Acenaphthene	3.3	U	0.90	3.3	3.3
86-73-7	Fluorene	3.3	U	0.87	3.3	3.3
85-01-8	Phenanthrene	3.3	U	0.98	3.3	3.3
120-12-7	Anthracene	3.3	U	0.95	3.3	3.3
206-44-0	Fluoranthene	3.3	U	1.5	3.3	3.3
129-00-0	Pyrene	3.3	U	1.1	3.3	3.3
56-55-3	Benzo(a)anthracene	3.3	U	1.3	3.3	3.3
218-01-9	Chrysene	3.3	U	2.2	3.3	3.3
205-99-2	Benzo(b)fluoranthene	3.3	U	1.6	3.3	3.3
207-08-9	Benzo(k)fluoranthene	3.3	U	1.3	3.3	3.3
50-32-8	Benzo(a)pyrene	3.3	U	0.95	3.3	3.3
193-39-5	Indeno(1,2,3-cd)pyrene	3.3	U	1.1	3.3	3.3
53-70-3	Dibenzo(a,h)anthracene	3.3	U	1.1	3.3	3.3
191-24-2	Benzo(g,h,i)perylene	3.3	U	1.1	3.3	3.3

3 - FORM III
SOIL LABORATORY CONTROL
SAMPLE RECOVERY

~~CLIENT~~ SAMPLE NO.
LCS-54307

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Lab Sample ID: LCS-54307 LCS Lot No.:

Date Extracted: 09/24/2010 Date Analyzed (1): 10/05/2010

COMPOUND	SPIKE ADDED	SAMPLE CONCENTRATION	LCS CONCENTRATION	LCS %REC	#	QC. LIMITS REC.
Naphthalene	83.3330	0.0000	53.5752	64		19 - 102
2-Methylnaphthalene	83.3330	0.0000	38.3665	46		19 - 112
Acenaphthylene	83.3330	0.0000	81.5775	98		23 - 134
Acenaphthene	83.3330	0.0000	78.2012	94		33 - 113
Fluorene	83.3330	0.0000	77.7750	93		32 - 122
Phenanthrene	83.3330	0.0000	73.9961	89		38 - 108
Anthracene	83.3330	0.0000	77.8100	93		35 - 114
Fluoranthene	83.3330	0.0000	56.3242	68		41 - 117
Pyrene	83.3330	0.0000	54.1440	65		39 - 119
Benzo(a)anthracene	83.3330	0.0000	67.9163	81		39 - 111
Chrysene	83.3330	0.0000	74.9101	90		36 - 112
Benzo(b)fluoranthene	83.3330	0.0000	56.7136	68		39 - 128
Benzo(k)fluoranthene	83.3330	0.0000	73.0848	88		30 - 133
Benzo(a)pyrene	83.3330	0.0000	65.9168	79		43 - 119
Indeno(1,2,3-cd)pyrene	83.3330	0.0000	72.2284	87		48 - 119
Dibenzo(a,h)anthracene	83.3330	0.0000	72.2114	87		48 - 121
Benzo(g,h,i)perylene	83.3330	0.0000	76.1191	91		45 - 116

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 17 outside limits

COMMENTS:

4D - FORM IV SV-SIM

SEMIVOLATILE SIM METHOD BLANK SUMMARY

EPA SAMPLE NO.

MB-54308

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792-A

Lab File ID: S4E2462.D

Lab Sample ID: MB-54308

Instrument ID: S4

Date Extracted: 09/24/2010

Matrix: (SOIL/SED/WATER) SOIL

Date Analyzed: 10/05/2010

Time Analyzed: 16:36

Extraction: (Type) SONC

GPC Cleanup: (Y/N) N

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS-54308	LCS-54308	S4E2451.D	10/05/2010
02	OU9-SS-22-0002	J1792-21A	S4E2478.D	10/05/2010
03	FD09141003	J1792-22A	S4E2479.D	10/05/2010
04	OU9-SS-23-0002	J1792-25A	S4E2482.D	10/05/2010
05	OU9-SS-24-0002	J1792-27A	S4E2484.D	10/05/2010
06	OU9-SB-25-0508	J1792-31A	S4E2487.D	10/06/2010
07	OU9-SB-25-0508MS	J1792-31AMS	S4E2488.D	10/06/2010
08	OU9-SB-25-0508MSD	J1792-31AMSD	S4E2489.D	10/06/2010
09	OU9-SB-23-0204	J1792-26A	S4E2508A.D	10/06/2010
10	OU9-SB-24-0204	J1792-28A	S4E2509.D	10/06/2010
11	OU9-SS-25-0002	J1792-29A	S4E2510.D	10/06/2010
12	OU9-SB-25-0205	J1792-30A	S4E2511.D	10/06/2010
13	FD09141003DL	J1792-22ADL	S4E2581.D	10/08/2010
14	OU9-SS-23-0002DL	J1792-25ADL	S4E2584.D	10/08/2010
15	OU9-SS-24-0002DL	J1792-27ADL	S4E2585.D	10/08/2010
16	OU9-SB-22-0205	J1792-23A	S4E2586.D	10/08/2010
17	OU9-SB-22-0508	J1792-24A	S4E2587.D	10/08/2010

COMMENTS:

4D - FORM IV SV-SIM

SEMIVOLATILE SIM METHOD BLANK SUMMARY

EPA SAMPLE NO.

MB-54308

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792-A

Lab File ID: S4E2462.D

Lab Sample ID: MB-54308

Instrument ID: S4

Date Extracted: 09/24/2010

Matrix: (SOIL/SED/WATER) SOIL

Date Analyzed: 10/05/2010

Time Analyzed: 16:36

Extraction: (Type) SONC

GPC Cleanup: (Y/N) N

18	OU9-SS-22-0002DL	J1792-21ADL	S4E2593.D	10/09/2010
19	OU9-SB-22-0205DL	J1792-23ADL	S4E2594.D	10/09/2010
20	OU9-SB-22-0508DL	J1792-24ADL	S4E2595.D	10/09/2010

COMMENTS:

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MB-54308

Lab Name: MITKEM LABORATORIES

Contract:

Lab Code: MITKEM Case No.: J1792

Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: MB-54308

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: S4E2462.D

Extraction: (Type) SONC

% Moisture: Decanted: (Y/N)

Date Received:

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 09/24/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00

Date Analyzed: 10/05/2010

GPC Cleanup: (Y/N) N pH:

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/KG	Q	DL	LOD	LOQ
91-20-3	Naphthalene	3.3	U	1.0	3.3	3.3
91-57-6	2-Methylnaphthalene	3.3	U	1.0	3.3	3.3
208-96-8	Acenaphthylene	3.3	U	0.88	3.3	3.3
83-32-9	Acenaphthene	3.3	U	0.90	3.3	3.3
86-73-7	Fluorene	3.3	U	0.87	3.3	3.3
85-01-8	Phenanthrene	3.3	U	0.98	3.3	3.3
120-12-7	Anthracene	3.3	U	0.95	3.3	3.3
206-44-0	Fluoranthene	3.3	U	1.5	3.3	3.3
129-00-0	Pyrene	3.3	U	1.1	3.3	3.3
56-55-3	Benzo(a)anthracene	3.3	U	1.3	3.3	3.3
218-01-9	Chrysene	3.3	U	2.2	3.3	3.3
205-99-2	Benzo(b)fluoranthene	3.3	U	1.6	3.3	3.3
207-08-9	Benzo(k)fluoranthene	3.3	U	1.3	3.3	3.3
50-32-8	Benzo(a)pyrene	3.3	U	0.95	3.3	3.3
193-39-5	Indeno(1,2,3-cd)pyrene	3.3	U	1.1	3.3	3.3
53-70-3	Dibenzo(a,h)anthracene	3.3	U	1.1	3.3	3.3
191-24-2	Benzo(g,h,i)perylene	3.3	U	1.1	3.3	3.3

3 - FORM III
SOIL LABORATORY CONTROL
SAMPLE RECOVERY

EPA SAMPLE NO.
LCS-54308

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab Sample ID: LCS-54308 LCS Lot No.:

Date Extracted: 09/24/2010 Date Analyzed (1): 10/05/2010

COMPOUND	SPIKE ADDED	SAMPLE CONCENTRATION	LCS CONCENTRATION	LCS %REC	#	QC. LIMITS REC.
Naphthalene	83.3330	0.0000	56.2225	67		19 - 102
2-Methylnaphthalene	83.3330	0.0000	40.2261	48		19 - 112
Acenaphthylene	83.3330	0.0000	79.2255	95		23 - 134
Acenaphthene	83.3330	0.0000	73.1193	88		33 - 113
Fluorene	83.3330	0.0000	73.5745	88		32 - 122
Phenanthrene	83.3330	0.0000	73.2883	88		38 - 108
Anthracene	83.3330	0.0000	79.7387	96		35 - 114
Fluoranthene	83.3330	0.0000	58.9476	71		41 - 117
Pyrene	83.3330	0.0000	59.8402	72		39 - 119
Benzo(a)anthracene	83.3330	0.0000	66.9393	80		39 - 111
Chrysene	83.3330	0.0000	76.6293	92		36 - 112
Benzo(b)fluoranthene	83.3330	0.0000	56.7033	68		39 - 128
Benzo(k)fluoranthene	83.3330	0.0000	73.0034	88		30 - 133
Benzo(a)pyrene	83.3330	0.0000	66.0906	79		43 - 119
Indeno(1,2,3-cd)pyrene	83.3330	0.0000	74.0835	89		48 - 119
Dibenzo(a,h)anthracene	83.3330	0.0000	74.5444	89		48 - 121
Benzo(g,h,i)perylene	83.3330	0.0000	77.5584	93		45 - 116

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 17 outside limits

COMMENTS:

4D - FORM IV SV-SIM

SEMIVOLATILE SIM METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

MB-54232

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab File ID: S4E2573.D Lab Sample ID: MB-54232

Instrument ID: S4 Date Extracted: 09/21/2010

Matrix: (SOIL/SED/WATER) WATER Date Analyzed: 10/08/2010

Time Analyzed: 15:16

Extraction: (Type) SEPF GPC Cleanup: (Y/N) N

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS-54232	LCS-54232	S4E2574.D	10/08/2010
02	LCSD-54232	LCSD-54232	S4E2575.D	10/08/2010
03	RB09141001	J1792-32B	S4E2576.D	10/08/2010

COMMENTS:

1F - FORM I SV-SIM

SEMIVOLATILE SIM ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MB-54232

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: MB-54232

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S4E2573.D

Extraction: (Type) SEPF

% Moisture: Decanted: (Y/N) Date Received:

Concentrated Extract Volume: 1000 (uL) Date Extracted: 09/21/2010

Injection Volume: 1.0 (uL) GPC Factor: 1.00 Date Analyzed: 10/08/2010

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION: µG/L	Q	DL	LOD	LOQ
91-20-3	Naphthalene	0.10	U	0.050	0.10	0.10
91-57-6	2-Methylnaphthalene	0.10	U	0.018	0.10	0.10
208-96-8	Acenaphthylene	0.10	U	0.017	0.10	0.10
83-32-9	Acenaphthene	0.10	U	0.019	0.10	0.10
86-73-7	Fluorene	0.10	U	0.017	0.10	0.10
85-01-8	Phenanthrene	0.10	U	0.019	0.10	0.10
120-12-7	Anthracene	0.10	U	0.017	0.10	0.10
206-44-0	Fluoranthene	0.10	U	0.019	0.10	0.10
129-00-0	Pyrene	0.10	U	0.016	0.10	0.10
56-55-3	Benzo(a)anthracene	0.10	U	0.042	0.10	0.10
218-01-9	Chrysene	0.10	U	0.073	0.10	0.10
205-99-2	Benzo(b)fluoranthene	0.10	U	0.056	0.10	0.10
207-08-9	Benzo(k)fluoranthene	0.10	U	0.020	0.10	0.10
50-32-8	Benzo(a)pyrene	0.10	U	0.017	0.10	0.10
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	U	0.019	0.10	0.10
53-70-3	Dibenzo(a,h)anthracene	0.10	U	0.018	0.10	0.10
191-24-2	Benzo(g,h,i)perylene	0.10	U	0.021	0.10	0.10

3 - FORM III
WATER LABORATORY CONTROL
SAMPLE RECOVERY

CLIENT SAMPLE NO.
LCS-54232

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab Sample ID: LCS-54232 LCS Lot No.:

Date Extracted: 09/21/2010 Date Analyzed (1): 10/08/2010

COMPOUND	SPIKE ADDED	SAMPLE CONCENTRATION	LCS CONCENTRATION	LCS %REC	#	QC. LIMITS REC.
Naphthalene	2.5000	0.0000	2.5058	100		47 - 105
2-Methylnaphthalene	2.5000	0.0000	2.9472	118	*	43 - 115
Acenaphthylene	2.5000	0.0000	2.2194	89		51 - 106
Acenaphthene	2.5000	0.0000	2.1700	87		53 - 108
Fluorene	2.5000	0.0000	2.2119	88		56 - 109
Phenanthrene	2.5000	0.0000	2.2117	88		56 - 108
Anthracene	2.5000	0.0000	2.2681	91		58 - 103
Fluoranthene	2.5000	0.0000	2.0143	81		60 - 117
Pyrene	2.5000	0.0000	1.9096	76		59 - 115
Benzo(a)anthracene	2.5000	0.0000	2.3755	95		58 - 112
Chrysene	2.5000	0.0000	2.2554	90		64 - 110
Benzo(b)fluoranthene	2.5000	0.0000	2.3430	94		61 - 130
Benzo(k)fluoranthene	2.5000	0.0000	2.4857	99		62 - 131
Benzo(a)pyrene	2.5000	0.0000	2.2852	91		66 - 114
Indeno(1,2,3-cd)pyrene	2.5000	0.0000	2.0668	83		52 - 142
Dibenzo(a,h)anthracene	2.5000	0.0000	2.0770	83		49 - 143
Benzo(g,h,i)perylene	2.5000	0.0000	2.0381	82		52 - 135

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 1 out of 17 outside limits

COMMENTS:

3 - FORM III
WATER LABORATORY CONTROL
SAMPLE DUPLICATE RECOVERY

EPA SAMPLE NO.

LCSD-54232

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Lab Sample ID: LCSD-54232 LCS Lot No.:

COMPOUND	SPIKE ADDED	LCSD CONCENTRATION	LCSD %REC	#	%RPD	#	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	2.5000	2.5653	103		3		40	47 - 105
2-Methylnaphthalene	2.5000	3.0923	124	*	5		40	43 - 115
Acenaphthylene	2.5000	2.2407	90		1		40	51 - 106
Acenaphthene	2.5000	2.1672	87		0		40	53 - 108
Fluorene	2.5000	2.2659	91		3		40	56 - 109
Phenanthrene	2.5000	2.2391	90		2		40	56 - 108
Anthracene	2.5000	2.3003	92		1		40	58 - 103
Fluoranthene	2.5000	2.0508	82		1		40	60 - 117
Pyrene	2.5000	2.0002	80		5		40	59 - 115
Benzo(a)anthracene	2.5000	2.3968	96		1		40	58 - 112
Chrysene	2.5000	2.2598	90		0		40	64 - 110
Benzo(b)fluoranthene	2.5000	2.3683	95		1		40	61 - 130
Benzo(k)fluoranthene	2.5000	2.5152	101		2		40	62 - 131
Benzo(a)pyrene	2.5000	2.2921	92		1		40	66 - 114
Indeno(1,2,3-cd)pyrene	2.5000	2.0338	81		2		40	52 - 142
Dibenzo(a,h)anthracene	2.5000	1.9973	80		4		40	49 - 143
Benzo(g,h,i)perylene	2.5000	1.9876	80		2		40	52 - 135

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 17 outside limits

Spike Recovery: 1 out of 17 outside limits

COMMENTS:

2M - FORM II SV-SIM2

SOIL SEMIVOLATILE SIM DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

	CLIENT SAMPLE NO.	SDMC17 (BEP) #		TOT OUT
01	MB-54307	102		0
02	LCS-54307	101		0
03	OU9-SB-17-0205	84		0
04	FD09141001	93		0
05	OU9-SB-17-0508	86		0
06	OU9-SB-18-0508	92		0
07	FD09141002	88		0
08	OU9-SB-19-0508	92		0
09	OU9-SS-17-0002	86		0
10	OU9-SS-18-0002	68		0
11	OU9-SB-18-0205	87		0
12	OU9-SS-19-0002	61		0
13	OU9-SS-19-0002 MS	82		0
14	OU9-SS-19-0002 MSD	75		0
15	OU9-SB-19-0205	76		0
16	OU9-SS-20-0002	82		0
17	OU9-SB-20-0205	74		0
18	OU9-SB-20-0508	92		0
19	OU9-SS-21-0002	88		0
20	OU9-SB-21-0205	82		0
21	OU9-SB-21-0508	76		0
22	OU9-SB-16-0205	84		0
23	OU9-SS-16-0002	85		0
24	OU9-SB-16-0508	95		0

QC LIMITS

SDMC17 (BEP) = Benzo(e)pyrene-d12 (32-153)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D DMC diluted out

s10.08.17.A

EPA

0100

2M - FORM II SV-SIM2

SOIL SEMIVOLATILE SIM DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

	EPA SAMPLE NO.	SDMC17 (BEP)	#		TOT OUT
25	OU9-SS-20-0002 DL	59			0
26	OU9-SS-18-0002 DL	0	D		1
27	OU9-SS-19-0002 DL	0	D		1
28	OU9-SS-21-0002 DL	61			0
29	OU9-SB-20-0205 DL	0	D		1

SDMC17 (BEP) = Benzo(e)pyrene-d12

QC LIMITS
(32-153)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D DMC diluted out

s10.08.17.A

EPA

0101

2L - FORM II SV-SIM1

WATER SEMIVOLATILE SIM DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

	CLIENT SAMPLE NO.	SDMC17 (BEP) #		TOT OUT
01	MB-54232	65		0
02	LCS-54232	76		0
03	LCSD-54232	71		0
04	RB09141001	72		0

	QC LIMITS
SDMC17 (BEP) = Benzo(e)pyrene-d12	(48-162)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D DMC diluted out

s10.08.17.A

2M - FORM II SV-SIM2

SOIL SEMIVOLATILE SIM DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

	EPA SAMPLE NO.	SDMC17 (BEP)	#		TOT OUT
01	LCS-54308	103			0
02	MB-54308	108			0
03	OU9-SS-22-0002	71			0
04	FD09141003	73			0
05	OU9-SS-23-0002	71			0
06	OU9-SS-24-0002	89			0
07	OU9-SB-25-0508	82			0
08	OU9-SB-25-0508 MS	75			0
09	OU9-SB-25-0508 MSD	72			0
10	OU9-SB-23-0204	107			0
11	OU9-SB-24-0204	94			0
12	OU9-SS-25-0002	88			0
13	OU9-SB-25-0205	96			0
14	FD09141003DL	58			0
15	OU9-SS-23-0002 DL	63			0
16	OU9-SS-24-0002 DL	63			0
17	OU9-SB-22-0205	0	D		1
18	OU9-SB-22-0508	0	D		1
19	OU9-SS-22-0002 DL	0	D		1
20	OU9-SB-22-0205 DL	0	D		1
21	OU9-SB-22-0508 DL	0	D		1

QC LIMITS

SDMC17 (BEP) = Benzo(e)pyrene-d12 (32-153)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D DMC diluted out

s10.08.17.A

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/04/2010 10/04/2010

EPA Sample No.(SSTD0.4##): SSTD0014G Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2441B.D Time Analyzed: 10:36

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	21669	2.49	81358	3.346	47463	4.715
	UPPER LIMIT	43338	2.99	162716	3.846	94926	5.215
	LOWER LIMIT	10835	1.99	40679	2.846	23732	4.215
	EPA SAMPLE NO.						
01	MB-54307			102896	3.346	44886	4.715
02	LCS-54307			116879	3.345	50462	4.715
03	OU9-SB-17-0205	28464	2.490	100426	3.345	42402	4.715
* 04	FD09141001	47744	2.490	157180	3.345	70233	4.715
05	OU9-SB-17-0508	33488	2.490	113699	3.346	50115	4.715
06	OU9-SB-18-0508	37736	2.490	126873	3.345	54772	4.715
07	FD09141002	43332	2.490	142524	3.345	62602	4.715
08	OU9-SB-19-0508	36652	2.490	123744	3.345	52198	4.715

* No sample analytes associated with IS1

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

EPA Sample No.(SSTD0.4##): SSTD0014G Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2441B.D Time Analyzed: 10:36

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	64459	5.921	90447	8.579	76714	10.726
	UPPER LIMIT	128918	6.421	180894	9.079	153428	11.226
	LOWER LIMIT	32230	5.421	45224	8.079	38357	10.226
	EPA SAMPLE NO.						
01	MB-54307	58622	5.911	79551	8.579	83947	10.726
02	LCS-54307	63547	5.910	67853	8.579	65607	10.726
03	OU9-SB-17-0205	52909	5.921	64480	8.579	69817	10.726
04	FD09141001	87983	5.910	108247	8.579	104567	10.726
05	OU9-SB-17-0508	62444	5.910	69478	8.579	75791	10.726
06	OU9-SB-18-0508	70244	5.921	92737	8.579	96206	10.726
07	FD09141002	78321	5.910	97156	8.579	97269	10.726
08	OU9-SB-19-0508	64899	5.910	85361	8.579	93096	10.726

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/04/2010 10/04/2010

EPA Sample No.(SSTD0.4##): SSTD0014H Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2461.D Time Analyzed: 16:18

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	28611	2.49	94521	3.345	43938	4.715
	UPPER LIMIT	57222	2.99	189042	3.845	87876	5.215
	LOWER LIMIT	14306	1.99	47261	2.845	21969	4.215
	EPA SAMPLE NO.						
01	OU9-SS-17-0002	36700	2.490	125257	3.345	52684	4.715
02	OU9-SS-18-0002	31357	2.490	97946	3.345	38479	4.715
03	OU9-SB-18-0205	32529	2.490	116171	3.346	48591	4.715
04	OU9-SS-19-0002	22496	2.490	85691	3.345	36491	4.715
05	OU9-SS-19-0002MS			93345	3.346	38590	4.715
06	OU9-SS-19-0002MSD			98370	3.346	42901	4.715
07	OU9-SB-19-0205	20258	2.490	76620	3.346	33766	4.716
08	OU9-SS-20-0002	19532	2.490	78702	3.345	35534	4.715
09	OU9-SB-20-0205	25324	2.490	95696	3.346	41185	4.715

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

EPA Sample No.(SSTD0.4##): SSTD0014H Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2461.D Time Analyzed: 16:18

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	59708	5.91	81909	8.579	85411	10.726
	UPPER LIMIT	119416	6.41	163818	9.079	170822	11.226
	LOWER LIMIT	29854	5.41	40955	8.079	42706	10.226
	EPA SAMPLE NO.						
01	OU9-SS-17-0002	66955	5.910	90499	8.579	102392	10.726
02	OU9-SS-18-0002	50156	5.921	116800	8.594	116582	10.743
03	OU9-SB-18-0205	58943	5.921	110937	8.579	126335	10.726
04	OU9-SS-19-0002	51468	5.921	136378	8.610	164552	10.760
05	OU9-SS-19-0002MS	49839	5.921	106060	8.595	99520	10.743
06	OU9-SS-19-0002MSD	53641	5.921	100290	8.594	93549	10.760
07	OU9-SB-19-0205	44303	5.921	92669	8.579	98954	10.743
08	OU9-SS-20-0002	48708	5.921	107680	8.579	112480	10.743
09	OU9-SB-20-0205	52874	5.921	119199	8.610	95190	10.778

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/04/2010 10/04/2010

EPA Sample No.(SSTD0.4##): SSTD0014H Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2461.D Time Analyzed: 16:18

Instrument ID: S4

		IS1 (DCB) AREA	#	RT	#	IS2 (NPT) AREA	#	RT	#	IS3 (ANT) AREA	#	RT	#
	12 HOUR STD	28611		2.49		94521		3.345		43938		4.715	
	UPPER LIMIT	57222		2.99		189042		3.845		87876		5.215	
	LOWER LIMIT	14306		1.99		47261		2.845		21969		4.215	
	EPA SAMPLE NO.												
10	OU9-SB-20-0508	18827		2.490		71086		3.346		33647		4.715	
11	OU9-SS-21-0002	24882		2.490		92584		3.346		42664		4.715	
12	OU9-SB-21-0205	14870		2.490		63599		3.345		37539		4.715	
13	OU9-SB-21-0508	20281		2.490		75303		3.345		35221		4.715	
14	OU9-SB-16-0205	22109		2.490		77089		3.346		35034		4.715	
15	OU9-SS-16-0002	21904		2.490		80421		3.346		37569		4.716	

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

EPA Sample No.(SSTD0.4##): SSTD0014H Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2461.D Time Analyzed: 16:18

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA	#	RT	#	IS5 (CRY) AREA	#	RT	#	IS6 (PRY) AREA	#	RT	#
	12 HOUR STD	59708		5.91		81909		8.579		85411		10.726	
	UPPER LIMIT	119416		6.41		163818		9.079		170822		11.226	
	LOWER LIMIT	29854		5.41		40955		8.079		42706		10.226	
	EPA SAMPLE NO.												
10	OU9-SB-20-0508	48333		5.921		99526		8.595		95999		10.743	
11	OU9-SS-21-0002	56494		5.921		100878		8.595		97153		10.743	
12	OU9-SB-21-0205	67142		5.921		129322		8.594		110826		10.743	
13	OU9-SB-21-0508	48492		5.921		94383		8.594		89735		10.743	
14	OU9-SB-16-0205	45622		5.921		91255		8.595		89544		10.743	
15	OU9-SS-16-0002	56029		5.922		118633		8.595		104406		10.743	

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/06/2010 10/06/2010

EPA Sample No.(SSTD0.4##): SSTD0014I Date Analyzed: 10/06/2010

Lab File ID (Standard): S4E2501A.D Time Analyzed: 13:03

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	24435	2.448	88552	3.309	60612	4.68
	UPPER LIMIT	48870	2.948	177104	3.809	121224	5.18
	LOWER LIMIT	12218	1.948	44276	2.809	30306	4.18
	EPA SAMPLE NO.						
01	OU9-SB-16-0508	29966	2.448	108152	3.309	79169	4.668

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

EPA Sample No.(SSTD0.4##): SSTD0014I Date Analyzed: 10/06/2010

Lab File ID (Standard): S4E2501A.D Time Analyzed: 13:03

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	94715	5.878	150354	8.518	129761	10.657
	UPPER LIMIT	189430	6.378	300708	9.018	259522	11.157
	LOWER LIMIT	47358	5.378	75177	8.018	64881	10.157
	EPA SAMPLE NO.						
01	OU9-SB-16-0508	127529	5.878	199125	8.518	178575	10.657

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/08/2010 10/08/2010

EPA Sample No.(SSTD0.4##): SSTD001LK Date Analyzed: 10/08/2010

Lab File ID (Standard): S4E2562.D Time Analyzed: 11:18

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	9838	2.365	36255	3.2	23373	4.561
	UPPER LIMIT	19676	2.865	72510	3.7	46746	5.061
	LOWER LIMIT	4919	1.865	18128	2.7	11687	4.061
	EPA SAMPLE NO.						
01	OU9-SS-20-000 2DL	10159	2.364	40519	3.200	29089	4.573
02	OU9-SS-18-000 2DL	13090	2.364	41527	3.200	36070	4.574
03	OU9-SS-19-000 2DL	13431	2.364	43874	3.200	36696	4.573
04	OU9-SS-21-000 2DL	13253	2.364	46131	3.199	36598	4.573

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

EPA Sample No.(SSTD0.4##): SSTD001LK Date Analyzed: 10/08/2010

Lab File ID (Standard): S4E2562.D Time Analyzed: 11:18

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	40895	5.76	70901	8.35	65983	10.451
	UPPER LIMIT	81790	6.26	141802	8.85	131966	10.951
	LOWER LIMIT	20448	5.26	35451	7.85	32992	9.951
	EPA SAMPLE NO.						
01	OU9-SS-20-0002DL	52689	5.760	74796	8.350	62561	10.468
02	OU9-SS-18-0002DL	61959	5.771	78252	8.350	61005	10.468
03	OU9-SS-19-0002DL	62995	5.770	75379	8.350	59361	10.468
04	OU9-SS-21-0002DL	63068	5.770	73194	8.350	58550	10.468

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/08/2010 10/08/2010

EPA Sample No.(SSTD0.4##): SSTD001M Date Analyzed: 10/09/2010

Lab File ID (Standard): S4E2591.D Time Analyzed: 21:27

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	7768	2.309	22177	3.163	22879	4.514
	UPPER LIMIT	15536	2.809	44354	3.663	45758	5.014
	LOWER LIMIT	3884	1.809	11089	2.663	11440	4.014
	EPA SAMPLE NO.						
01	OU9-SB-20-020 5DL	8231	2.308	24608	3.163	28775	4.514

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

EPA Sample No.(SSTD0.4##): SSTD001M Date Analyzed: 10/09/2010

Lab File ID (Standard): S4E2591.D Time Analyzed: 21:27

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA	#	RT	#	IS5 (CRY) AREA	#	RT	#	IS6 (PRY) AREA	#	RT	#
	12 HOUR STD	46913		5.716		91214		8.273		84948		10.365	
	UPPER LIMIT	93826		6.216		182428		8.773		169896		10.865	
	LOWER LIMIT	23457		5.216		45607		7.773		42474		9.865	
	EPA SAMPLE NO.												
01	OU9-SB-20-020 5DL	57075		5.716		88495		8.273		81756		10.365	

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/04/2010 10/04/2010

EPA Sample No.(SSTD0.4##): SSTD0014G Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2441B.D Time Analyzed: 10:36

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	21669	2.49	81358	3.346	47463	4.715
	UPPER LIMIT	43338	2.99	162716	3.846	94926	5.215
	LOWER LIMIT	10835	1.99	40679	2.846	23732	4.215
	EPA SAMPLE NO.						
01	LCS-54308			109101	3.345	47094	4.715

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

EPA Sample No.(SSTD0.4##): SSTD0014G Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2441B.D Time Analyzed: 10:36

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA	#	RT	#	IS5 (CRY) AREA	#	RT	#	IS6 (PRY) AREA	#	RT	#
	12 HOUR STD	64459		5.921		90447		8.579		76714		10.726	
	UPPER LIMIT	128918		6.421		180894		9.079		153428		11.226	
	LOWER LIMIT	32230		5.421		45224		8.079		38357		10.226	
	EPA SAMPLE NO.												
01	LCS-54308	59276		5.921		72986		8.579		72372		10.726	

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/04/2010 10/04/2010

EPA Sample No.(SSTD0.4##): SSTD0014H Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2461.D Time Analyzed: 16:18

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	28611	2.49	94521	3.345	43938	4.715
	UPPER LIMIT	57222	2.99	189042	3.845	87876	5.215
	LOWER LIMIT	14306	1.99	47261	2.845	21969	4.215
	EPA SAMPLE NO.						
01	MB-54308			146591	3.345	66660	4.715
02	OU9-SS-22-0002	22723	2.49	85675	3.345	40353	4.715
03	~~FD09141003~~	16285	2.490	61471	3.345	28531	4.715
~~04~~	OU9-SS-23-0002	8277 **	2.490	30618 *	3.345	18730 *	4.727
05	OU9-SS-24-0002	8327 **	2.490	34982 *	3.345	24075	4.727
06	OU9-SB-25-0508	10973 **	2.490	42754 *	3.346	24362	4.715
07	~~OU9-SB-25-0508MS~~			~~45462~~ *	3.345	~~23847~~	~~4.727~~
08	~~OU9-SB-25-0508MSD~~			~~41896~~ *	3.346	~~21933~~ *	~~4.715~~

** no sample analytes associated with IS1

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

EPA Sample No.(SSTD0.4##): SSTD0014H Date Analyzed: 10/05/2010

Lab File ID (Standard): S4E2461.D Time Analyzed: 16:18

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	59708	5.91	81909	8.579	85411	10.726
	UPPER LIMIT	119416	6.41	163818	9.079	170822	11.226
	LOWER LIMIT	29854	5.41	40955	8.079	42706	10.226
	EPA SAMPLE NO.						
01	MB-54308	85041	5.910	110882	8.579	110436	10.726
02	OU9-SS-22-0002	58702	5.921	162016	8.625	106896	10.795
03	FD09141003	40033	5.921	85452	8.594	89885	10.760
04	OU9-SS-23-0002	28891 *	5.932	55538	8.610	63494	10.760
05	OU9-SS-24-0002	43438	5.921	72724	8.610	65229	10.777
06	OU9-SB-25-0508	42328	5.921	75192	8.595	70374	10.760
07	OU9-SB-25-0508MS	36486	5.921	56500	8.594	59491	10.760
08	OU9-SB-25-0508MSD	37608	5.921	67256	8.595	66670	10.761

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/06/2010 10/06/2010

EPA Sample No.(SSTD0.4##): SSTD0014I Date Analyzed: 10/06/2010

Lab File ID (Standard): S4E2501A.D Time Analyzed: 13:03

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	24435	2.448	88552	3.309	60612	4.68
	UPPER LIMIT	48870	2.948	177104	3.809	121224	5.18
	LOWER LIMIT	12218	1.948	44276	2.809	30306	4.18
	EPA SAMPLE NO.						
01	OU9-SB-23-0204	32921	2.462	135306	3.309	88225	4.668
02	OU9-SB-24-0204	30432	2.448	107808	3.309	77610	4.668
03	OU9-SS-25-0002	31019	2.448	120755	3.309	82851	4.668
04	OU9-SB-25-0205	32813	2.448	116410	3.309	90196	4.668

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

EPA Sample No.(SSTD0.4##): SSTD0014I Date Analyzed: 10/06/2010

Lab File ID (Standard): S4E2501A.D Time Analyzed: 13:03

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	94715	5.878	150354	8.518	129761	10.657
	UPPER LIMIT	189430	6.378	300708	9.018	259522	11.157
	LOWER LIMIT	47358	5.378	75177	8.018	64881	10.157
	EPA SAMPLE NO.						
01	OU9-SB-23-0204	140252	5.867	215810	8.518	186390	10.657
02	OU9-SB-24-0204	124020	5.878	196357	8.518	165222	10.657
03	OU9-SS-25-0002	132857	5.878	190863	8.518	152313	10.657
04	OU9-SB-25-0205	142416	5.867	205436	8.518	167348	10.657

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/08/2010 10/08/2010

EPA Sample No.(SSTD0.4##): SSTD001LK Date Analyzed: 10/08/2010

Lab File ID (Standard): S4E2562.D Time Analyzed: 11:18

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	9838	2.365	36255	3.2	23373	4.561
	UPPER LIMIT	19676	2.865	72510	3.7	46746	5.061
	LOWER LIMIT	4919	1.865	18128	2.7	11687	4.061
	EPA SAMPLE NO.						
01	MB-54232			38135	3.200	37971	4.573
02	LCS-54232			36132	3.200	34580	4.573
03	LCSD-54232			36997	3.200	35784	4.573
04	RB09141001	131408	2.364	45044	3.200	34417	4.574
05	FD09141003DL	14511	2.364	51132	3.200	39977	4.573
06	OU9-SS-23-0002DL	148311	2.364	44371	3.200	41154	4.573
07	OU9-SS-24-0002DL	15141	2.364	43055	3.200	41549	4.573
08	OU9-SB-22-0205	15248	2.364	40942	3.200	40905	4.573
09	OU9-SB-22-0508	15544	2.364	57868	3.218	41996	4.573

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

EPA Sample No.(SSTD0.4##): SSTD001LK Date Analyzed: 10/08/2010

Lab File ID (Standard): S4E2562.D Time Analyzed: 11:18

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	40895	5.76	70901	8.35	65983	10.451
	UPPER LIMIT	81790	6.26	141802	8.85	131966	10.951
	LOWER LIMIT	20448	5.26	35451	7.85	32992	9.951
	EPA SAMPLE NO.						
01	MB-54232	59139	5.770	74901	8.350	59296	10.468
02	LCS-54232	58530	5.770	72524	8.350	57387	10.468
03	LCSD-54232	59939	5.770	77226	8.350	59565	10.468
04	RB09141001	63040	5.760	86387	8.350	64154	10.451
05	FD09141003DL	67614	5.770	80383	8.350	65499	10.468
06	OU9-SS-23-0002DL	70221	5.770	83049	8.350	64709	10.468
07	OU9-SS-24-0002DL	69085	5.770	82019	8.350	65424	10.468
08	OU9-SB-22-0205	68614	5.770	79329	8.365	63477	10.485
09	OU9-SB-22-0508	69887	5.781	89779	8.380	52432	10.502

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8E - FORM VIII SV-SIM1

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

GC Column: Rxi-5sil MS ID: 0.25 (mm) Init. Calib. Date(s): 10/08/2010 10/08/2010

EPA Sample No.(SSTD0.4##): SSTD001M Date Analyzed: 10/09/2010

Lab File ID (Standard): S4E2591.D Time Analyzed: 21:27

Instrument ID: S4

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	7768	2.309	22177	3.163	22879	4.514
	UPPER LIMIT	15536	2.809	44354	3.663	45758	5.014
	LOWER LIMIT	3884	1.809	11089	2.663	11440	4.014
	EPA SAMPLE NO.						
01	OU9-SS-22-0002DL	8016	2.322	36287	3.163	29939	4.514
02	OU9-SB-22-0205DL	7963	2.322	33454	3.163	28590	4.514
03	OU9-SB-22-0508DL	9545	2.322	41317	3.164	33740	4.514

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8F - FORM VIII SV-SIM2

SEMIVOLATILE SIM INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

EPA Sample No.(SSTD0.4##): SSTD001M Date Analyzed: 10/09/2010

Lab File ID (Standard): S4E2591.D Time Analyzed: 21:27

Instrument ID: S4 GC Column: Rxi-5sil MS ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	46913	5.716	91214	8.273	84948	10.365
	UPPER LIMIT	93826	6.216	182428	8.773	169896	10.865
	LOWER LIMIT	23457	5.216	45607	7.773	42474	9.865
	EPA SAMPLE NO.						
01	OU9-SS-22-0002DL	62969	5.716	97504	8.273	90377	10.365
02	OU9-SB-22-0205DL	61491	5.717	101982	8.273	95741	10.365
03	OU9-SB-22-0508DL	67697	5.717	108777	8.274	99044	10.365

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area

AREA LOWER LIMIT = 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

Data File: \\Avogadro\Organics\S4.I\101004.B\S4E2432.D
Report Date: 07-Oct-2010 08:44

Mitkem Laboratories

SIM-PAH

Data file : \\Avogadro\Organics\S4.I\101004.B\S4E2432.D
Lab Smp Id: SSTD0.14H Client Smp ID: SSTD0.14H
Inj Date : 04-OCT-2010 15:02
Operator : MMS SRC: MMS Inst ID: S4.i
Smp Info : SSTD0.14H,SSTD0.14H
Misc Info : 1,1
Comment :
Method : \\Avogadro\Organics\S4.I\101004.B\s4_pah_sim.m
Meth Date : 07-Oct-2010 08:44 matt Quant Type: ISTD
Cal Date : 04-OCT-2010 15:55 Cal File: S4E2434.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PAH+1MN.sub
Target Version: 4.14
Processing Host: TARGET104

Concentration Formula: Amt * DF * Uf*(Vt/Vi)*(1/Vo) * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	GPC Factor
Vt	1000.000	Extract Volume (uL)
Vi	1.000	Injection Volume
Vo	1000.000	Sample Volume
Cpnd Variable		Local Compound Variable

Std & associated internal stds

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng)	AMOUNTS ON-COL (ng)
* 3 1,4-Dichlorobenzene-d4	152	2.727	2.741	(1.000)	22108	5.00000	
* 9 Naphthalene-d8	136	3.736	3.755	(1.000)	58626	5.00000	
10 Naphthalene	128	3.755	3.773	(1.005)	1594	0.10000	0.12
12 2-Methylnaphthalene	142	4.393	4.393	(1.176)	1390	0.10000	0.11
13 1-Methylnaphthalene	142	4.484	4.484	(1.200)	1250	0.10000	0.10
15 Acenaphthylene	152	5.239	5.239	(0.974)	1382	0.10000	0.11
* 16 Acenaphthene-d10	164	5.381	5.381	(1.000)	39295	5.00000	
17 Acenaphthene	154	5.405	5.405	(1.004)	964	0.10000	0.10
20 Fluorene	166	5.902	5.902	(1.097)	1020	0.10000	0.093(a)
* 25 Phenanthrene-d10	188	6.815	6.805	(1.000)	51835	5.00000	
26 Phenanthrene	178	6.837	6.837	(1.003)	1492	0.10000	0.10
28 Anthracene	178	6.880	6.880	(1.009)	1398	0.10000	0.10
29 Fluoranthene	202	7.986	7.986	(1.172)	2348	0.10000	0.11
30 Pyrene	202	8.207	8.207	(1.204)	2551	0.10000	0.11
32 Benzo(a)anthracene	228	9.366	9.366	(0.999)	3292	0.10000	0.12(Q)
* 33 Chrysene-d12	240	9.380	9.380	(1.000)	105627	5.00000	
34 Chrysene	228	9.408	9.407	(1.003)	2772	0.10000	0.10(Q)
35 Benzo(b)fluoranthene	252	10.345	10.345	(0.969)	5639	0.10000	0.11(M)M2 MMS 07-Oct
36 Benzo(k)fluoranthene	252	10.376	10.345	(0.972)	3892	0.10000	0.11(M)M2 MMS 07-Oct
$ 37 Benzo(e)pyrene-d12	264	10.562	10.562	(0.990)	3096	0.10000	0.10

Data File: \\Avogadro\Organics\S4.I\101004.B\S4E2432.D
Report Date: 07-Oct-2010 08:44

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng)	AMOUNTS ON-COL (ng)
39 Benzo(a)pyrene	252	10.624	10.624	(0.996)	4228	0.10000	0.12
* 40 Perylene-d12	264	10.671	10.671	(1.000)	131964	5.00000	
41 Indeno(1,2,3-cd)pyrene	276	11.696	11.696	(1.096)	5314	0.10000	0.11
42 Dibenzo(a,h)anthracene	278	11.712	11.712	(1.098)	4238	0.10000	0.11
43 Benzo(g,h,i)perylene	276	11.991	11.991	(1.124)	4634	0.10000	0.11

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

3F - FORM III SIM2

SOIL SEMIVOLATILE SIM MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Matrix Spike - EPA Sample No.: OU9-SB-25-0508

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS %REC	#	QC. LIMITS REC.
Naphthalene	90.9683	3.9107	78.1121	82		19-102
2-Methylnaphthalene	90.9683	0.0000	57.5203	63		19-112
Acenaphthylene	90.9683	0.0000	63.6109	70		23-134
Acenaphthene	90.9683	0.0000	63.4712	70		33-113
Fluorene	90.9683	0.0000	76.0992	84		32-122
Phenanthrene	90.9683	8.6642	75.7411	74		38-108
Anthracene	90.9683	0.0000	69.8050	77		35-114
Fluoranthene	90.9683	9.8705	66.3900	62		41-117
Pyrene	90.9683	9.9449	64.0986	60		39-119
Benzo(a)anthracene	90.9683	4.2487	68.7177	71		39-111
Chrysene	90.9683	7.8170	68.5184	67		36-112
Benzo(b)fluoranthene	90.9683	4.2409	55.1052	56		39-128
Benzo(k)fluoranthene	90.9683	0.0000	61.8644	68		30-133
Benzo(a)pyrene	90.9683	4.3005	56.3145	57		43-119
Indeno(1,2,3-cd)pyrene	90.9683	0.0000	40.2477	44	*	48-119
Dibenzo(a,h)anthracene	90.9683	0.0000	42.2201	46	*	48-121
Benzo(g,h,i)perylene	90.9683	0.0000	38.2625	42	*	45-116

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD %REC	#	%RPD	#	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	90.9683	69.1581	72		13		0-40	19-102
2-Methylnaphthalene	90.9683	50.7595	56		12		0-40	19-112
Acenaphthylene	90.9683	62.1806	68		2		0-40	23-134
Acenaphthene	90.9683	61.0643	67		4		0-40	33-113
Fluorene	90.9683	75.6736	83		1		0-40	32-122
Phenanthrene	90.9683	70.7125	68		8		0-40	38-108
Anthracene	90.9683	66.0231	73		6		0-40	35-114
Fluoranthene	90.9683	74.1098	71		13		0-40	41-117
Pyrene	90.9683	71.0558	67		12		0-40	39-119
Benzo(a)anthracene	90.9683	66.1205	68		4		0-40	39-111
Chrysene	90.9683	65.8022	64		5		0-40	36-112
Benzo(b)fluoranthene	90.9683	55.4048	56		1		0-40	39-128
Benzo(k)fluoranthene	90.9683	60.0585	66		3		0-40	30-133
Benzo(a)pyrene	90.9683	53.5306	54		5		0-40	43-119
Indeno(1,2,3-cd)pyrene	90.9683	38.4071	42	*	5		0-40	48-119
Dibenzo(a,h)anthracene	90.9683	41.3278	45	*	2		0-40	48-121
Benzo(g,h,i)perylene	90.9683	35.4804	39	*	8		0-40	45-116

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

3F - FORM III SIM2

SOIL SEMIVOLATILE SIM MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MITKEM LABORATORIES Contract: _____

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: _____ SDG No.: SJ1792-A

Matrix Spike - EPA Sample No.: OU9-SB-25-0508

RPD: 0 out of 17 outside limits

Spike Recovery: 6 out of 34 outside limits

COMMENTS: _____

3F - FORM III SIM2

SOIL SEMIVOLATILE SIM MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792

Matrix Spike - EPA Sample No.: OU9-SS-19-0002

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS %REC	#	QC. LIMITS REC.
Naphthalene	89.3875	238.4107	130.8521	-120	*	19-102
2-Methylnaphthalene	89.3875	139.7494	83.5970	-63	*	19-112
Acenaphthylene	89.3875	881.2762	485.0544	-443	*	23-134
Acenaphthene	89.3875	380.2048	180.7214	-223	*	33-113
Fluorene	89.3875	896.2392	439.3905	-511	*	32-122
Phenanthrene	89.3875	2707.5617	1478.2637	-1375	*	38-108
Anthracene	89.3875	1427.8710	745.9455	-763	*	35-114
Fluoranthene	89.3875	2787.8302	1464.5731	-1480	*	41-117
Pyrene	89.3875	2736.5572	1235.3687	-1679	*	39-119
Benzo(a)anthracene	89.3875	1725.9801	973.0104	-842	*	39-111
Chrysene	89.3875	1620.6237	1114.4531	-566	*	36-112
Benzo(b)fluoranthene	89.3875	1101.8884	964.1422	-154	*	39-128
Benzo(k)fluoranthene	89.3875	745.2379	674.0531	-80	*	30-133
Benzo(a)pyrene	89.3875	1101.3972	920.1757	-203	*	43-119
Indeno(1,2,3-cd)pyrene	89.3875	452.6580	442.9626	-11	*	48-119
Dibenzo(a,h)anthracene	89.3875	264.7520	241.4599	-26	*	48-121
Benzo(g,h,i)perylene	89.3875	495.3091	461.3170	-38	*	45-116

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD %REC	#	%RPD	#	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	89.0944	131.6318	-120	*	0		0-40	19-102
2-Methylnaphthalene	89.0944	93.9880	-51	*	-20	*	0-40	19-112
Acenaphthylene	89.0944	500.1728	-428	*	-4	*	0-40	23-134
Acenaphthene	89.0944	165.1148	-241	*	-8	*	0-40	33-113
Fluorene	89.0944	566.6817	-370	*	-32	*	0-40	32-122
Phenanthrene	89.0944	1807.7410	-1010	*	-31	*	0-40	38-108
Anthracene	89.0944	1037.6338	-438	*	-54	*	0-40	35-114
Fluoranthene	89.0944	1523.8435	-1419	*	-4	*	0-40	41-117
Pyrene	89.0944	1337.6775	-1570	*	-7	*	0-40	39-119
Benzo(a)anthracene	89.0944	1278.6942	-502	*	-51	*	0-40	39-111
Chrysene	89.0944	1109.2832	-574	*	-1	*	0-40	36-112
Benzo(b)fluoranthene	89.0944	935.3754	-187	*	-19	*	0-40	39-128
Benzo(k)fluoranthene	89.0944	861.8351	131		822	*	0-40	30-133
Benzo(a)pyrene	89.0944	989.9410	-125	*	-47	*	0-40	43-119
Indeno(1,2,3-cd)pyrene	89.0944	465.4351	14	*	441	*	0-40	48-119
Dibenzo(a,h)anthracene	89.0944	298.9104	38	*	049	*	0-40	48-121
Benzo(g,h,i)perylene	89.0944	491.3948	-4	*	-159	*	0-40	45-116

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

3F - FORM III SIM2

SOIL SEMIVOLATILE SIM MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MITKEM LABORATORIES Contract: _____

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: _____ SDG No.: SJ1792

Matrix Spike - EPA Sample No.: OU9-SS-19-0002

RPD: 16 out of 17 outside limits

Spike Recovery: 33 out of 34 outside limits

COMMENTS: _____

PORTSMOUTH NSY
SOIL DATA
J1792

FRACTION	CHEMICAL	FD09141001	UNITS	OU9-SB-17-0205	RPD	D
PAH	BENZO(G,H,I)PERYLENE	ND	UG/KG	5.4	200.00	5.40 N/A <2xRL

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

PORTSMOUTH NSY
SOIL DATA
J1792

FRACTION	CHEMICAL	FD09141003	UNITS	OU9-SS-22-0002	RPD	D
PAH	2-METHYLNAPHTHALENE	26 J	UG/KG	87 J	107.96	61.00
PAH	ACENAPHTHENE	31	UG/KG	120	117.88	89.00
PAH	ACENAPHTHYLENE	230	UG/KG	ND	200.00	230.00
PAH	BENZO(G,H,I)PERYLENE	280	UG/KG	ND	200.00	280.00
PAH	DIBENZO(A,H)ANTHRACENE	130	UG/KG	ND	200.00	130.00
PAH	FLUORENE	170	UG/KG	ND	200.00	170.00
PAH	INDENO(1,2,3-CD)PYRENE	220	UG/KG	ND	200.00	220.00
PAH	NAPHTHALENE	32 J	UG/KG	210 J	147.11	178.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

PORTSMOUTH NSY
SOIL DATA
J1792

FRACTION	CHEMICAL	FD09141003	UNITS	OU9-SS-22-0002DL	RPD	D
PAH	2-METHYLNAPHTHALENE	26 J	UG/KG	ND	200.00	26.00
PAH	ACENAPHTHENE	31	UG/KG	ND	200.00	31.00
PAH	ACENAPHTHYLENE	230	UG/KG	2100	160.52	1870.00
PAH	ANTHRACENE	ND	UG/KG	1800	200.00	1800.00
PAH	BENZO(A)ANTHRACENE	ND	UG/KG	7500	200.00	7500.00
PAH	BENZO(A)PYRENE	ND	UG/KG	7400	200.00	7400.00
PAH	BENZO(B)FLUORANTHENE	ND	UG/KG	8500	200.00	8500.00
PAH	BENZO(G,H,I)PERYLENE	280	UG/KG	3600	171.13	3320.00
PAH	BENZO(K)FLUORANTHENE	ND	UG/KG	4800 J	200.00	4800.00
PAH	CHRYSENE	ND	UG/KG	8700	200.00	8700.00
PAH	DIBENZO(A,H)ANTHRACENE	130	UG/KG	1600	169.94	1470.00
PAH	FLUORANTHENE	ND	UG/KG	11000	200.00	11000.00
PAH	FLUORENE	170	UG/KG	320	61.22	150.00
PAH	INDENO(1,2,3-CD)PYRENE	220	UG/KG	3500	176.34	3280.00
PAH	NAPHTHALENE	32 J	UG/KG	ND	200.00	32.00
PAH	PHENANTHRENE	ND	UG/KG	1100	200.00	1100.00
PAH	PYRENE	ND	UG/KG	9700 J	200.00	9700.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

PORTSMOUTH NSY
SOIL DATA
J1792

FRACTION	CHEMICAL	FD09141003DL	UNITS	OU9-SS-22-0002DL	RPD	D
~~PAH~~	~~ACENAPHTHYLENE~~	~~ND~~	~~UG/KG~~	~~2100~~	200.00	~~2100.00~~
PAH	ANTHRACENE	470 D	UG/KG	1800	117.18	1330.00
PAH	BENZO(A)ANTHRACENE	1000 D	UG/KG	7500	152.94	6500.00
PAH	BENZO(A)PYRENE	820 D	UG/KG	7400	160.10	6580.00
PAH	BENZO(B)FLUORANTHENE	800 D	UG/KG	8500	165.59	7700.00
~~PAH~~	~~BENZO(G,H,I)PERYLENE~~	~~ND~~	~~UG/KG~~	~~3600~~	200.00	~~3600.00~~
PAH	BENZO(K)FLUORANTHENE	690 D	UG/KG	4800 J	149.73	4110.00
PAH	CHRYSENE	850 D	UG/KG	8700	164.40	7850.00
~~PAH~~	~~DIBENZO(A,H)ANTHRACENE~~	~~ND~~	~~UG/KG~~	~~1600~~	200.00	~~1600.00~~
PAH	FLUORANTHENE	1100 D	UG/KG	11000	163.64	9900.00
~~PAH~~	~~FLUORENE~~	~~ND~~	~~UG/KG~~	~~320~~	200.00	~~320.00~~
~~PAH~~	~~INDENO(1,2,3-CD)PYRENE~~	~~ND~~	~~UG/KG~~	~~3500~~	200.00	~~3500.00~~
PAH	PHENANTHRENE	1000 D	UG/KG	1100	9.52	100.00
PAH	PYRENE	1100 D	UG/KG	9700 J	159.26	8600.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE 1 OF 1

CLIENT Portsmouth NSY		JOB NUMBER 01456	
SUBJECT Calculation Check for SDG J1792			
BASED ON		DRAWING NUMBER	
BY J. Kalinyak	CHECKED BY	APPROVED BY	DATE 11/2/10

PAH - benzo(a)anthracene Sample - 019-SB-22-0508

$$\frac{61886 \times 5\,mg \times 400\,df \times 10000\,\mu l}{108777 \times 1.264 \times 1\,\mu l \times 30.5\,g \times 0.72} \approx 409.926\,mg/g \;\; \mu g/Kg$$

Data File: \\Avogadro\Organics\S4.I\101009.B\S4E2595.D
Report Date: 14-Oct-2010 13:54

Mitkem Laboratories

SIM-PAH

Data file : \\Avogadro\Organics\S4.I\101009.B\S4E2595.D
Lab Smp Id: J1792-24ADL Client Smp ID: OU9-SB-22-0508DL
Inj Date : 09-OCT-2010 22:50
Operator : MMS SRC: LIMS Inst ID: S4.i
Smp Info : J1792-24ADL,,54308,,40
Misc Info :
Comment :
Method : \\avogadro\organics\S4.I\101009.B\s4_pah_sim.m
Meth Date : 13-Oct-2010 14:55 S4.i Quant Type: ISTD
Cal Date : 08-OCT-2010 11:18 Cal File: S4E2562.D
Als bottle: 5
Dil Factor: 400.00000
Integrator: HP RTE Compound Sublist: PAH.sub
Target Version: 4.14
Processing Host: TARGET107

Concentration Formula: Amt * DF * Uf*(Vt/Vi)*(1/Ws)*(100/(100-M) * CpndVaria

Name	Value	Description
DF	400.000	Dilution Factor
Uf	1.000	GPC correction factor
Vt	10000.000	Volume of final extract (uL)(1000 low, 2
Vi	1.000	Volume injected (uL)
Ws	30.500	Weight of sample extracted (g)
M	28.000	% Moisture
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug/Kg)
* 3 1,4-Dichlorobenzene-d4	152	2.322	2.308	(1.000)	9545	5.00000	(Q)
* 9 Naphthalene-d8	136	3.163	3.163	(1.000)	41317	5.00000	
10 Naphthalene	128	3.163	3.163	(1.000)	51988	3.52554	640000
12 2-Methylnaphthalene	142	3.692	3.692	(1.167)	29984	3.06096	560000
15 Acenaphthylene	152	4.396	4.395	(0.974)	28040	2.05320	370000
* 16 Acenaphthene-d10	164	4.514	4.514	(1.000)	33740	5.00000	
17 Acenaphthene	154	4.538	4.537	(1.005)	4162	0.55571	100000
20 Fluorene	166	4.964	4.963	(1.100)	20135	1.76191	320000
* 25 Phenanthrene-d10	188	5.716	5.716	(1.000)	67697	5.00000	
26 Phenanthrene	178	5.727	5.727	(1.002)	123779	6.98819	1300000
28 Anthracene	178	5.770	5.770	(1.009)	28599	1.59248	290000
29 Fluoranthene	202	6.712	6.712	(1.174)	80724	3.03194	550000
30 Pyrene	202	6.911	6.911	(1.209)	157558	4.98047	910000
32 Benzo(a)anthracene	228	8.258	8.257	(0.998)	61886	2.24977	410000
* 33 Chrysene-d12	240	8.273	8.273	(1.000)	108777	5.00000	
34 Chrysene	228	8.304	8.303	(1.004)	58633	2.30283	420000
35 Benzo(b)fluoranthene	252	9.780	9.779	(0.944)	55515	1.96868	360000(M)
36 Benzo(k)fluoranthene	252	9.814	9.831	(0.947)	19601	0.69857	130000(M)
39 Benzo(a)pyrene	252	10.261	10.261	(0.990)	61738	2.44712	440000

6H - FORM VI SV-SIM

SEMIVOLATILE ORGANICS SIM INITIAL CALIBRATION DATA

Lab Name: MITKEM LABORATORIES Contract:

Lab Code: MITKEM Case No.: J1792 Mod. Ref No.: SDG No.: SJ1792-A

Instrument ID: S4 Calibration Date(s): 10/08/2010 10/08/2010

Calibration Time(s): 11:18 12:52

LAB FILE ID: RRF0.1 = S4E2563.D RRF0.5 = S4E2565.D

RRF001 = S4E2562.D RRF005 = S4E2566.D RRF010 = S4E2564.D

COMPOUND	RRF0.1	RRF0.5	RRF001	RRF005	RRF010	$\overline{RRF}$	%RSD
Naphthalene	1.793	1.899	1.694	1.937	1.599	1.785	7.9
2-Methylnaphthalene	1.066	1.292	1.089	1.356	1.123	1.185	11.0
Acenaphthylene	2.362	2.028	2.097	1.922	1.710	2.024	11.8
Acenaphthene	1.262	1.147	1.100	1.062	0.978	1.110	9.5
Fluorene	1.902	1.717	1.734	1.631	1.483	1.694	9.0
Phenanthrene	1.525	1.350	1.374	1.215	1.078	1.308	12.9
Anthracene	1.541	1.362	1.418	1.217	1.094	1.326	13.1
Fluoranthene	2.357	2.063	2.057	1.847	1.509	1.966	15.9
Pyrene	3.089	2.388	2.495	1.969	1.742	2.337	22.3
Benzo(a)anthracene	1.727	1.198	1.252	1.125	1.020	1.264	21.6
Chrysene	1.301	1.166	1.231	1.102	1.051	1.170	8.5
Benzo(b)fluoranthene	1.583	1.485	1.511	1.391	1.148	1.424	11.9
Benzo(k)fluoranthene	1.729	1.384	1.509	1.283	1.178	1.416	15.0
Benzo(a)pyrene	1.518	1.285	1.346	1.194	1.026	1.274	14.3
Indeno(1,2,3-cd)pyrene	1.559	1.482	1.349	1.362	1.132	1.377	11.8
Dibenzo(a,h)anthracene	1.325	1.256	1.130	1.068	0.864	1.129	15.9
Benzo(g,h,i)perylene	1.413	1.239	1.153	1.139	0.915	1.172	15.4
Benzo(e)pyrene-d12	1.975	1.771	1.805	1.643	1.448	1.728	11.4

APPENDIX D

DATA QUALITY REVIEW

APPENDIX D

2010 DATA QUALITY REVIEW
OPERABLE UNIT 9
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

A description of the data review processes used to determine whether the 2010 analytical laboratory data for Operable Unit 9 (OU9) were of acceptable technical quality for use in decision making is presented in this data quality review (DQR). The review began with data verification and validation. Verification is a process used to ensure that contractual requirements were satisfied. Validation is a comparison of data quality indicators (DQIs) against prescribed acceptance criteria to assess analytical method performance. The DQIs used are measures to assess the bias and precision of the analytical calibrations and sample analyses. Together, verification and validation are the first steps in evaluating data completeness, accuracy, sensitivity, comparability, and representativeness. The data review process culminates with a data usability assessment during which the final usability of the data is established relative to the intended data use.

1.0 DATA VALIDATION PROCESS

All of the results from analytical laboratory samples were validated according to several specifications. Assignment of data qualification flags conformed to the criteria for SW-846 8270D SIM, SW-846 6010C, and SW-846 7471B listed in the Sampling and Analysis Plan for Operable Unit 9 Remedial Investigation, Portsmouth Naval Shipyard, Kittery, Maine (Tetra Tech, July 2009), the USEPA Region 1 Laboratory Data Validation Functional Guidelines – Part II (12/96), the USEPA Region 1 National Functional Guidelines for Inorganic Review (11/08), and the Department of Defense (DoD) document entitled Quality Systems Manual (QSM) for Environmental Laboratories (January 2006 or April 2009) to the greatest extent practicable for non-contract laboratory program data. Numerical criteria used in conjunction with these rules were specified in the Sampling and Analysis Plan for Operable Unit 9 Remedial Investigation.

If no qualifier is assigned to a result that has been validated, the data user is assured that no analytical performance deficiencies were identified during validation. The qualification flags used are defined below:

U – Indicates that the chemical was not detected at the numerical detection limit noted. Non-detected results are reported with a “U” qualifier when received from the laboratory. Additionally, a “U” qualifier is added to a result (reported by the laboratory) if the detected concentration is determined to be attributable to contamination introduced during field sampling or laboratory analysis.

UJ – Indicates that the chemical was not detected. However, the detection limit (sample-specific quantitation limit) is considered to be estimated based on problems encountered during laboratory analysis. The associated numerical detection limit is regarded as inaccurate.

J – Indicates that the chemical was detected. However, the associated numerical result is not an accurate representation of the amount that is actually present in the sample. The laboratory reported concentration is considered to be an estimate of the true concentration.

UR – Indicates that the chemical may or may not be present. The non-detected analytical result reported by the laboratory is considered to be unreliable and unusable. The “UR” qualifier is applied in cases of gross technical deficiencies (i.e., holding times missed by a factor of two times the specified time limit, severe calibration noncompliances, and extremely low quality control [QC] recoveries).

R – Indicates that the chemical may or may not be present. The analytical result reported by the laboratory is considered to be unreliable and unusable. The “R” qualifier is applied in cases of gross technical deficiencies (i.e., holding times missed by a factor of two times the specified time limit, severe calibration noncompliances, and extremely low QC recoveries).

The preceding data qualifiers may be categorized as indicative of major or minor problems. Major problems are defined as issues that result in the rejection of data and qualification with “UR” or “R” data validation qualifiers. Rejected data are considered invalid and are not used for decision making purposes unless used in a qualitative way and the use is justified and documented. Less severe deficiencies, associated with “U”, “J”, and “UJ” data validation qualifiers, are defined as issues resulting in the estimation of data. Estimated analytical results are considered to be suitable for decision-making purposes unless the data use requirements are very stringent and the qualifier indicates a deficiency that is incompatible with the intended data use. Also, a “U” qualifier does not necessarily indicate that a data deficiency exists because all non-detect values are flagged with the “U” qualifier regardless of whether a quality deficiency has been detected.

No data points for the 2010 OU9 RI sampling were rejected during validation. Any impacts to the project based on the results of the data evaluation are discussed in the remainder of this review. Data users should be aware that any qualified data, even if it is considered usable, may be less accurate or less precise than nonqualified data. A data usability assessment will be provided in the OU9 Remedial Investigation Report.

2.0 DATA VALIDATION OUTPUTS

After laboratory data were validated, a list was developed of non-conformities requiring data qualifier flags that were used to alert the data user to inaccurate or imprecise data. For situations in which several QC criteria were out of specification, the data validator made professional judgments and or comments on the validity of the overall data package. The reviewer then prepared a technical memorandum presenting qualification of the data, if necessary, and the rationale for making such qualifications. The net result was a data package that had been carefully reviewed for its adherence to prescribed technical requirements. Data validators incorporated data qualifiers into the electronic database and submitted the information to the Tetra Tech NUS, Inc. data management group. A complete printout of the data results with validation flags is presented in Appendix C and the database is included on CD in Appendix C. Pertinent quality estimates are summarized in a more quantitative format in the following sections.

3.0 GENERAL DATA QUALITY REVIEW

The DQR provided herein is designed to provide an overall quantitative measure of analytical performance not provided by data validation. The analytical performance quantitative evaluations are frequently analyte-specific and reflect deficiencies such as biases associated with the quantification of particular analytes in a particular sample matrix. The data user must be aware that different chemicals in the same analytical fraction (e.g. antimony, lead, and mercury in the metals fraction) may exhibit different degrees of quality.

3.1 Completeness

Completeness is a measure of the number of valid samples or measurements that are available relative to the number of samples or measurements that were intended to be generated. For this project, completeness was measured on two different bases: samples collected and laboratory measurements.

- Sample completeness was a measure of the usable samples collected as compared to those intended to be collected.

- Laboratory measurement completeness was a measure of the amount of usable, valid laboratory measurements per matrix obtained for each target analyte.

Usable, valid samples (or results) were those judged, after data assessment, to represent the sampling populations and to have not been disqualified for use through data validation or additional data review. Completeness was determined using the following equation:

$$\%C = \frac{V}{T} \times 100$$

where %C = percent completeness

V = number of samples (or results) determined to be valid

T = total number of planned samples (or results)

Completeness evaluations for 2010 OU9 RI sampling are tabulated in Tables D.1 and D.2 The total sample collection completeness evaluations (Table D.2) are used to evaluate sample collection completeness against the completeness of 95 percent that was established in the Sampling and Analysis Plan for Operable Unit 9 Remedial Investigation, Portsmouth Naval Shipyard, Kittery, Maine (Tetra Tech, July 2009). Discussions pertaining to sample collection and laboratory measurement percent completeness deficiencies (i.e., percent completeness values less than 95 percent) follow.

Sample collection completeness evaluation (Table D.1) indicated that 100 percent completeness was obtained for all soil samples. Subsurface soil samples were supposed to be collected from 2 to 5 feet below ground surface (bgs), 5 to 8 eight feet bgs, or refusal at each sampling location. Bedrock was encountered at 4 to 4.5 feet bgs at locations OU9-23 and OU9-24; therefore, samples could not be collected from the proposed 5 to 8 feet bgs depth interval. Even though those subsurface soil samples could not be collected subsurface soil sample collection completeness is considered 100 percent refusal was encountered at those locations. The laboratory measurement completeness goal of 95 percent was met for all laboratory measurements evaluated as displayed in Table D.2.

3.2 Sensitivity

The detection limits (DLs) reported by the laboratory were all less that the screening levels listed in Worksheet #15 of the OU9 SAP (Tetra Tech, July 2009); therefore, the sensitivity of the analytical data evaluated does not affect data usability.

3.3 Laboratory Accuracy

Accuracy in the laboratory was measured through the comparison of a spiked sample or Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) result to a known or calculated value and is expressed as a percent recovery (%R). Accuracy was also assessed by monitoring the analytical recovery of select surrogate compounds added to samples that are analyzed by organic chromatographic methods and the analytical recovery of calibration standards for all analyses. LCSs were used to assess the accuracy of laboratory operations with minimal sample matrix effects. Matrix spike/matrix spike duplicate (MS/MSD) and surrogate compound analyses measure the combined accuracy effects of the

sample matrix, sample preparation, and sample measurement. LCS and MS analyses were performed at a frequency of one per 20 associated samples of like matrix. Laboratory accuracy was assessed by comparing calculated percent recovery (%R) values to accuracy control limits specified by the laboratory using the appropriate SW-846 Method.

Percent recovery is calculated using the following equation:

$$\%R = \frac{Ss - So}{S} \times 100$$

where	%R	=	percent recovery
	Ss	=	result of spiked sample
	So	=	result of non-spiked sample
	S	=	concentration of spiked amount.

All LCS/LCSD %Rs were compliant except for the 2-methylnapthene LCS and LCSD %Rs affecting the rinsate blank RB09141001. Those LCS and LCSD %Rs were greater than the corresponding %R quality control limit for 2-methylnapthene; however, no action was taken because the 2-methylnapthene result for sample RB09141001 was reported as non-detected. Data usability was not affected by LCS /LSCD accuracy. Surrogate %R noncompliances were noted for those samples that were analyzed at a dilution to the extent that the surrogates were diluted to levels less than corresponding detection limits. No other surrogate noncompliances were noted; therefore, data usability was not affected by that quality control parameters. Matrix spike (MS) %R recovery noncompliances were noted for antimony, lead, and most PAHs. Despite the MS %Rs identified results were not rejected and are considered usable for the purposes of this investigation.

All of the antimony soil results were qualified due to matrix spike percent recoveries less than the corresponding quality control limit. The matrix spike percent recoveries of antimony in samples OU9-SS-16-0002 and OU9-SS-22-0002 were 27 and 31 percent, respectively. However, the post-digestion spike antimony percent recoveries of those same samples were 91 and 90 percent, respectively, indicating that the soil matrix biased antimony results low in those samples. In accordance with data validation protocol, all antimony soil results associated with the same analytical batches as OU9-SS-16-0002 and OU9-SS-22-0002 were qualified as estimated due to matrix spike noncompliance; however, soil is a naturally heterogeneous matrix, and the matrix interference detected for antimony in samples OU9-SS-16-0002 and OU9-SS-22-0002 may or may not be present in other soil samples collected for this investigation. The matrix spike evaluation indicates that qualified antimony soil results are biased low due to sample matrix interference because the percent recoveries of samples OU9-SS-16-0002 and OU9-SS-22-0002 were less than quality control limits. Despite the poor antimony recoveries

identified in those samples qualified results were not rejected and are considered usable for the purposes of this investigation. Data users should be aware that the matrix spike evaluations of OU9-SS-16-0002 and OU9-SS-22-0002 indicate that corresponding qualified antimony results are biased low.

All lead results were qualified as estimated due to MS %R noncompliance. MS %Rs indicated that lead results were biased high in one batch (%R greater than 120%) and biased low in another (%R less than 80%). No bias is associated with lead results qualified due to MS/MSD noncompliance due to the conflicting bias of the two MS/MSD analyses of that analyte. None of the aforementioned MS/MSD %R noncompliances were resulted in the rejection of data in accordance with the data validation guidelines in the OU9 SAP (Tetra Tech, July 2009); therefore, MS %R noncompliances do not affected data usability for this project.

A total of three PAH results were qualified due to MS/MSD %R which indicated that those data points may be biased low. None of the aforementioned MS/MSD %R noncompliances were resulted in the rejection of data in accordance with the data validation guidelines in the OU9 SAP (Tetra Tech, July 2009); therefore, MS %R noncompliances do not affected data usability for this project.

Calibration noncompliances were noted for PAHs affecting non-detected and positive results; however, those qualified PAH results were not rejected and are therefore considered usable data. No bias was associated with the PAH calibration noncompliances.

3.4 Laboratory Precision

Precision is a measure of the degree to which two or more measurements are in agreement and describes the reproducibility of measurements of the same parameter for samples analyzed under similar conditions.

Precision for chemical parameters is expressed as a Relative Percent Difference (RPD), which is defined as the ratio of the difference to the mean for the two values being evaluated. RPDs, typically expressed as percentages, are used to evaluate both field and laboratory duplicate precision and are calculated as follows:

$$RPD = \frac{|V1 - V2|}{(V1 + V2)/2} \times 100$$

where RPD = relative percent difference

V1, V2 = two results obtained by analyzing duplicate samples

The precision estimates obtained from duplicate field samples encompass the combined uncertainty associated with sample collection, homogenization, splitting, handling, laboratory and field storage (as applicable), preparation for analysis, and analysis. In contrast, precision estimates obtained from analyzing duplicate laboratory samples incorporate only homogenization, sub sampling, preparation for analysis, laboratory storage (if applicable), and analysis uncertainties.

All PAH results except phenanthrene were qualified as estimated for the field duplicate pairs (FD09141003 / OU9-SS-22-0002) due to field duplicate imprecision. Several lead results were qualified due to laboratory duplicate imprecision. Results qualified due to imprecision QC were not rejected and are therefore considered usable data. Imprecision data qualifications are common place for the soil due to the heterogeneity of that matrix. No bias was associated with the imprecision noncompliances.

3.5 Comparability

Comparability is defined as the confidence with which one data set can be compared with another (e.g., among sampling points and among sampling events). Comparability was achieved by using standardized sampling and analysis methods, as well as standardized data reporting formats. Comparability of laboratory measurements was achieved primarily through the use and documentation of standard sampling and analytical methods. Results were reported in units that ensured comparability with current state and federal standards and guidelines. Comparability of laboratory measurements was assessed primarily through the use of QC samples and through adherence to the quality assurance (QA) plan.

The only comparability issue detected was that the laboratory analyzed soil samples for 2-methylnaphalene for the 2010 samples even though that compound was not requested for analysis. 2-methylnapthalene results from the 2010 samples cannot be compare to 2009 2-methylnaphthalene results because, in accordance with the Work Plan, 2009 samples were not analyzed for 2-methylnaphthalene.

3.6 Representativeness

Representativeness is an expression of the degree to which data accurately and precisely depict the actual characteristics of a population or environmental condition existing at the site. By compiling with the OU9 SAP (Tetra Tech, July 2009), and the use of standardized sampling, sample handling, sample analysis, and data reporting procedures were designed so that the final data would be accurate representations of actual site conditions. The DQR found the data collected to be representative of targeted populations with the following exception.

Boring OU9-22 could not be collected at its intended location. Location OU9-22, which was the proposed sample location north of sampling location OU9-13, was placed to determine whether ash was still present underneath the fill material in this area. A 12-inch water line is located in the targeted area of sampling and the sample was moved south, in the near vicinity of OU9-13. The impact on the understanding of post-removal action conditions because the location was moved will be evaluated in the OU9 RI Report.

4.0 DATA USABILITY

None of the findings adversely affect project data usability to the extent that data were rejected. Data users should be aware the MS %R noncompliances indicate that antimony and PAH results are biased low. The data evaluated is considered usable for the purposes of this project as described in the OU9 SAP (Tetra Tech, July 2009). Data usability is further discussed in the OU9 Remedial Investigation Report.

Table D.1
2010 Sample Collection Completeness Evaluation
Operable Unit 9
Portsmouth Naval Shipyard, Kittery, Maine

Sample Collection Completeness

Surface Soil

Analytical Fraction	Planned Environmental Samples	Environmental Samples Collected	Environmental Sample Collection Percent Completeness
Select Metals (Antimony, Mercury, Lead)	10	10	100
PAHs	10	10	100

Subsurface Soil

Analytical Fraction	Planned Environmental Samples	Environmental Samples Collected	Environmental Sample Collection Percent Completeness
Select Metals (Antimony, Mercury, Lead)	Up to 20 dependant upon refusal	18	100
PAHs	Up to 20 dependant upon refusal	18	100

The target goal was to collect samples to a depth of 8 feet below ground surface or refusal whichever was shallower. Refusal was encountered at 2 boring locations prior to reaching a depth of 5 feet below ground surface; therefore, even though 20 samples were not collected sample collection completeness is still considered 100 percent.

QC Samples - Soil

Analytical Fraction	Field Duplicates Expected	Field Duplicates Collected	Field Duplicate Percent Completeness	Planned Rinsate Blanks	Rinsate Blanks Collected	Rinsate Blank Percent Completeness	Planned MS/MSD	MS/MSD Collected	MS/MSD Percent Completeness
Select Metals (Antimony, Mercury, Lead)	3	3	100	1	1	100	2	2	100
PAHs	3	3	100	1	1	100	2	2	100

Acronyms

MS/MSD = matrix spike/matrix spike duplicate

QC = quality control

Table D.2
2010 Sample Laboratory Analysis Completeness Evaluation
Operable Unit 9
Portsmouth Naval Shipyard, Kittery, Maine

Laboratory Measurement Completeness

Surface Soil

Parameter	Environmental Samples Collected	Valid Analytical Results (1)	Laboratory Measurement Percent Completeness
Select Metals (Antimony, Mercury, Lead)	10	30	100
PAHs	10	170	100

Subsurface Soil

Parameter	Environmental Samples Collected	Valid Analytical Results (1)	Laboratory Measurement Percent Completeness
Select Metals (Antimony, Mercury, Lead)	18	54	100
PAHs	18	306	100

QC Samples - Soil

Parameter	Field Duplicates Collected	Valid Analytical Results (1)	Laboratory Measurement Percent Completeness	WP Rinsate Blanks Collected	Valid Analytical Results (1)	Laboratory Measurement Percent Completeness	MS/MSD Collected	Valid Analytical Results (1)	Laboratory Measurement Percent Completeness
Select Metals (Antimony, Mercury, Lead)	3	9	100	1	3	100	2	6	100
PAHs	3	51	100	1	17	100	2	34	100

1. Valid Analytical Results = The number of parameters per matrix multipled by the number of samples collected.

Acronyms

MS/MSD = matrix spike/matrix spike duplicate

NA = not applicable

QC = quality control

APPENDIX E

FIELD TASK MODIFICATION

TETRA TECH NUS
FIELD TASK MODIFICATION REQUEST FORM

Portsmouth Naval Shipyard	CTO 533 112G01456	1
Project/Installation Name	CTO&Project Number	Task Mod. Number
SAP for OU9 RI (Tt, July 2009)	Site 34	July 1, 2010
Modification To (e.g. Work Plan)	Site/Sample Location	Date

Activity Description:

Collection and analysis of additional Site 34 surface soil (one depth) and subsurface soil (one or two depths dependant on depth of bedrock) samples at ten locations to provide additional spatial coverage and an adequate amount of data to achieve performance criteria (specified in Worksheet #11 of the SAP for the OU9 RI) for the industrial receptor.

Reason for Change:

Based on results obtained during the August 2009 field investigation it was determined that additional data is needed to adequately characterize contaminant distribution and corresponding site risks for Site 34. (See attached Field Task Modification for Operable Unit 9 Remedial Investigation)

Recommended Disposition:

See attached Field Task Modification for Operable Unit 9 Remedial Investigation.

Field Operations Leader (Signature, if applicable) — Date: 7/15/10

Disposition:

See attached Field Task Modification for Operable Unit 9 Remedial Investigation.

Project Manager (Signature, if required) — Date: 7/15/10

Distribution:
Program Manager
Quality Assurance Officer
Project Manager
Field Operations Leader
Project File – CTO 533

Others as required_____

FIELD TASK MODIFICATION FOR OPERABLE UNIT 9 REMEDIAL INVESTIGATION

This Operable Unit (OU) 9 Remedial Investigation (RI) sampling and analysis plan (SAP) field task modification provides the basis and methods for additional sampling necessary to complete the OU9 RI at Portsmouth Naval Shipyard (PNS), Kittery, Maine. Except for minor changes to the study boundaries discussed herein, the data quality objectives (DQOs) in the OU9 RI SAP (Tetra Tech, July 2009) remain the same (i.e., to characterize the residual soil concentrations for risk assessment). The following provides information necessary to support the additional sampling with reference to the appropriate worksheets in the OU9 RI SAP.

BASIS FOR ADDITIONAL SAMPLING

As documented in Worksheets #11 and 17 of the OU9 RI SAP one purpose of the RI is to estimate contaminants of potential concern (COPC) [i.e., polycyclic aromatic hydrocarbon (PAH), antimony, lead, and mercury] concentrations in surface and subsurface soil at Site 34 (excavated and unexcavated areas) that may pose unacceptable human health risks to potential receptors. Soil COPC concentrations in excavated and unexcavated areas will be used to represent exposure point concentrations (EPCs) in each area, respectively. The EPC for OU9 will be computed using an area-weighted average concentration from the unexcavated area and the excavated area.

Data were evaluated to determine whether August 2009 data met performance criteria specified in Worksheet #11 of the OU9 RI SAP and based on the computations provided in Attachment 1 it was determined that a sufficient amount of samples were not collected in the excavated area. The excavated and unexcavated areas of OU9 were investigated during the August 2009 RI sampling event and the OU9 RI Data Package (Tetra Tech, January 2010) provides the data from that sampling event. The excavated area was expected to consist of fill and underlying native soil, and to have relatively homogeneous chemical concentrations below USEPA risk screening levels (RSLs) because a removal action was performed in this area. The unexcavated area was expected to consist of soil that still contained ash and therefore to have more variable chemical concentrations than the excavated area because the ash, the source of the contaminants, is heterogeneously distributed through the soil, and variable chemical concentrations were detected in previous ash samples. The August 2009 RI sample results indicated that fill and underlying soil in the excavated area had COPC concentrations and variability greater than expected whereas soil in the unexcavated area had COPC concentrations and variability less than expected. Additionally, as presented in the OU9 RI Data Package (Tetra Tech, January 2010), an unexpected pocket of ash and coal was discovered in the excavated area.

SAMPLE DESIGN

As detailed in Attachment 1, calculations were performed to determine how many more samples must be collected to meet performance criteria per data set evaluated. The number of additional samples needed to meet performance criteria for the most likely exposure scenario (industrial exposure) and the need to provide additional samples across the excavated area was taken into account to determine the sample design for the additional sampling. A minimum of two additional samples for the 2007 fill and one additional sample for the underlying soil were determined to be needed to meet the performance criteria for the industrial receptor (Table A-1 in Attachment 1). However, ten additional locations will be sampled for surface soil (one depth) and subsurface soil (one or two depths dependant on depth of bedrock) to provide additional spatial coverage across the excavated area.

A stratified random sampling scheme was selected to ensure adequate coverage of the excavated area and to provide data to calculate an EPC representative of potential exposure. A 50-by-50 foot grid was placed within the limits of the 2007 excavated area as displayed on Figure 1. Ten of the twenty-five grid cell numbers were randomly selected using the statistical program R (R version 2.2.9 (2009-08-24), Copyright "The R Foundation for Statistical Computing") to determine which grids must be sampled. Borings were located in center of the randomly selected grids except when the center of the grid is near a utility and for the proposed sample north of sampling location OU9-13, which was moved north to determine whether ash is still present underneath fill material in this area. At each proposed sampling location shown on Figure 1, a boring will be installed and samples will be collected from the 0 to 2 feet bgs (surface soil), 2 to 5 feet bgs (subsurface soil), and 5 to 8 feet bgs (subsurface soil) depth intervals to provide data consistent with the 2009 unexcavated area depth intervals.

ANALTICAL DESIGN

The analytical program will remain the same as identified in the chemistry worksheets of the OU9 RI SAP (e.g. Worksheets # 15A, 19, 23, 24, 25, 27, 28, 30) and the additional data collected will be combined with the 2009 data for the evaluation of nature and extent and risk assessment in the OU9 RI Report. The following table summarizes the additional samples to be collected.

Sampling Location / ID Number	Matrix	Depth	Analytes	Number of Samples (identify field duplicates)	Sampling SOP Reference
OU9-16 to 25/OU9-SS-01-0002 to OU9-SS-06-0002	Surface soil	0 to 2 feet bgs	PAHs (SIM) Antimony Lead Mercury	10 plus 1 duplicate	CT-04, HS-1.0, GH-1.3, GH-1.5, SA-1.3, SA-2.5, SA-6.1, SA-6.3, SA-7.1
OU9-16 to 25/OU9-SB-16-0205 to OU9-SB-25-0205	Shallow subsurface soil	2 to 5 feet bgs	PAHs (SIM) Antimony Lead Mercury	10 plus 1 duplicate	
OU9-16 to 25/OU9-SB-16-0508 to OU9-SB-25-0508	Deeper subsurface soil	5 to 8 feet bgs (or to refusal if shallower than 8 feet bgs)	PAHs (SIM) Antimony Lead Mercury	10 plus 1 duplicate	

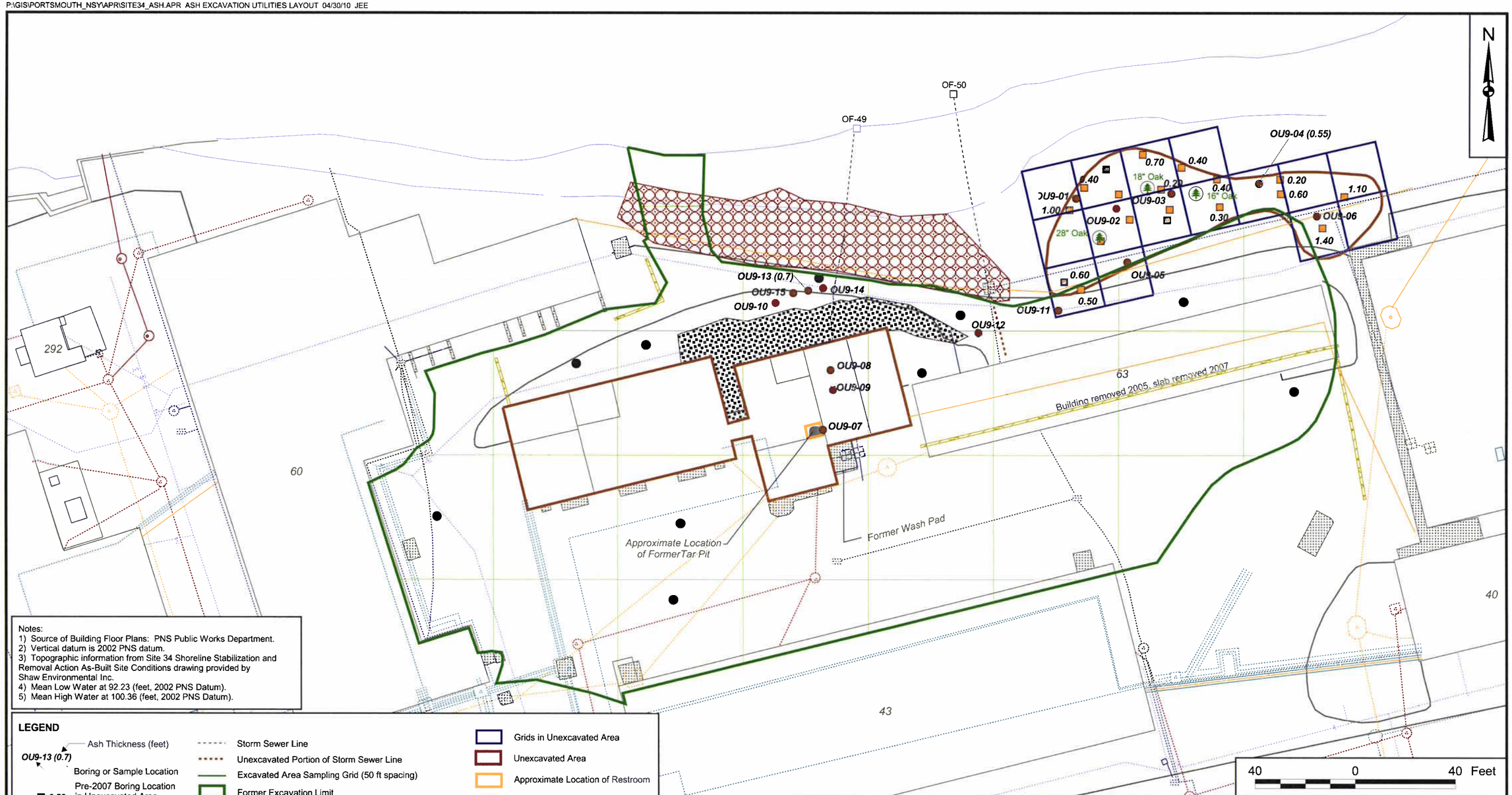
- Sample nomenclature is described in Appendix C of the OU9 RI SAP.

In the OU9 RI SAP an assumption was made that 2007 fill material brought in from an off-site quarry during the removal action was clean fill material (i.e., would not cause unacceptable human health risks for any potential receptors). An evaluation of the data from the August 2009 RI sampling event indicates that the 2007 fill material may pose unacceptable risk to some receptors because COPC concentrations in some samples were detected at levels greater than corresponding residential and industrial screening levels. However, only four samples were collected from the fill material so it is uncertain whether these screening level exceedances are typical or anomalous of the fill material. Additional samples as described in this addendum will be analyzed for the COPCs listed in the OU9 RI SAP. The project team will review the analytical data (from August 2009 and the additional sampling) by plotting the COPC concentrations across the site and analyzing those distributions to determine whether the data indicate that COPC concentrations in 2007 fill material are markedly different than concentrations in other soil samples at the site. If COPC concentrations in the 2007 fill material differ from the remainder of the site, the project team will decide whether additional investigation of the 2007 fill material is necessary to determine whether other non-OU9 related contaminants are present in the 2007 fill material at unacceptable levels.

SAMPLING AND DATA MANAGEMENT METHODOLOGY

Sampling and data management methodology will be consistent with those methodologies and standard operating procedures listed in the OU9 RI SAP (see Worksheets #14, 18, 26 to 37).

P:\GIS\PORTSMOUTH_NSY\APR\SITE34_ASH.APR ASH EXCAVATION UTILITIES LAYOUT 04/30/10 JEE



Notes:
1) Source of Building Floor Plans: PNS Public Works Department.
2) Vertical datum is 2002 PNS datum.
3) Topographic information from Site 34 Shoreline Stabilization and Removal Action As-Built Site Conditions drawing provided by Shaw Environmental Inc.
4) Mean Low Water at 92.23 (feet, 2002 PNS Datum).
5) Mean High Water at 100.36 (feet, 2002 PNS Datum).

LEGEND

- OU9-13 (0.7) — Ash Thickness (feet)
- Boring or Sample Location
- 0.50 — Pre-2007 Boring Location in Unexcavated Area; Ash Thickness (feet)
- 2009 Soil Sample Location
- Proposed Sampling Location
- Oak Tree
- OF-49 — Outfall
- Storm Sewer Line
- Unexcavated Portion of Storm Sewer Line
- Excavated Area Sampling Grid (50 ft spacing)
- Former Excavation Limit
- Road
- Sewer Utility (dashed if suspected)
- Electric Utility (dashed if suspected)
- Other Utility (dashed if suspected)
- Water Utility (dashed if suspected)
- Drain Utility (dashed if suspected)
- Grids in Unexcavated Area
- Unexcavated Area
- Approximate Location of Restroom
- Concrete Pad
- Granite Block
- Riprap
- Crushed Stone
- Building/Structure

DRAWN BY J. ENGLISH	DATE 04/30/10	TETRA TECH	CONTRACT NUMBER 1456 / OWNER NUMBER CTO 533
CHECKED BY M. KRAUS	DATE 07/16/10	OPERABLE UNIT 9 SAP ADDENDUM PROPOSED SAMPLING LOCATIONS PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE	APPROVED BY — DATE —
COST/SCHEDULE-AREA			APPROVED BY — DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 1 / REV 0

ATTACHMENT 1

PERFORMANCE CRITERIA AND SAMPLE SIZE EVALUATION

OU9 RI Sample Size Evaluation

The computations presented herein establish whether enough samples have been collected to achieve decision criteria in Worksheet #11 in the OU9 RI SAP. Four statistical parameters must be specified for these computations: alpha, beta, delta, and standard deviation (SD). Alpha represents the tolerable probability for not taking corrective action when it is warranted; and beta is the tolerable probability for taking unnecessary corrective action. Delta is a concentration range, adjacent to the action level concentration. Within the delta concentration range the tendency is to take corrective action instead of collecting more data to determine whether the exposure point concentration (EPC) is within or outside the range of delta. SD is observed or estimated for the population of interest. The alpha and beta error rates specified in the OU9 RI SAP were 10 and 20 percent, respectively, and apply to all soil types and receptors. Delta was specified to be 75 percent of the action level for all soil types and receptors. Available soil polycyclic aromatic hydrocarbon (PAH) data expressed as benzo[a]pyrene (BAP) equivalents were used to compute SDs, and these SDs are presented in Table A-1, for various categories of soil. The soil categories are:

- Excavated Area 2007 Fill Material - soil used as backfill for the removal action excavation.
- Excavation Area Underlying Native/Fill Material - soil underlying 2007 fill soil.
- Excavated Area Coal/Ash Material - soil from three borings added to characterize a pocket of coal/ash material found beneath the 2007 fill material.
- Unexcavated Area Surface Soil - surface soil (0 to 2 feet bgs) from the unexcavated area.
- Unexcavated Area Subsurface Soil - subsurface soil (greater than 2 feet bgs) to refusal or 8 feet bgs, whichever is shallower, from unexcavated area.

PAH and lead data were used in the computations (see Attachment 2) because several concentrations of those chemicals exceeded both corresponding residential and industrial screening levels. Antimony and mercury were generally detected at concentrations similar to or less than the residential screening level and all detections were less than the industrial screening levels, so those COPCs would not be risk drivers for OU9 and were not included in this evaluation.

Calculations to estimate the minimum number of samples needed to achieve the performance criteria based on the August 2009 data were performed. The sample sizes necessary to provide statistical confidence that site concentrations are below the corresponding action level are presented in Table A-1, along with a summary of results for each data set. Various screening levels and concentrations estimated to be possible remedial goals (Table A-1) were used as part of the evaluation to provide an understanding of the number of samples needed to satisfy performance criteria for different possible exposure scenarios.

Overall, the PAH and lead concentrations were greater than residential screening levels, particularly in the excavated area. Residential land use is not a likely exposure scenario for OU9 because this site has been a commercial/industrial area since the late 1800s and is planned to remain as such. Remedial action (except for land use controls for residential exposure) is not likely, so additional sampling to prove the data set is clean for residential use is not warranted. Soil at the site is covered with grass, asphalt, or riprap; therefore, recreational user or occupational worker exposures are not likely based on current land use. Industrial exposure to soil during excavation (such as if excavation is required to access utilities) is the most likely exposure scenario. For determining whether additional sampling would be beneficial, the industrial exposure scenario was focused on and is described in greater detail below because it is the most likely exposure scenario. The following provides a summary of the results and a recommendation for additional sampling to provide more confidence in the representation of concentrations for each dataset.

<u>Excavated Area Coal/Ash Material:</u>

- Coal/ash was found in a pocket in one area and a few other pockets of coal/ash are expected to be present at depth. Samples from borings within and adjacent to this material showed a large variability in PAH concentrations, but generally had PAH concentrations that were much greater than the industrial screening levels. Coal/ash material represents a small portion of the site (estimated to be 1 percent or less of the subsurface soil at OU9) based on previous sampling for estimation of ash extent. Use of the maximum detection rather than additional characterization

sampling of this material would not likely affect the understanding of risks for the site (i.e. collecting additional samples is unlikely to change the conclusion that this data set is contaminated); therefore, additional sampling in this area is not recommended.

Excavated Area 2007 Fill Material:

- 2007 fill material exhibited a large standard deviation for lead concentrations. The maximum concentration of lead was detected in a field duplicate pair (approximately 6,600 mg/kg) and the corresponding duplicate lead concentration (for the original sample) was an order of magnitude less (approximately 800 mg/kg). Except for the maximum detection, lead concentrations in the fill material would not pose unacceptable risk for an industrial exposure. Concentrations in the four fill soil samples were greater than anticipated and the sample computations show that additional characterization of COPC concentrations in the fill is warranted; therefore, additional fill samples will be collected and analyzed.

Excavated Area Underlying Native/Fill Material:

- The underlying fill evaluation indicates that contaminant concentrations in that material would not pose unacceptable risk for an industrial exposure. The number of samples collected is only one less than the sample size to meet the alpha and beta error rates. Additional sampling would provide better characterization of COPC concentrations but may not change the risk conclusions. Additional sampling and analysis of the underlying fill material will be conducted because the number of samples collected was less than the calculated sample size needed to meet the alpha and beta error rates.

Unexcavated Area

- The unexcavated area evaluation indicates that contaminant concentrations in this area would not pose unacceptable risk for industrial exposure. The number of samples collected is sufficient to meet the alpha and beta error rates. Use of the maximum detection rather than additional

characterization would not likely affect the understanding of risks for the site. Therefore, additional sampling in the unexcavated area is not recommended.

CONCLUSIONS

The variability in COPC concentrations in the excavated area in comparison to risk screening levels and possible remediation goals shows that additional data are needed to better characterize COPC concentrations to support risk assessment for OU9. Excavation of soil and placement of fill during the 2007 removal action occurred from the ground surface to between one foot and approximately 7 feet bgs. Therefore the soil column across the excavated area to a depth of 7 feet bgs comprises varying amounts of 2007 fill and underlying unexcavated soil. To best characterize the EPCs for the excavated area, additional sampling across the excavated area is recommended for surface soil (0 to 2 feet bgs), and for subsurface soil (2 to 5 and 5 to 8 feet bgs). Sampling to specifically target 2007 fill versus underlying soil is not recommended. A stratified random sampling scheme is recommended to provide coverage of the excavated area to provide data to calculate EPCs representative of potential exposure. The sample size evaluation determined that a minimum of two additional samples of the 2007 fill and one additional sample of the underlying soil would provide the necessary amount of data to meet performance criteria; however, additional sampling locations will be collected to provide better coverage of the excavated area.

TABLE A-1
SAMPLE SIZE CALCULATION RESULTS TABLE
OPERABLE UNIT 9
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

BAP Equivalent

Data Sets Evaluated Againt Performance Criteria	Minimum Detected (µg/kg)	Maximum Detected (µg/kg)	Average (µg/kg)	SD (µg/kg)	Number of Samples Required for EPA Residential RSL: 15 µg/kg	Number of Samples Required for EPA Industrial RSL: 210 µg/kg	Number of Samples Required for Potential Industrial PRG[1]: 2,100 µg/kg	Numer of Samples Analyzed in 2009	Additional Samples Required to Meet Potential Industrial PRG PC
Excavated Area Coal/Ash Material[2]	89	230000	40174	78562	NC	NC	NC	8	NA
Excavated Area 2007 Fill Material[3]	4	790	429	330	NC	NC	5	4	1
Excavated Area Underlying Native/Fill Material[4]	20	212.5	101	92	NC	8	5	4	1
Unexcavated Area Subsurface[5]	4	350	84	125	NC	10	5	7	0
Unexcavated Area Surface[5]	83	330	182	91	NC	78	5	6	0

Lead

Data Sets Evaluated Againt Performance Criteria	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	Average (mg/kg)	SD (mg/kg)	Number of Samples Required for EPA Residential RSL: 400 mg/kg	Number of Samples Required for Potential Industrial PRG: 1,600 mg/kg	Number of Samples Required for Potential PRG for Industrial Exposure: 4,000 mg/kg	Numer of Samples Analyzed in 2009	Additional Samples Required to Meet Potential Industrial PRG (4,000 mg/kg) PC
Excavated Area Coal/Ash Material[2]	16.6	804	266	312	41	5	5	8	0
Excavated Area 2007 Fill Material[3]	20.5	3697	1232	1731	NC	160	6	4	2
Excavated Area Underlying Native/Fill Material[4]	31.2	190	131	70	5	5	5	4	1
Unexcavated Area Subsurface[5]	6.3	152	70	57	6	5	5	8	0
Unexcavated Area Surface[5]	23.2	457	212	192	10	5	5	6	0

Acryonms:
BAP = Benzo(a)pyrene
EPA = United States Environmental Protection Agency
NA = Not Applicable
NC = Not Calculated (because average concentration is greater than the screening level)
PC = Performance Criteria
PRG = Preliminary Remediation Goal
RSL = Risk Screening Level (EPA RSLs, December 2009)
SD = Standard Deviation

Performance Criteria Specifications
ALPHA = 10%
BETA = 20%
DELTA = Difference between Action Level and Average

Possible PRGs for lead for occupational worker (1,600 mg/kg) and construction worker (4,000 mg/kg based on 30 day exposure).

Footnotes
1 The potential BAP Equivalent PRG for industrial exposure is based on the EPA RSL corresponding to an incremental lifetime cancer risk of 1 $x10^{-5}$.
2 Soil samples from borings with coal and/or ash in 2007 excavated area.
3 Soil samples of fill placed in excavated area in 2007.
4 Soil samples underlying 2007 fill material (mixture of native and reworked soil), not including samples from borings with coal/ash.
5 Surface (0 to 2 feet bgs) and subsurface soil (2 to 8 feet bgs or refusal whichever was shallower) from unexcavated area. Several samples contained coal chips and/or ash.

ATTACHMENT 2
MARSSIM SIGN TEST DESIGN

MARSSIM Sign Test Design

Background Information

The MARSSIM Sign test is a one-sample, nonparametric statistical test used to determine compliance with a release criterion (Action Level, i.e., DCGLw) when the radionuclide of concern is *not* present in background. The purpose of a MARSSIM sign test is to test a hypothesis involving the true mean or median of a population against an Action Level. Note that using this test for the mean assumes the distribution of the survey unit population is symmetrical. When the distribution of the population in the Survey Unit is symmetrical, the mean and the median are the same. When the distribution is not symmetrical, the Sign test is a true test for the median, and an approximate test for the mean. This assumption and the appropriate use of the sign test for final status surveys is discussed in *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)* (EPA 2000). This document is currently available at: http://www.epa.gov/radiation/marssim/

Equations Used to Calculate Recommended Minimum Number of Samples

The number of samples is calculated using Eq. (1) (EPA 2000, p. 5-33) when the MQO option is *not* selected. The number of samples is calculated using Equation (2) when the MQO option is selected (Gilbert et al. 2001, pp. 3.8 and 3.9).

(1)

$$n = \frac{(z_{1-\alpha} + z_{1-\beta})^2}{4(Sign\ P - 0.5)^2} \quad \text{where} \quad Sign\ P = \Phi\left(\frac{\Delta}{s_{Total}}\right)$$

(2)

$$n = \frac{(z_{1-\alpha} + z_{1-\beta})^2}{4(Sign\ P - 0.5)^2} \quad \text{where} \quad Sign\ P = \Phi\left(\frac{\Delta}{\sqrt{s_{sample}^2 + \frac{s_{analytical}^2}{r}}}\right)$$

where:

n is the recommended minimum sample size

s_{Total} is the estimated standard deviation due to both sampling and measurement variability

$z_{1-\alpha}$ is the value of the standard normal distribution for which the proportion of the distribution to the left of $z_{1-\alpha}$ is $1-\alpha$

$z_{1-\beta}$ is the value of the standard normal distribution for which the proportion of the distribution to the left of $z_{1-\beta}$ is $1-\beta$

Δ is the width of the gray region

α is the probability of rejecting the null hypothesis when the null hypothesis is true.

β

β is the probability of not rejecting the null hypothesis when the null hypothesis is false.

$\Phi(x)$ is the probability that a standard normal variate takes on a value $\leq x$ (CDF).

MQO Specific:

s_{Sample} is the standard deviation due to the inherent variability in the sampling process alone, i.e., when the analysis error is zero

$s_{Analytical}$ is the standard deviation due to the inherent variability in the analysis process alone

r is the number of times an individual sample is analyzed

Statistical Assumptions

The assumptions associated with the formulas for computing the number of samples are:

1. the computed sign test statistic is normally distributed,
2. the variance estimate, s^2, is reasonable and representative of the population being sampled
3. the population values are not spatially or temporally correlated, and
4. the sampling locations will be selected randomly.

The first three assumptions will be assessed in a post data collection analysis. The last assumptions is valid because the sample locations were selected using a random process.

References

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