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Transmitted by Overnight Mail

Mr. James W. Metz

April 21, 2008

Chief, Voluntary Cleanup Division Environmental Restoration and Redevelopment Program Maryland Department of the Environment 1800 Washington Blvd. Ste. 625 Baltimore, MD 21230

Re: Middle River Complex VCP – Soil Response Action Plan, Block H, MRC, Middle River, Maryland

Dear Mr. Metz:

Please find enclosed document for your review and approval.

Please let me know if you have any questions about this transmittal; I can be reached at (301) 214-9958.

Sincerely,

Thomas D. Blackman

Project Lead, Environmental Remediation

Attachment: Soil Response Action Plan, Block H, MRC, Middle River, Maryland

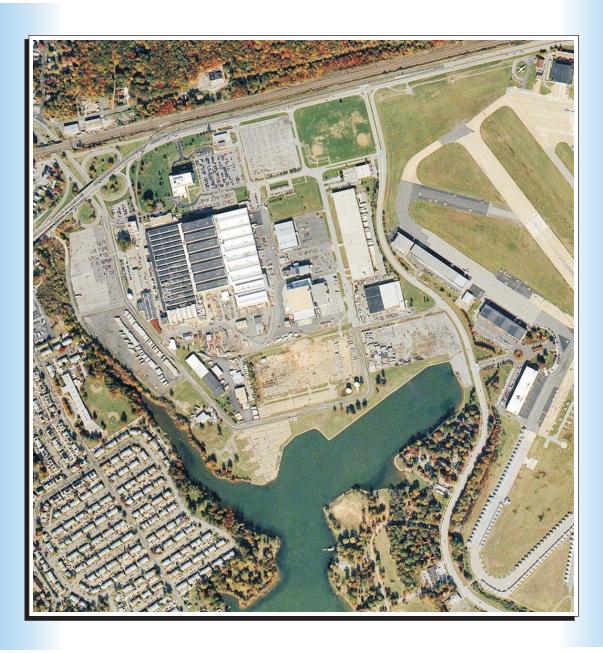
BET 131

cc: Via Email

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SOIL RESPONSE ACTION PLAN BLOCK H LOCKHEED MARTIN MIDDLE RIVER COMPLEX

2323 Eastern Boulevard Middle River, Maryland





Final Soil Response Action Plan Block H Lockheed Martin Middle River Complex 2323 Eastern Boulevard Middle River, Maryland

Prepared for:
Lockheed Martin Corporation
Prepared by:
Tetra Tech, Inc.
Michael Mark
Michael Martin, P.G.

Project Manager

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ACRONYMS

μg/kg micrograms per kilogram

ARAR Applicable or Relevant and Appropriate Requirement

ASTM American Society for Testing and Materials International

ATC Average Typical Concentration

bgs below ground surface

BTEX benzene, toluene, ethylbenzene, and xylenes

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

CFR Code of Federal Regulations

COC chemical of concern

COMAR Code of Maryland Regulations
COPC chemical of potential concern

CSF Cancer Slope Factor

CSM Conceptual Site Model

cy cubic yards

DEPRM Department of Environmental Protection and Resource Management

DRO diesel range organics

EDD electronic data deliverable

EM electromagnetic

EPA United States Environmental Protection Agency

GLM Glenn L. Martin Company

GPR ground penetrating radar

GRA general response action

GRO gasoline range organics

HASP Health and Safety Plan

HHRA human health risk assessment

LDR Land Disposal Restriction

LUC land use control

MDE Maryland Department of the Environment

mg/kg milligrams per kilogram

MRAS Middle River Aircraft Systems

MRC Middle River Complex

MS2-LS&S Maritime Systems & Sensors – Littoral Ships & Systems

MSDS Material Safety Data Sheet

msl mean sea level

NCP National Oil and Hazardous Substances Pollution Contingency Plan

NEPA National Environmental Policy Act

NIOSH National Institute of Occupational Safety and Health

NPDES National Pollutant Discharge Elimination System

NPW net present worth

O&M operation and maintenance

OSHA Occupational Safety and Health Administration

PAH polycyclic aromatic hydrocarbon

PCB polychlorinated biphenyl

PLS pure live seed

PPE personal protective equipment

RAO response action objective

RAP Response Action Plan

RCRA Resource Conservation and Recovery Act

REC Recognized Environmental Condition

RfD Reference Dose

sf square feet

SSO Site Safety Officer

SVOC semivolatile organic compound

TBC To Be Considered

TCE trichloroethene

TCLP Toxicity Characteristic Leaching Procedure

TPH total petroleum hydrocarbon

TSDF treatment, storage, and disposal facility

Tetra Tech, Inc.

UCL upper confidence limit

UECA Uniform Environmental Covenants Act

USC United States Code

USCS Unified Soil Classification System

UTS Universal Treatment Standard

VCP Voluntary Cleanup Program

VOC volatile organic compound

Executive Summary

This Response Action Plan (RAP) is being submitted by Tetra Tech, Inc. (Tetra Tech) on behalf of Lockheed Martin Corporation (Lockheed Martin) for soil media at Block H of the Lockheed Martin Middle River Complex (MRC) located in Middle River, Maryland. The RAP was prepared in accordance with the requirements of the Maryland Department of the Environment's (MDE's) Voluntary Cleanup Program (VCP) (Section 7-508 of the Environment Article, Annotated Code of Maryland). The purpose of the RAP is to provide the information necessary to support the decision to remove contaminated soil in order to receive a Certificate of Completion from the MDE under a Tier 1A (Residential Unrestricted) future land use and restriction category based on potential future residential development. A separate RAP is being prepared to address contaminated groundwater beneath the MRC, including the groundwater beneath Block H.

The MRC is located in Middle River, Maryland, approximately 11.5 miles northeast of downtown Baltimore and covers approximately 161 acres. Block H (7.9 acres) is located in the northwestern portion of the MRC. No Recognized Environmental Conditions (RECs) are located in Block H. Block H consists of Parking Lot No. 2, which has been used primarily as an employee parking lot. The parking lot is paved with asphalt and a grassy strip of land is located between the paved portion of the block and Cow Pen Creek.

Investigations at Block H were conducted in 2005 and consisted of a geophysical survey and soil and groundwater sampling. The analytical results for the soil and groundwater samples were evaluated in a site-specific human health risk assessment (HHRA), which identified benzo(a)pyrene and mercury as chemicals of concern (COC) in soil. Cleanup goals were developed to satisfy the requirements of the VCP and to be consistent with the requirements of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 400.430, as implemented through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Attainment of the cleanup goals at Block H will result in a cancer risk less than 1 x 10⁻⁵ and a hazard index less than 1.0.

An additional field investigation was completed at Block H prior to the implementation of the response action to determine the extent of soil with COC concentrations greater than the cleanup goals. The field investigation confirmed previous investigation findings and discovered an additional soil boring SB-474 (3 to 4 feet bgs) with benzo(a)pyrene concentrations greater than the cleanup goal (400 μ g/kg). The COC concentrations greater than cleanup goals are confined to four soil boring locations SB-200, SB-201, SB-285 and SB-474.

Soil associated with soil boring location SB-201 will be removed to a depth of 1 foot bgs. Soils associated with soil boring locations SB-200 and SB-285 will be removed to a depth of 10 feet bgs or to the depth of the zone of saturation, whichever is less. Soil associated with soil boring location SB-474 will be removed to a depth of 4 feet bgs. The soil removal limits and corresponding soil boring locations are shown in Figure 8-1.

As required by the VCP, selected technologies and land use controls (LUCs) were evaluated. The NCP served as a guide for the process used to arrive at the selected technology (i.e., selected alternative). This process included the identification, screening, and evaluation of potential technologies and process options; preliminary and detailed screening of technologies and process options; selection of representative process options; development and detailed analysis of alternatives; comparative analysis of alternatives; and description of the proposed alternative. The proposed response action selected was Excavation and Off-Site Treatment and Disposal to allow unrestricted residential site use.

The proposed response action would remove soil with COC concentrations greater than the cleanup goals to the extent necessary to allow unrestricted residential use of Block H. A total of 1,500 tons of soil will be removed from four soil boring locations for off-site disposal. Site preparation would include the construction of temporary materials handling pad, decontamination zones, haul routes and clearing of the areas to be excavated. Shallow excavation of soil would be conducted using a bulldozer, front-end loader, hydraulic excavators, backhoe, or similar equipment. Post-removal/confirmation samples would be collected from the sidewalls and base of the excavation(s). Following excavation and confirmation sampling, the excavated areas would be backfilled with certified clean material, graded to original contours, and restored using vegetation or pavement. It is assumed that all excavated soil would be disposed at an off-site permitted Resource Conservation and Recovery Act (RCRA) Subtitle D landfill. Because the soil remaining

on site would no longer contain concentrations of COCs that could be harmful to potential future residential receptors, soil-related LUCs would not be required.

Lockheed Martin will meet local, State, and federal permitting requirements for the response action. Based on a review of requirements of MDE and Baltimore County, permitting requirements for the response action are related to earth-moving activities.

As stipulated by MDE's VCP, administrative requirements, including a written agreement, zoning certification, performance bond or other form of security, and health and safety plan requirements will be met. A written agreement stipulating that if the RAP is approved, the applicant agrees to comply with the provisions of the RAP is provided herein. A zoning certification, a certified written statement that the property meets all applicable county and municipal zoning requirements, is also provided with this RAP. A project-specific Health and Safety Plan (HASP) will be prepared and submitted to MDE prior to implementation of the MDE-approved RAP.

Section 1 Introduction

1.1 PURPOSE

On behalf of Lockheed Martin Corporation (Lockheed Martin), Tetra Tech, Inc. (Tetra Tech) has prepared this Response Action Plan (RAP) for soil media at Block H of the Lockheed Martin Middle River Complex (MRC) located in Middle River, Maryland. The location of the MRC is shown on Figure 1-1. This RAP has been prepared in accordance with the requirements of the Maryland Department of the Environment's (MDE's) Voluntary Cleanup Program (VCP) (Section 7-508 of the Environment Article, Annotated Code of Maryland).

The purpose of the RAP is to provide the background, support, and framework for remediation of soil with chemical of concern (COC) concentrations greater than the cleanup goals in order to receive a Certificate of Completion from the MDE under a Tier IA (Residential Unrestricted) future land use and restriction category based on potential future residential development. Block H and physical features are shown on Figure 1-2.

A Certificate of Completion will be sought from the MDE following the satisfactory implementation and completion of the MDE-approved RAP.

1.2 SCOPE

The response action for Block H, which will address soil and groundwater with COC concentrations greater than the cleanup goals, is summarized as follows:

- The soil response action proposed in this RAP will include removal of soil with COC concentrations greater than the cleanup goals.
- The Groundwater Response Action Plan will address groundwater with COC concentrations greater than the cleanup goals in order to receive a Certificate of Completion from the MDE under a Tier IB (Residential Restricted) future land use and

restriction category. The restriction category would consist of institutional controls designed to prevent potable use of groundwater. The restriction category consisting of institutional controls would remain in place until the groundwater cleanup goals are achieved through remediation. The proposed response action for groundwater associated with Block H is described in the Groundwater Response Action Plan provided under separate cover.

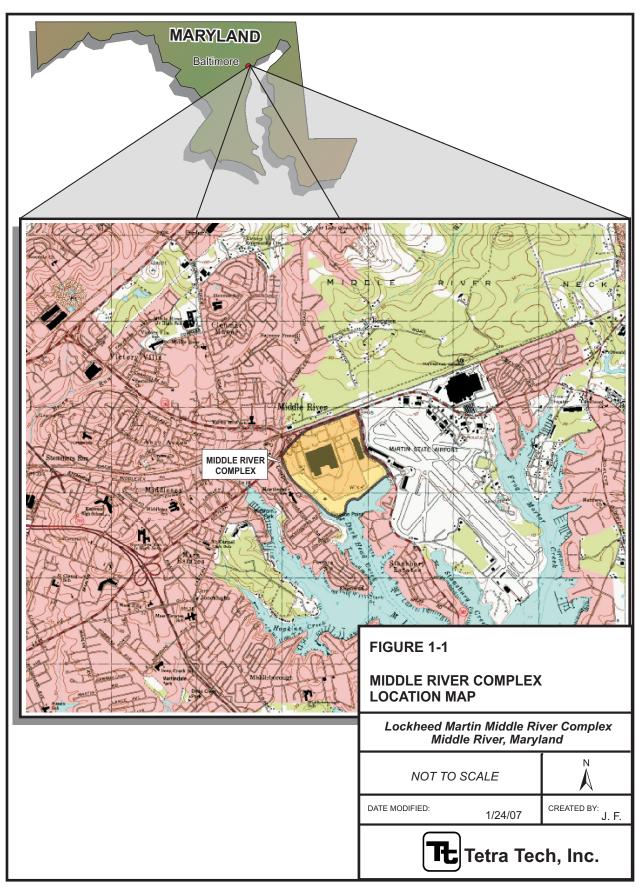
1.3 ORGANIZATION

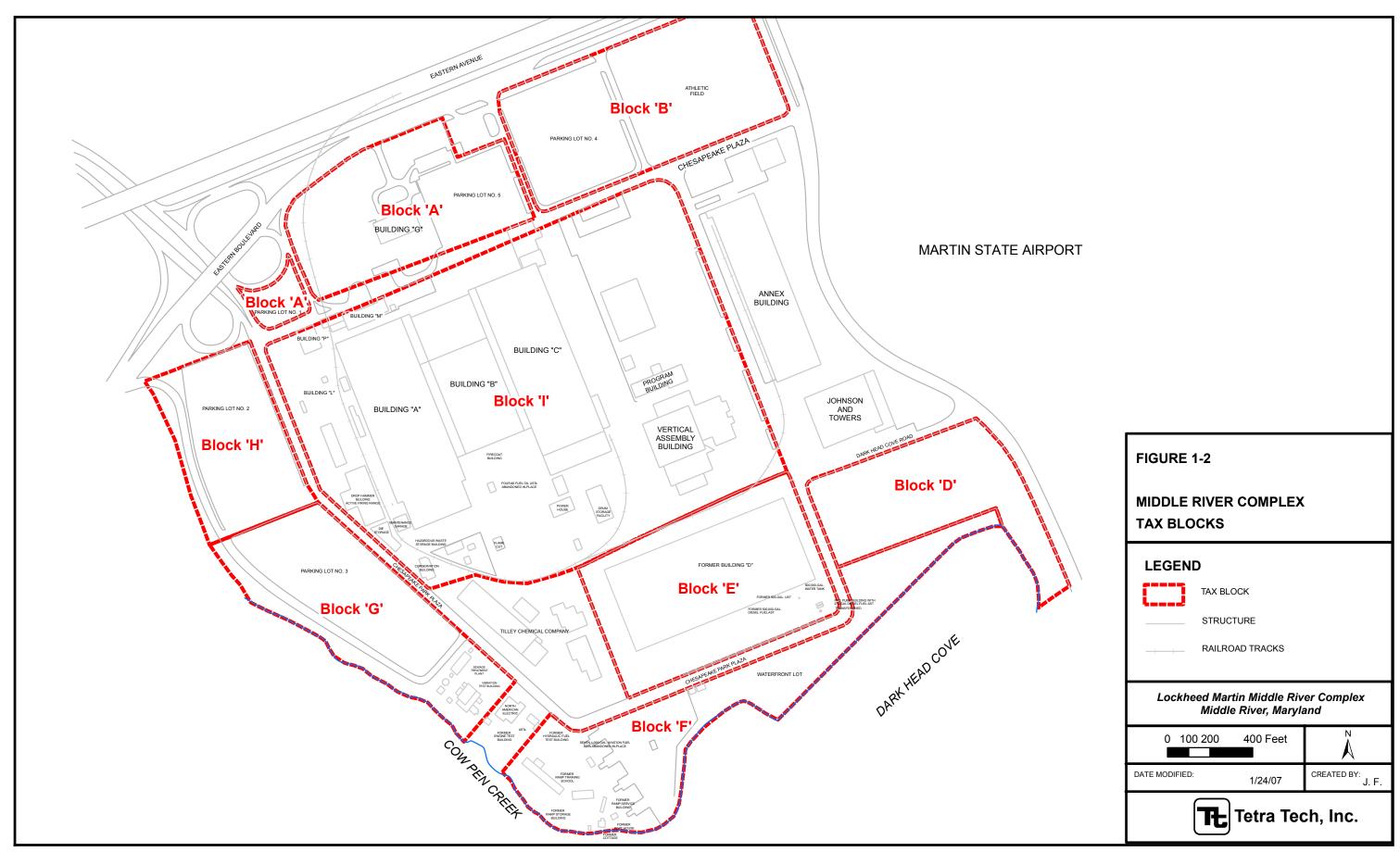
This RAP is organized as follows:

- Section 1 Introduction: Presents the purpose, scope, and organization of the RAP.
- <u>Section 2 Block H Overview</u>: Presents a brief description of MRC and Block H history, environmental investigations and results, nature and extent of contamination, and a summary of the proposed soil response action.
- <u>Section 3 Additional Investigatory Information</u>: Presents a summary of the additional investigation completed in support of the response action.
- <u>Section 4 Exposure Assessment</u>: Presents the current and proposed land use, media of concern, and Conceptual Site Model (CSM).
- <u>Section 5 Cleanup Criteria</u>: Presents cleanup criteria, a risk assessment summary, cleanup goals, and information associated with attainment of cleanup goals.
- <u>Section 6 Selected Technologies and Land Use Controls</u>: Presents the screening of technologies and process options, development and analysis of alternatives, comparative analysis of alternatives, and the selected alternative to achieve cleanup of Block H.
- <u>Section 7 Evaluation Criteria for the Selected Technology</u>: Presents the criteria required for a Certificate of Completion.
- <u>Section 8 Proposed Response Actions</u>: Presents the plan for all work necessary to perform the proposed response action.
- <u>Section 9 Permits, Notifications, and Contingencies</u>: Presents the local, State, and federal laws and regulations that prescribe the permits and approvals required to implement the MDE-approved RAP.
- <u>Section 10 Implementation Schedule</u>: Presents the detailed schedule for all work necessary to implement the MDE-approved RAP.
- <u>Section 11 Administrative Requirements</u>: Presents the administrative documents required to implement the MDE-approved RAP.

• <u>Section 12 – References</u>: Lists references and citations used in compiling this RAP.

Appendix A includes a summary of soil analytical results. Appendix B includes a statistical summary of pre- and post-removal action data. Appendix C includes field documentation notes and boring logs. Appendix D includes data validation reports. Appendix E includes documentation required to comply with administrative requirements.





Section 2 Block H Overview

2.1 BLOCK H BACKGROUND

The MRC, which is part of the Chesapeake Industrial Park, is located at 2323 Eastern Boulevard in Middle River, Maryland, approximately 11.5 miles northeast of downtown Baltimore. The MRC covers approximately 161 acres and consists of 12 main buildings, an active industrial area and yard, perimeter parking lots, an athletic field, a concrete-covered vacant lot, a trailer and parts storage lot, and numerous grass-covered green spaces along it's perimeter. The MRC is bounded by Eastern Boulevard (Route 150) to the north, Dark Head Cove to the south, Cow Pen Creek to the west, and Martin State Airport to the east. The location of the MRC is shown in Figure 1-1. A MRC layout map is presented as Figure 2-1.

The MRC is comprised of several tax blocks. Block H, consisting of 7.88 acres, is located in the northwestern portion of the MRC. Block H is bounded to the north by Eastern Boulevard, to the east by the industrial portion of the MRC (Block I), to the south by Parking Lot No. 3 (Block G), and to the west by Cow Pen Creek. There are no Recognized Environmental Conditions (RECs) located in Block H.

2.1.1 Block H Description

Currently, Lockheed Martin's MRC primary activities include facility and building management and maintenance. The MRC has two main tenants: Middle River Aircraft Systems (MRAS), a subsidiary of General Electric that conducts design, manufacturing, fabrication, testing, overhaul, repair, and maintenance of aeronautical structures, parts, and components for military and commercial applications, and Maritime Systems & Sensors – Littoral Ships & Systems (MS2-LS&S), a subsidiary of Lockheed Martin that conducts fabrication, assembly, testing, and

support of vertical launch systems. Lockheed Martin and tenant operations are primarily contained within Block I.

Block H consists of Parking Lot No. 2, which has been used primarily as an employee parking lot. The parking lot is paved with asphalt and a grassy strip of land is located between the paved portion of the block and Cow Pen Creek. Access to the parking lot is from Chesapeake Park Plaza.

2.1.2 Block H History

In 1929, Glenn L. Martin Company (GLM), a predecessor of Lockheed Martin, acquired a large parcel of land in Middle River, Maryland to conduct aircraft manufacturing for the United States government and for commercial clients. Prior to the property's first occupancy, the MRC was undeveloped land. In the early 1960s, GLM merged with American-Marietta Company, forming Martin Marietta Corporation. Around 1975, the adjacent eastern airport (Martin State Airport), totaling approximately 750 acres, was transferred to the State of Maryland. In the mid-1990s, Martin Marietta Corporation merged with Lockheed, forming Lockheed Martin Corporation, with its principal subsidiary specializing in construction and testing of new ordnance for the United States government and for commercial clients. Shortly following the merger, General Electric acquired the majority of Lockheed Martin's aeronautical business in Middle River, which began to function as MRAS.

Based on available aerial photographs, Parking Lot No. 2 was constructed before 1954 and remains in use today for employee parking. No structures are known to have existed within this asphalt parking area.

2.1.3 Block H Characteristics

2.1.3.1 <u>Current and Surrounding Land Use</u>

The MRC is an industrial facility, and the area surrounding the MRC primarily consists of commercial, industrial, and residential establishments. Six facilities comprise the remaining portion of the Chesapeake Industrial Park including Tilley Chemical Company, Inc., a food and

pharmaceutical chemical distributor for personal care and industries; North American Electric, Inc., an industrial and commercial electrical contractor; Johnson and Towers, a heavy duty automotive and boat repair and maintenance company; Poly-Seal Corp., a company that produces flexible packaging; Exxon, a gasoline fill station and convenience store; and the Middle River Post Office. Residential developments are present on the opposite shores of Cow Pen Creek, Dark Head Cove, and Dark Head Creek and north of Eastern Boulevard (Route 150).

2.1.3.2 Physiography

The MRC is located within the Western Shore of the Coastal Plain Physiographic Province, which is generally characterized by low relief. The topography of the MRC is gently sloping, ranging from sea level to 32 feet above mean sea level (msl) (Cassell, 1977). The topography slopes from Eastern Boulevard to the southwest and south towards Cow Pen Creek and Dark Head Cove.

The topography of Block H is relatively flat with a slight dip toward Cow Pen Creek.

2.1.3.3 <u>Hydrology</u>

The MRC lies at the junction of Cow Pen Creek and Dark Head Cove. Both surface water bodies discharge into Dark Head Creek, a tributary to Middle River, which is a tributary to Chesapeake Bay. The MRC lies approximately 3.24 miles (17,100 feet) upstream of Chesapeake Bay.

No surface water bodies lie within or cross the MRC. Excluding areas immediately adjacent to Cow Pen Creek and Dark Head Creek, surface water runoff discharges from the MRC via storm drains. Lockheed Martin maintains a State of Maryland National Pollution Discharge Elimination System (NPDES) permit (State Discharge Permit No.: 00-DP-0298, NPDES No.: MD0002852), issued by MDE Industrial Discharge Permits Division, Water Management Administration. The permit covers stormwater discharge from the entire property rather than individual tenants. The NPDES permitted outfall locations are shown on Figure 2-1.

No surface water bodies cross or emanate from Block H. Due to the topography and the presence of the asphalt paving, surface water runoff in this area would most likely discharge to Cow Pen Creek as overland sheet flow. Surface water runoff generated in the grass covered areas will

generally infiltrate into the underlying soil or discharge to Cow Pen Creek as overland sheet flow. Stormwater management features are located within Block D and are indicated on the MRC utility map included as Appendix J of the Site Characterization Report (Tetra Tech, May 2006). No wetlands have been identified in or around Block H, and Block H is not located within the 100-year floodplain.

2.1.3.4 <u>Soils</u>

Soils underlying MRC have been mapped as Mattapex-Urban Land Complex and Sassafras-Urban Land Complex by the United States Department of Agriculture Soil Conservation Service. Mattapex-Urban Land soils consist of deep, well-drained silty soils whose original texture has been disturbed, graded over, or otherwise altered. Sassafras-Urban Land soils consist of deep, well-drained sandy soils whose original texture has been disturbed, graded over, or otherwise altered. Site characterization studies indicate that a high degree of fine-grained (e.g., silt and clay) soils with low permeabilities are present at the MRC.

2.1.3.5 **Geology**

The surficial geology of Block H is summarized below. The geology of the MRC is described in the Site Characterization Report (Tetra Tech, May 2006).

Based on the lithologic logging of soil borings at Block H, the subsurface soils consisted of a heterogeneous mix of silty sands, fine-grained to medium-grained sands, and silty clay. In most borings, silty sand was encountered immediately below the asphalt cover or ground surface and silty clay was present below the silty sand. In other borings, silty clay was encountered immediately below the asphalt cover or ground surface (SB-201, SB-283, and SB-282).

2.1.3.6 <u>Hydrogeology</u>

A summary of groundwater measurements taken at Block H is presented in Table 2-1. The groundwater elevation contours using the shallow/intermediate surficial aquifer monitoring wells are presented on Figure 2-2. Groundwater flows in a radial fashion from the hydraulically

upgradient northern portion of the MRC at Eastern Boulevard to the southeast, south, and southwest toward Dark Head Cove and Cow Pen Creek.

Groundwater was typically encountered at Block H between 0.2 and 12 feet below ground surface (bgs) and occurred in the silty clay unit. Based on the location of Cow Pen Creek, groundwater flow is anticipated to flow to the west.

2.2 SUMMARY OF BLOCK H INVESTIGATIONS

Investigations associated with Block H have been conducted since 2005 and included record reviews, discussions with MRC personnel, geophysical surveys, and soil and groundwater sampling. Investigations¹ included the Phase II Soil Investigation (Summer 2005) (Tetra Tech, May 2006), Groundwater Characterization (Summer 2005) (Tetra Tech, May 2006), Geophysical Survey/Soil Investigation (Fall 2005) (Tetra Tech, May 2006), and Groundwater Investigation (Fall 2005) (Tetra Tech, May 2006). The summary of Block H investigations provided below is limited to the media of concern, soil, whereas a summary of groundwater investigations is provided in the Groundwater Response Action Plan.

2.2.1 Phase II Soil Investigation (Summer 2005)

A baseline sampling event was conducted in the summer of 2005 to confirm that there were no releases of any hazardous substances or petroleum products in Block H. Four soil borings (SB-200 through SB-203) were installed to provide coverage of Block H. Surface soil samples and subsurface soil samples (5 and 10 feet bgs) were collected from each boring and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), metals, total petroleum hydrocarbons (TPH), gasoline range organics (GRO), and diesel range organics (DRO).

VOCs, polycyclic aromatic hydrocarbons (PAHs), DRO, and metals were detected in the soil samples collected during this investigation. Arsenic, mercury, DRO, and benzo(a)pyrene were detected at concentrations above the MDE soil cleanup levels in the surface and subsurface soil

Investigations cited by investigation title, performance period, and reference.

samples. Chromium was detected at concentrations above the MDE soil cleanup levels in subsurface soil samples only.

Sample locations are shown on Figure 2-3. The results of this investigation are provided in the Site Characterization Report (Tetra Tech, May 2006). Tables AH-1 and AH-2 (Appendix A) provide a summary of the detected concentrations in the surface soil and subsurface soil samples, respectively.

2.2.2 Geophysical Survey/Soil Investigation (Fall 2005)

An electromagnetic (EM) survey was conducted in the fall of 2005 to screen Block H and identified anomalies were evaluated further with ground-penetrating radar (GPR). The results of the geophysical surveys are presented in the Site Characterization Report (Tetra Tech, May 2006). Based on the geophysical survey, several anomalies that could not be resolved as being associated with known features (utilities) were investigated by installing five additional soil borings (SB-282 through SB-286) (most of the anomalies were located in the southern portion of the Block). Subsurface soil samples were collected from three depths in each boring (1.5, 4.5 and 9.5 feet bgs) and the samples were analyzed for VOCs, SVOCs, PCBs, metals, GRO, and DRO.

In addition, two soil borings (SB-293 and SB-294) were installed in the northwest corner of Block H. Although there were no geophysical anomalies identified in this area, the borings were installed to investigate anecdotal evidence that landfilling had occurred in this area. Subsurface soil samples were collected from three depths in each boring (1.5, 4.5 and 9.5 feet bgs) and the samples were analyzed for VOCs, SVOCs, PCBs, metals, GRO, and DRO. A surface soil sample was also collected from soil boring SB-294 and analyzed for the same suite of parameters.

As with the Phase II Soil Investigation (Summer 2005), VOCs, PAHs, DRO, and metals were detected in the soil samples collected during this investigation. There were no exceedances of MDE soil cleanup levels in the surface soil sample (SB-294) and scattered detections of arsenic, chromium and PAHs exceeded the MDE soil cleanup levels in the subsurface soil samples.

Sample locations are shown on Figure 2-3. The results of this investigation are provided in the Site Characterization Report (Tetra Tech, May 2006). Tables AH-1 and AH-2 (Appendix A)

provide a summary of the detected concentrations in the surface soil and subsurface soil samples, respectively.

2.3 NATURE AND EXTENT OF CONTAMINATION

This section presents a summary of the nature and extent of contamination in soil and groundwater at Block H based on the results of all investigations conducted prior to the fall of 2007. Tables AH-1 and AH-2 (Appendix A) provide a summary of the detected concentrations in surface soil and subsurface soil samples, respectively.

2.3.1 Soil

The human health risk assessment (HHRA) prepared for the Site Characterization Report (Tetra Tech, May 2006) identified a number of chemicals of potential concern (COPCs) by comparing maximum concentrations to MDE soil cleanup standards. COPCs detected in soil samples collected within Block H included 11 metals (antimony, arsenic, cadmium, chromium, cobalt, lead, mercury, molybdenum, nickel, vanadium, and zinc), six PAHs [benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene], trichloroethene (TCE), GRO and DRO. Results of the site-specific HHRA were used to assist in determining which COPCs were the principal contributors to risk, also referred to as COCs. When certain metals that are expected to be at background concentrations are discounted PAHs in subsurface soil are the primary contributing COPCs. The COCs identified for Block H were carcinogenic PAHs in subsurface soils and mercury in surface soils.

The highest concentrations of benzo(a)pyrene and other PAHs were detected in subsurface soil samples. Detected benzo(a)pyrene concentrations ranged from 40 micrograms per kilogram (μ g/kg) (SB-201-SS) to 367 μ g/kg (SB-200-SS) in surface soil and from 63 μ g/kg (SB-202-10) to 960 μ g/kg (SB-285-0405) in subsurface soil. Figure 2-4 shows the concentrations of benzo(a)pyrene in the soil samples that exceed the cleanup goal established in Section 5.3.

The highest concentrations of mercury were detected in surface soil samples. Detected mercury concentrations ranged from 0.01 milligrams per kilogram (mg/kg) (SB-294-0001) to 1.14 mg/kg (SB-201-SS) in surface soil and from 0.01 mg/kg (several locations) to 0.24 mg/kg (SB-201-05) in subsurface soil. Figure 2-4 shows the concentrations of mercury in the soil samples that exceed the cleanup goal established in Section 5.3.

2.3.2 Groundwater

The primary impacts to groundwater in Block H are chlorinated VOCs (primarily TCE) in monitoring well MW53A and metals in three of the monitoring wells (MW08A, MW52A, and MW53A). The source of the TCE appears to be from the industrial area (Block I). TCE may be of concern should future land use include construction of buildings over impacted groundwater. The area is currently served by public water and there are currently no wells (other than monitoring wells) anywhere on the MRC. Further discussion of impacts to groundwater are discussed in the Groundwater Response Action Plan.

2.4 RESPONSE ACTION SUMMARY

This RAP was developed in accordance with VCP guidance to support Lockheed Martin's application to the VCP for Block H at the MRC. This RAP was prepared to address elevated concentrations of PAHs and mercury in soils within Block H. A separate RAP is being prepared to address contaminated groundwater beneath the MRC.

2.4.1 Proposed Response Actions

Soil at Block H with PAH and mercury concentrations greater than the cleanup goals will be removed and disposed at a permitted off-site disposal facility. Development of the cleanup goals is presented in Section 5. The response action is described in Section 8.

2.4.2 Future Land Use Category

The MRC is currently an industrial facility and the area surrounding the property primarily consists of commercial and industrial establishments. Residential developments are present on the opposite shores of Cow Pen Creek, Dark Head Cove, Dark Head Creek and north of Eastern Boulevard (Route 150). The implementation of the proposed RAP will allow for unrestricted residential use of Block H.

2.4.3 Proposed Land Use Control

The proposed RAP for Block H includes the removal of all soil with concentrations of PAHs and mercury greater than the cleanup goals. Consequently, Block H will be considered for unrestricted residential uses, and land use controls (LUCs) will not be required. LUCs for the groundwater beneath Block H may be required and are discussed in the Groundwater Response Action Plan provided under separate cover.

Table 2-1

Summary of Groundwater Level Measurements Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland

	Top of Riser Elevation (ft)	Surface	Screened Interval Length (ft)	Elevation of Bottom of Screened Interval (ft)	Measurement Date						
Manitarina Wall					6/5/2005		10/13/2005		12/6/2005		
Monitoring Well Number					Groundwater Elevation (ft)	Depth to Groundwater (ft bgs)	Groundwater Elevation (ft)	(_roundwater	Groundwater Elevation (ft)	(+roundwater	
MW08A	11.46	11.66	10	-1.34	11.46	0.20	11.46	0.20	11.46	0.20	
MW41A	29.19	29.59	10	13.59	19.89	9.70	18.94	10.65	17.39	12.20	
MW51A	23.62	23.86	10	10.86	NA	NA	NA	NA	13.01	10.85	
MW52A	22.04	22.33	10	9.33	NA	NA	NA	NA	15.34	6.99	
MW53A	20.24	20.56	10	7.56	NA	NA	NA	NA	14.47	6.09	
MW54A	18.63	18.86	10	1.86	NA	NA	NA	NA	14.88	3.98	

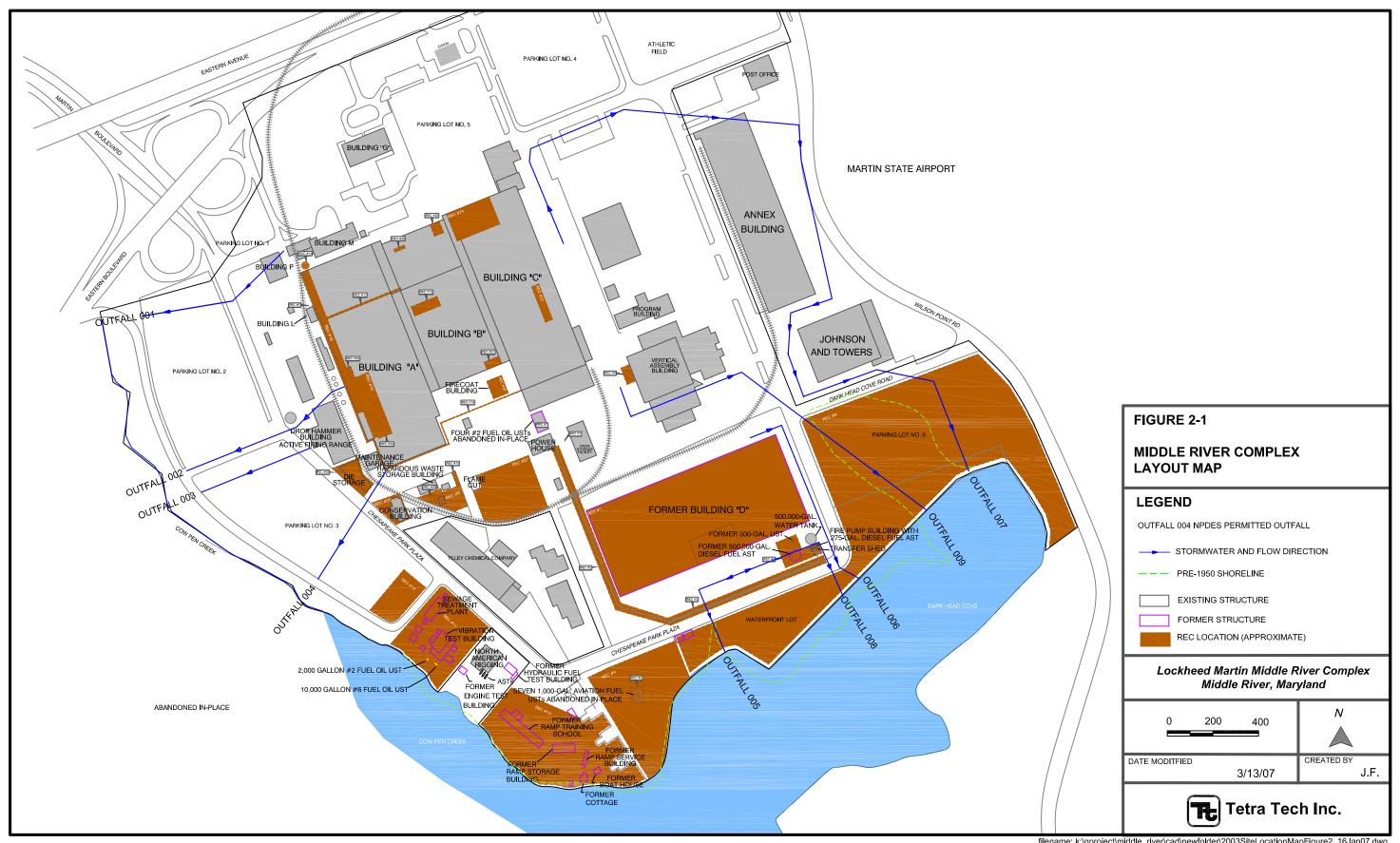
- 1 Monitoring well data for monitoring wells located within or near the Block H limits.
- 2 See Figure 2-2 for monitoring well locations.
- 3 Elevations reference National Geodetic Vertical Datum (NGVD), 1929.
- 4 Monitoring well information obtained from Site Characterization Report (Tetra Tech, May 2006).

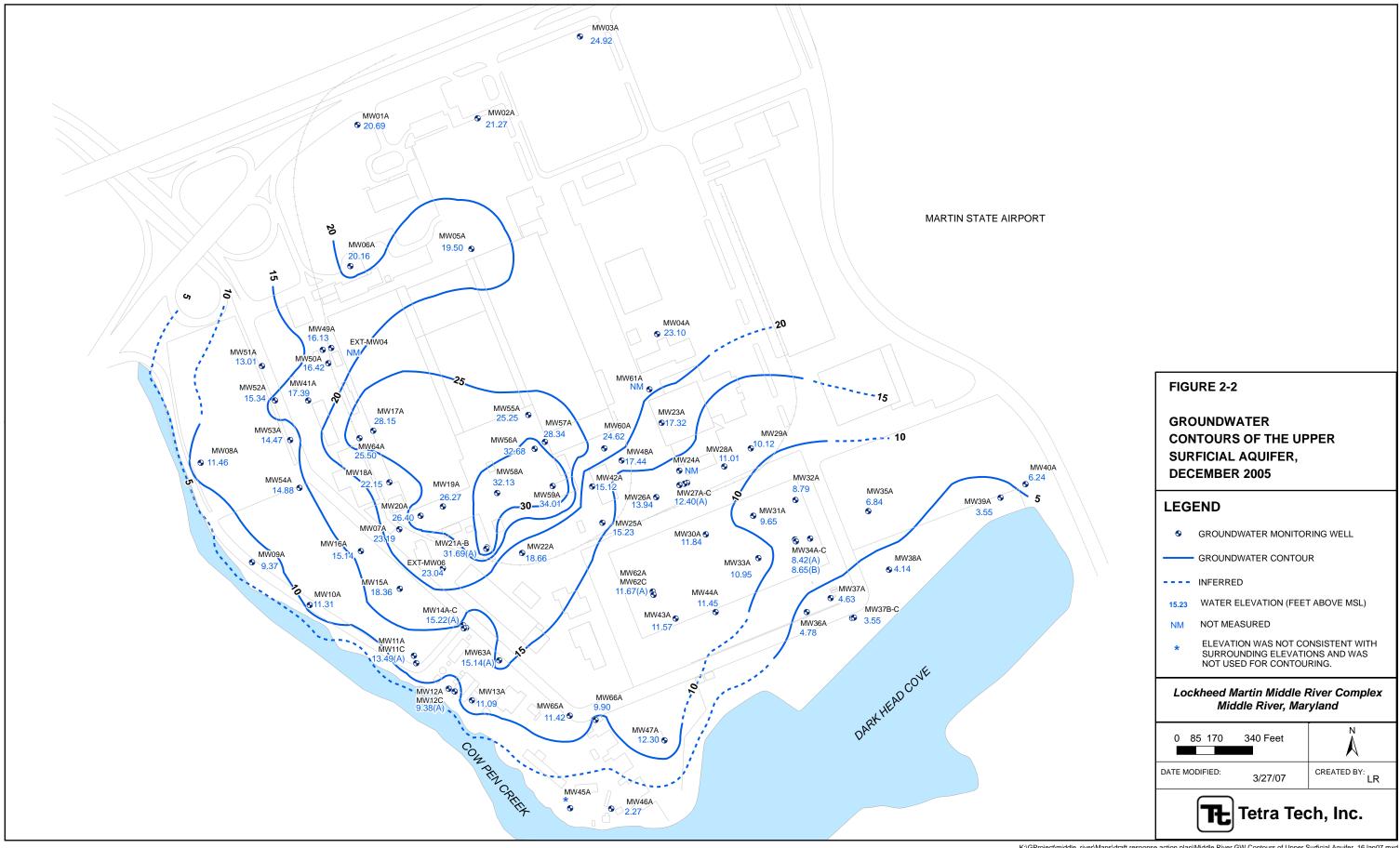
bgs - Below ground surface.

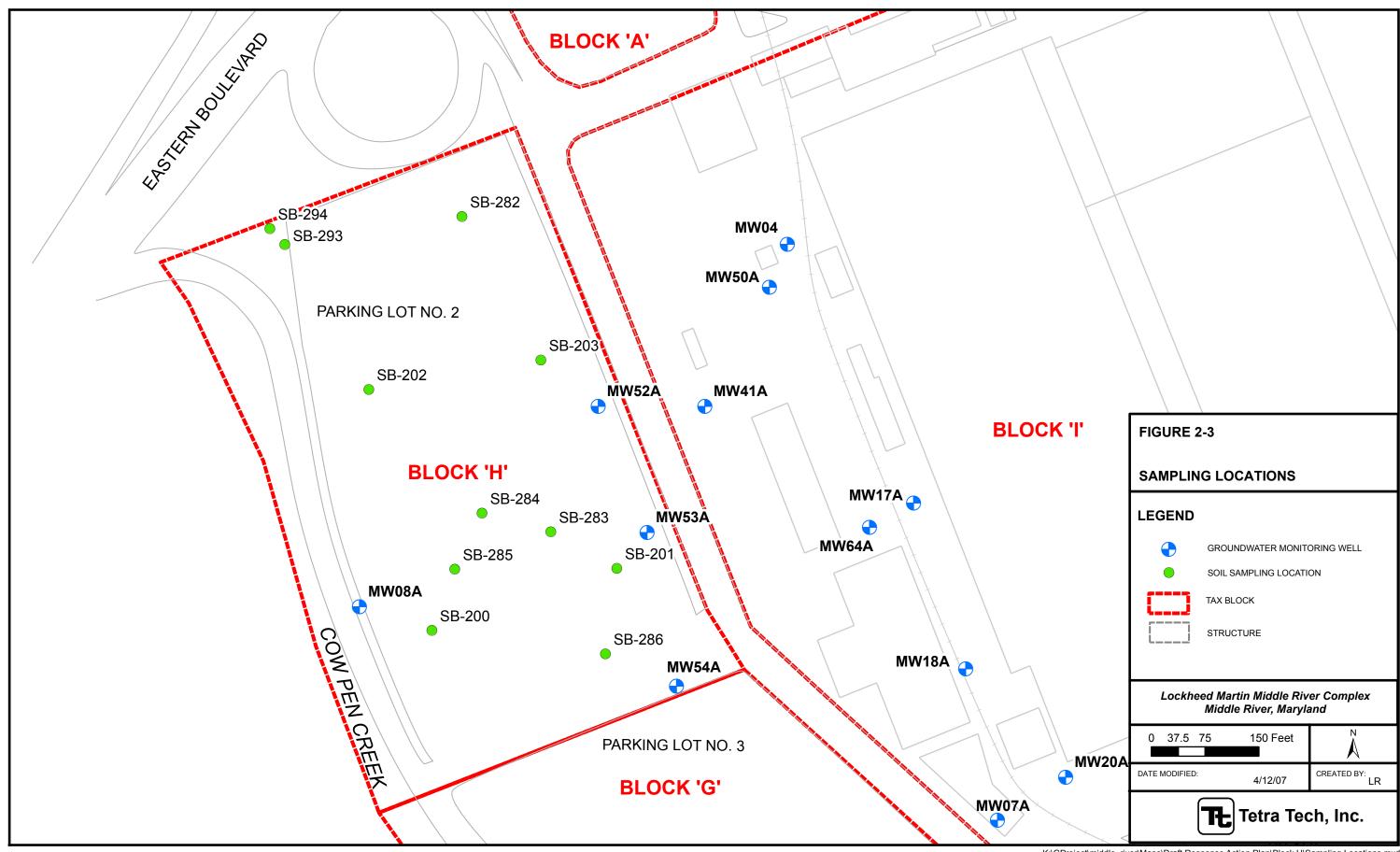
ft - Feet.

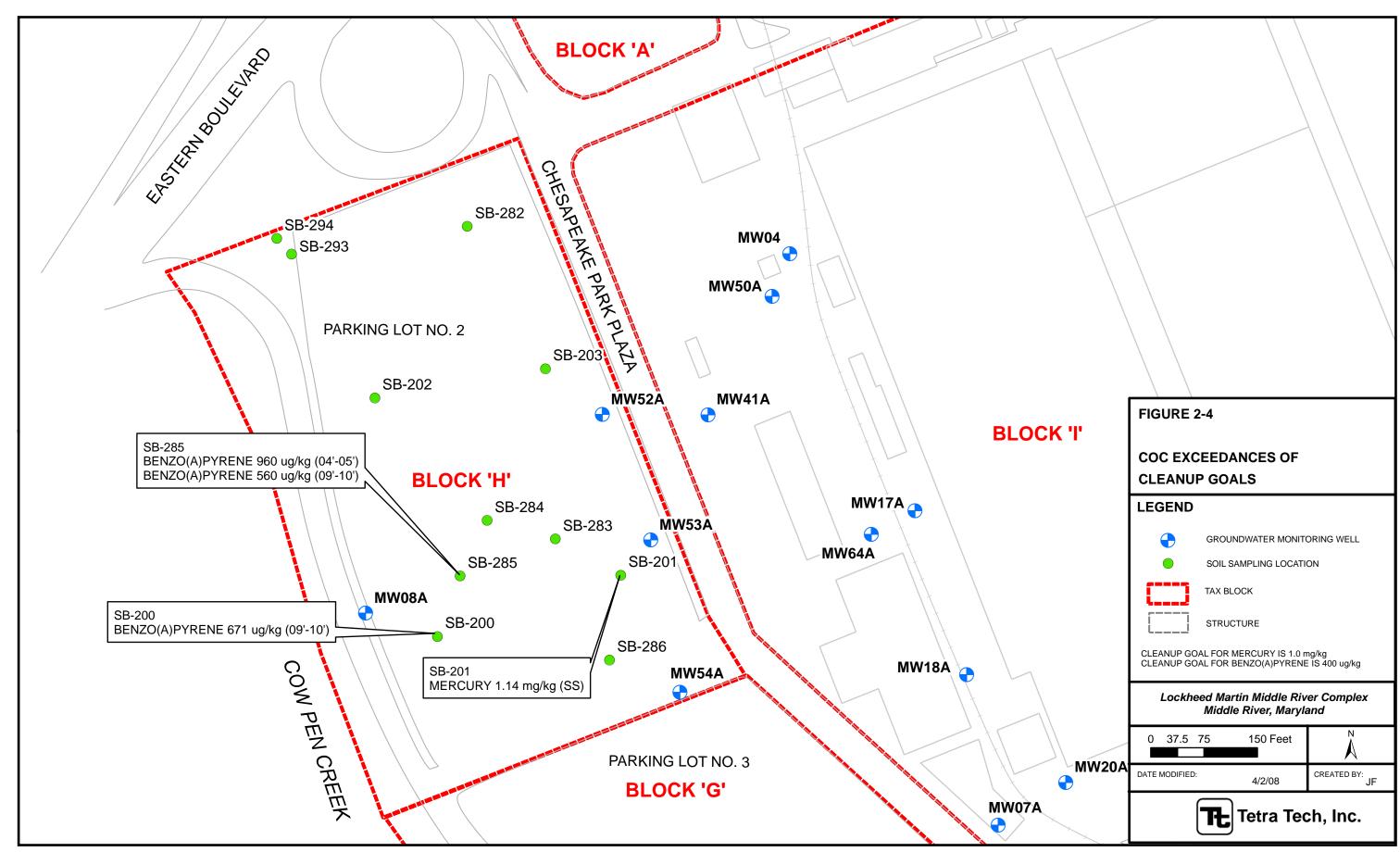
NA - Not available.

" - " - Denotes negative number.









Section 3 Additional Investigatory Information

3.1 ADDITIONAL SOIL INVESTIGATIONS

Tetra Tech performed an additional field investigation at Block H during the fall of 2007 to confirm previous results and refine the limits of COCs greater than cleanup goals. The risk assessment included in the Site Characterization Report (Tetra Tech, 2006) identified benzo(a)pyrene and mercury concentration that require mitigation. Concentrations of benzo(a)pyrene and mercury in excess of the cleanup goals were identified at previous soil boring locations, SB-285, SB-200 and SB-201 respectively. These soil boring locations are located in the southern portion of Block H. These areas were further characterized by locating borings in and around SB-285, SB-200 and SB-201 in a grid pattern to determine the extent and confirm previous results. Refer to Figure 3-1 for soil sampling locations. A work plan was prepared in November 2007 (Tetra Tech, 2007) documenting field investigation protocols, sampling procedures, and analytical requirements. The field investigation was performed in accordance with the work plan.

Twenty seven soil borings were installed in the vicinity of soil borings SB-285 and SB-201 using a direct push technology (DPT). The borings were spaced on a grid pattern across the previously identified geophysical anomaly area greater than cleanup goals. Soil boring locations are shown in Figure 3-1. These borings were drilled to a maximum depth of 8 feet bgs. The soil samples were obtained continuously from the ground surface to the termination depth of the borehole with samples submitted for chemical analysis at 2 foot intervals (1 to 2, 2 to 3, 3 to 4, 5 to 6 and 7 to 8 feet bgs). The samples were logged in the field to document geologic description of the lithology for USCS classification, moisture content, and the depth of the water table. The field documentation notes and geologic logs are enclosed in Appendix C. The lithology is consistent with presence of heterogeneous mix of brown silty sands underlain by silty clay. The soils were generally moist with the shallow water table present between 2 to 5 feet bgs. Most of the borings

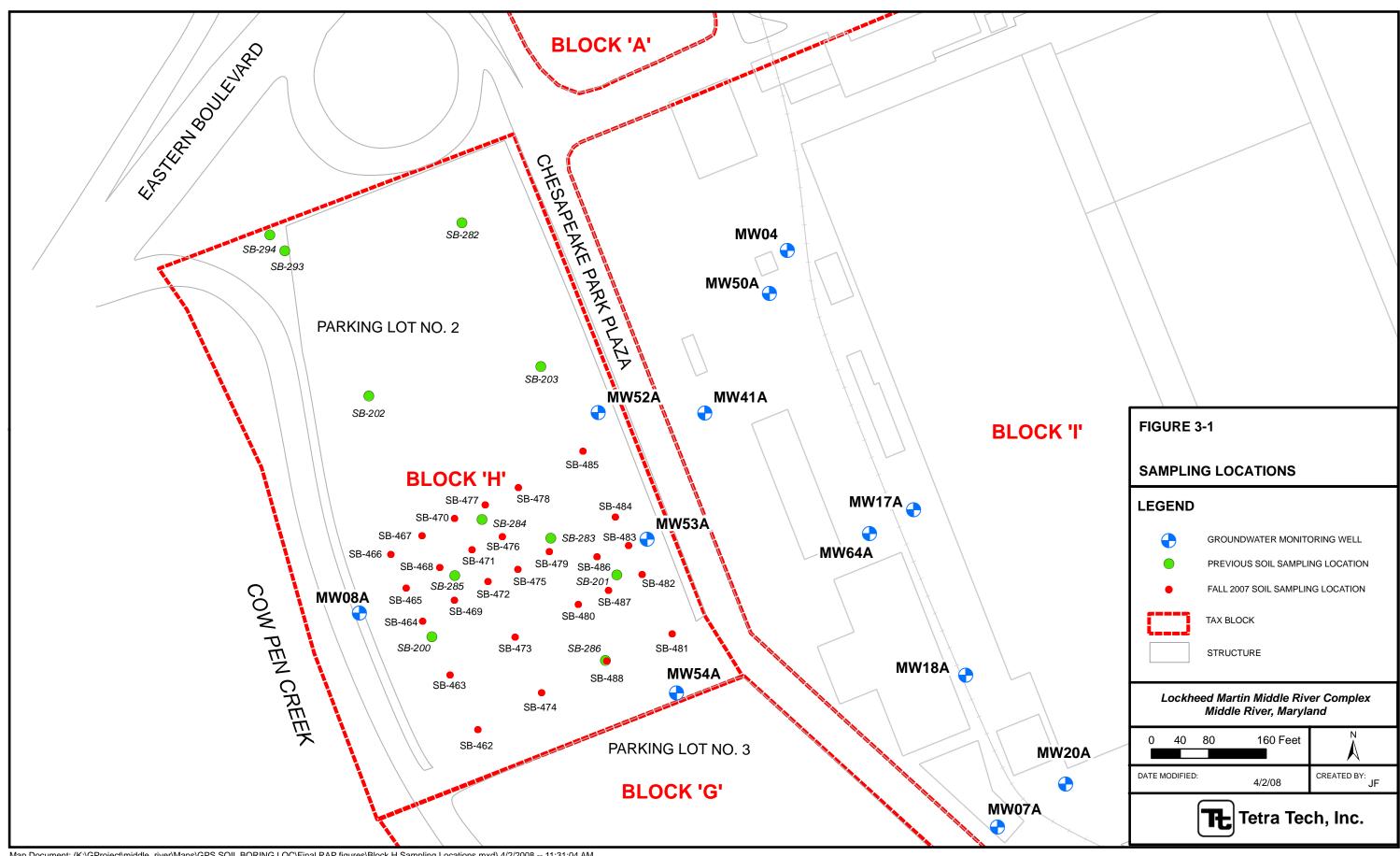
were terminated at 8 feet bgs. Soil samples were collected in precleaned sample containers, packed in coolers, sealed and sent to the contracted laboratory for benzo(a)pyrene (Method EPA 8270) and mercury (Method SW-846 7471A) analysis.

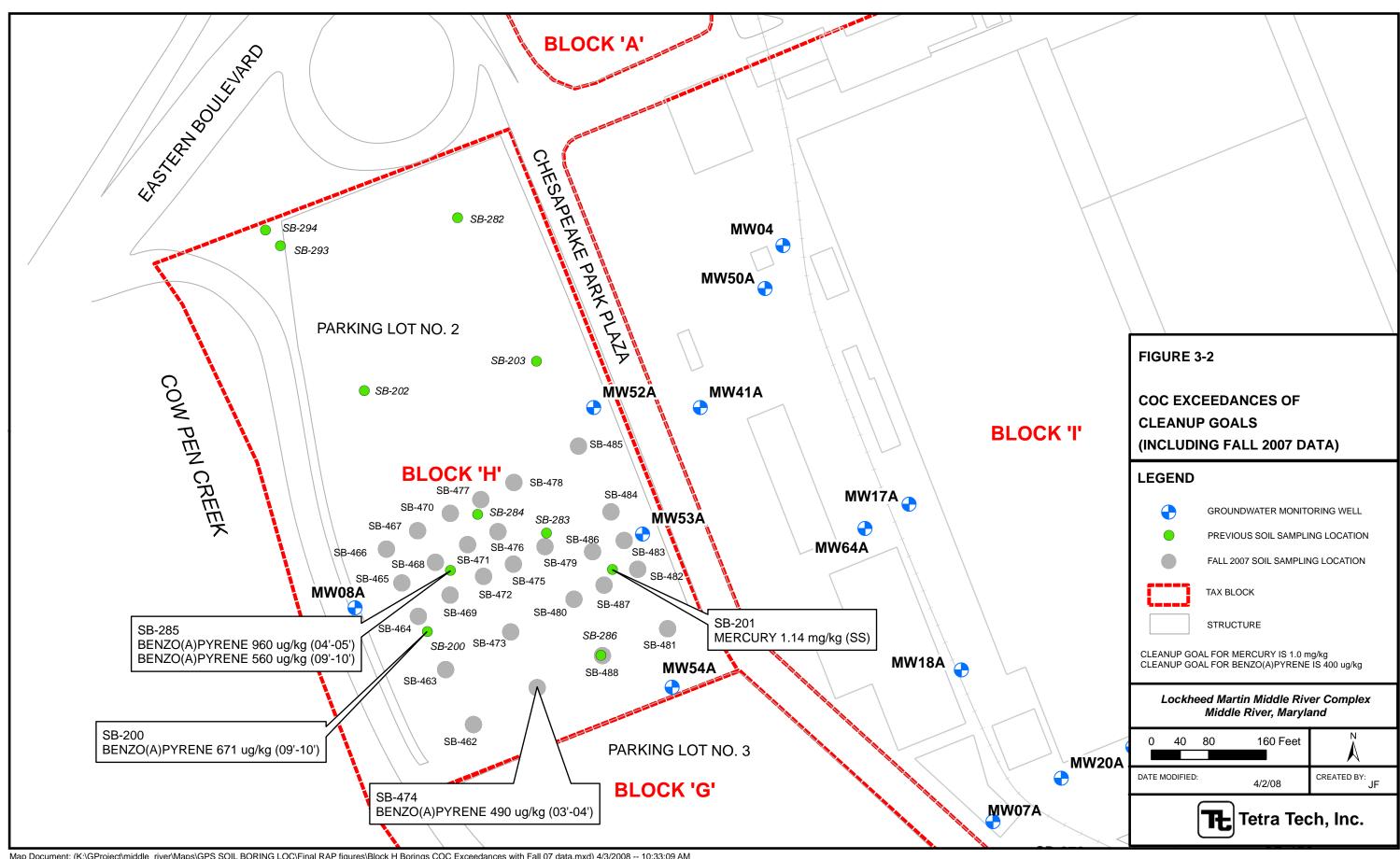
3.2 RESULTS

The evaluation and analysis of the laboratory soil data showed the presence of benzo(a)pyrene and mercury in low concentrations in many of the samples. A total of 135 soil samples were collected from the 27 soil borings and analyzed in the laboratory for benzo(a)pyrene and mercury analysis. These samples underwent Level IV data validation procedures in accordance with USEPA Region III protocols to ensure that the generated laboratory data were valid and accurate. The summary of detected concentrations in subsurface soils is presented in Table AH-3 (Appendix A) and validation reports are provided in Appendix D.

Detected benzo(a)pyrene concentrations in soils ranged from non-detect to a maximum concentration of 490 μ g/kg at soil boring SB-474 (3 to 4 feet bgs). The majority of the samples exhibited benzo(a)pyrene concentrations below 100 μ g/kg. The nineteen positive detections of benzo(a)pyrene were scattered sporadically at various boring locations. The cleanup goal for benzo(a)pyrene is 400 μ g/kg.

The mercury concentrations in fifteen soils ranged from non-detect to a maximum of 0.48 mg/kg at soil boring location SB-470 (1 to 2 feet bgs), with no detections greater than the cleanup goal (1.0 mg/kg). The soil boring sample locations with COC exceedances of cleanup goals is presented on Figure 3-2.





Section 4

Exposure Assessment

4.1 INTRODUCTION

The exposure assessment presents the current and future land use as defined by the VCP land use definitions, media of concern, and CSM, which includes potentially exposed populations based on future land use and potential exposure pathways.

4.2 CURRENT AND FUTURE LAND USE

The VCP requires applicants to choose a land use and restriction category based on the planned future use of the property. A No Further Requirements Determination or Certificate of Completion issued for a property is contingent on future use of the property as defined by the VCP.

Currently, Block H consists of Parking Lot No. 2, an employee parking lot. No structures are known to have existed within this asphalt area. It is currently considered to be "Tier 3 Industrial." The VCP defines this land use category as follows:

Industrial property to be used by workers over the age of 18, adult workers and construction workers, and other potential expected users. Industrial purposes allow access to the property at a frequency and duration consistent with a typical business day.

This RAP is evaluating Block H in terms of what would be required to achieve a "Tier 1 Residential Unrestricted" land use and restriction category. The VCP defines this land use and restriction category as follows:

Property usage that allows exposure and access by all populations including infant, children, elderly, and infirmed populations. The "A (Unrestricted)" classification indicates that no LUCs are imposed on the property. Tier 1A properties typically include single-family and multi-family dwellings.

The Tier 1A (Residential Unrestricted) future land use and restriction category is based on the results of the HHRA for Block H, which evaluated potential future residential development.

4.3 MEDIA OF CONCERN

The medium of concern at Block H is surface and subsurface soil. Groundwater was also investigated at Block H; however, groundwater is being addressed separately on a MRC-wide basis rather than on a tax block-specific basis.

4.4 CONCEPTUAL SITE MODEL

The CSM identifies the potential exposure populations at a site, based on current and future use. The CSM also identifies the potential exposure pathways and presents the rationale used to determine whether an exposure pathway is complete. The CSM is the framework for conducting the HHRA.

An HHRA for Block H was conducted as part of the Site Characterization Report (Tetra Tech, May 2006). The CSM in the HHRA postulates human activities that result in exposure to contaminants in soils. The CSM includes individuals who either live at Block H (residents), work at Block H (commercial or industrial workers), develop Block H (construction workers), or visit Block H (recreational users and commercial/industrial establishment visitors) and engage in activities that result in exposure via incidental ingestion of soil, skin contact resulting in dermal absorption of COPCs in soil, and inhalation of dusts and vapors from soil.

Section 5 Cleanup Criteria

5.1 CLEANUP CRITERIA

Development of cleanup goals must be conducted to satisfy the requirements of the VCP and be consistent with the requirements of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 400.430 as implemented through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The VCP defines a need for remedial action at sites with a cancer risk of 1 x 10⁻⁵ or a hazard index of 1.0.

The results of the risk assessment presented in the Site Characterization Report (Tetra Tech, May 2006) provide the information necessary to focus cleanup goal development. If the cancer risk for the current or future land use is greater than 1 x 10⁻⁵ or greater than a hazard index of 1.0, then cleanup goals must be developed for the intended future use of the site. Cleanup goals are only being developed for COCs, those chemicals that are the principal contributors to risk. A COC is defined as a chemical detected at a concentration may result in a cancer risk greater than 1 x 10⁻⁵ or a hazard quotient greater than 1.0. Results of a site-specific risk assessment determine which COPCs are the COCs. This determination of COCs was based on a Block H-wide approach rather than evaluation of results from individual soil borings.

Soil sampling locations with COC concentrations greater than the remedial action levels to attain the residential cleanup standards for soil and greater than background would be identified for removal. Site-specific background concentrations are only applicable to metals. If the site-specific background concentration for a metal is greater than the MDE residential cleanup standard for soil, the site-specific metal background concentration is the applicable cleanup goal. Generally, soil remediation will be designed to attain cleanup criteria for the COCs as well as attain target risk levels for a site. Verification of post-removal conditions will be conducted to

demonstrate that post-response action risks are less than a cancer risk of 1×10^{-5} and a hazard index of 1.0.

5.2 RISK ASSESSMENT SUMMARY

The HHRA was conducted for a range of soil exposure scenarios including residential, commercial, and industrial usage. The assessment indicated that only future residential exposures to soil exceeded MDE's threshold level for cancer risk (1×10^{-5}) and the target hazad index of 1.0. The COCs identified in this assessment are arsenic, vanadium, mercury, and carcinogenic PAHs in soil.

5.3 CLEANUP GOALS

A cleanup goal was identified for benzo(a)pyrene to satisfy a VCP Tier 1A (Residential Unrestricted) future land use and restriction category based on potential future residential development. The MDE residential soil cleanup standard for benzo(a)pyrene is 330 micrograms per kilogram (μg/kg). However, benzo(a)pyrene is being used to represent all carcinogenic PAHs. Benzo(a)pyrene is co-located with all the carcinogenic PAHs; therefore, its removal is considered representative of the removal of other carcinogenic PAHs that may be contributing significantly to risk. The site data will be used in concert with the site-specific incremental lifetime cancer risks and hazard indices at individual sampling locations to define a site-specific remedial action level for benzo(a)pyrene to achieve a target risk level of 1 x 10⁻⁵ and a target hazard index of 1.0.

The MDE identifies a residential soil cleanup standard for arsenic and vanadium of 2 mg/kg and 55 mg/kg, respectively. However, because arsenic and vanadium are naturally occurring, it is appropriate to consider background reference concentrations. A site-wide approach was used to identify a background reference concentration for arsenic at the MRC in Comment Response Document No. 2 of the Site Characterization Report (Tetra Tech, December 2006). The Block H-wide average concentration for arsenic, as represented by the 95 percent upper confidence limit of the mean (UCL), must be less than 6 mg/kg with no individual soil concentration exceeding 12 mg/kg. Similarly, the Block H-wide average concentration for vanadium must be less than 55 mg/kg with no individual soil concentration exceeding 91 mg/kg. This approach provides

conditions where no arsenic or vanadium "hot spots" remain within Block H while attaining protection of human health through exposure to these metals in soil at Block H.

The MDE identifies a residential soil cleanup standard for mercury of 0.1 mg/kg. However, the MDE's Average Typical Concentration (ATC), based on background data collected in the state of Maryland, provides the basis for determining the need for remediation. A block-wide approach for determining if there is a need for remediation was defined in Comment Response Document No. 2 of the Site Characterization Report (Tetra Tech, December 2006). The Block-B wide average concentration, as represented by the UCL, must be less than 0.5 mg/kg.

Cleanup goals are summarized in Table 5-1. Attainment of the cleanup goals at Block H will result in a cancer risk less than 1×10^{-5} and a hazard index less than 1.0.

5.4 ATTAINMENT OF CLEANUP GOALS

To attain cleanup goals, soil with benzo(a)pyrene concentrations greater than 400 μ g/kg and mercury concentrations greater than 1.0 mg/kg will be removed. In addition, it must be demonstrated that after soil with mercury concentrations greater than 1.0 mg/kg is removed, the post-response action UCL mercury concentration is less than 0.5 mg/kg. Moreover, the post-response action risk at each soil boring should be less than a cancer risk of 1 x 10⁻⁵ and the hazard index of 1.0.

Arsenic and vanadium were identified as COCs based on the results of the HHRA. However, arsenic and vanadium were considered to be present within background levels based on the analysis presented in Comment Response Document No. 2 of the Site Characterization Report (Tetra Tech, December 2006). Because arsenic and vanadium concentrations are currently within background levels, risks associated with these metals would not be included in the post-response action risk calculations. The statistical summary of pre-response action data illustrating that arsenic and vanadium are within background levels and that mercury is present at concentrations greater than the ATC is presented in Table 5-2 and summarized in the Appendix B.

Table 5-3 illustrates which samples will be removed, illustrates which samples are eliminated from the evaluation because they are below the water table, and shows the pre- and post-response action risks associated with those soil borings. Soil in some surface soil locations that have no exceedances of MDE's cleanup standards are being removed because the corresponding subsurface soil sample has concentrations greater than MDE's cleanup standards. The pre-response action risks are based on values presented in the HHRA in the Site Characterization Report (Tetra Tech, May 2006). The post-response action risks for those samples that have been removed are defined as "zero risk." The post-response action risks in those borings that remain exclude risks associated with arsenic and vanadium because their concentrations would then be considered to be within background. Arsenic and vanadium concentrations were less than their background concentrations prior to any proposed response action at the site. A statistical summary of post-response action data illustrating that mercury satisfies the ATC requirements is presented in Table 5-4 and the Appendix B.

Table 5-1 Cleanup Criteria Block H

Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland

Parameter	Criterion	Test Method
Benzo(a)pyrene	≤ 400 μg/kg	EPA SW-846 8270C
Mercury (1)		
- Individual soil sample result	≤ 1.0 mg/kg	EPA SW-846 6020
- Post-response action 95% UCL for Block H soil	≤ 0.5 mg/kg	LI A 5 W -040 0020

1 The cleanup goal for mercury is based on the MDE ATC standard and a statistical analysis of mercury data across Block H.

EPA United States Environmental Protection Agency.

mg/kg Milligrams per kilogram.
UCL Upper confidence limit.
μg/kg Micrograms per kilogram.

Table 5-2 Statistical Comparisons to Background Block H

Pre-Response Action Concentrations Soil Response Action Plan

Lockheed Martin Middle River Complex, Middle River, Maryland

COPC	Background Criteria		Pre-Response Action Concentrations				
	Maximum	UCL	Maximum	UCL			
	Surface Soil						
Mercury		0.5	1.14	0.8			
Arsenic	12	6	6	4.2			
Vanadium	91	55	34.7	28.1			
	Subsurface Soil						
Mercury		0.5	0.24	0.1			
Arsenic	12	6	7.4	3.3			
Vanadium	91	55	52.9	35.4			

Concentrations reported in mg/kg.

Table 5-3 Pre- and Post-Response Action Risks Block H

Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland

Surface Soil Boring		Residential Risks (Pre-Response Action) ⁽¹⁾		Residential Risks (Post-Response Action) (2)	
	Cancer	Noncancer	Cancer	Noncancer	
SB-200	1.0E-05	0.55	9.0E-06	0.15	
SB-201	2.0E-05	1.6	0	0	
SB-202	3.9E-06	0.45	1.9E-06	0.071	
SB-203	5.2E-06	0.69	2.3E-06	0.10	
SB-294	1.3E-05	0.56	7.6E-06	0.053	
Culturations	Reside	ntial Risks	Reside	ntial Risks	
Subsurface Soil Boring	(Pre-Respo	(Pre-Response Action) (1)		(Post-Response Action) (2)	
John Borning	Cancer	Noncancer	Cancer	Noncancer	
SB-200 ⁽³⁾	2.5E-05	1.7	1.1E-05	0.17	
SB-201	1.1E-05	1.2	2.1E-06	0.14	
SB-202	1.4E-05	1.7	2.6E-06	0.14	
SB-203	1.3E-05	1.7	2.7E-06	0.19	
SB-282	2.6E-05	1.2	8.2E-06	0.075	
SB-283	3.2E-05	1.2	5.5E-07	0.11	
SB-284	8.8E-06	0.89	8.8E-06	0.11	
SB-285	1.7E-05	1.1	0	0	
SB-286	1.0E-05	0.58	1.0E-05	0.15	
SB-293	1.4E-05	0.68	8.1E-06	0.058	
SB-294	1.7E-05	0.77	8.4E-06	0.055	

- 1 Soil boring location risks as identified in the Site Characterization Report (Tetra Tech, May 2006).
- 2 Soil boring location risks excluding those attributable to arsenic and vanadium (less than Block H-specific background reference concentration of 12 and 91 mg/kg, respectively).
- 3 Soil boring risks are based on data collected below the water table. Concentrations at boring above water table are less than MDE residential criteria.

Table 5-4 Statistical Comparisons to Background Block H

Post-Response Action Concentrations Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland

COPC	Background Criteria		Post-Response Action Concentrations	
	Maximum UCL		Maximum	UCL
		Surface Soil		
Mercury	0.5		0.4	
Subsurface Soil				
Mercury		0.5	0.24	0.13

Concentrations reported in mg/kg.

Section 6

Selected Technologies and Land Use Controls

6.1 INTRODUCTION

The selected technologies and LUCs for the proposed response action are provided in this section as required by the VCP guidance document. The NCP, 40 CFR Part 400.430 as implemented through CERCLA, served as a guide for the process used to arrive at the selected technology (i.e., selected alternative). This section includes the identification, screening, and evaluation of potential technologies and process options; preliminary and detailed screening of technologies and process options; selection of representative process options; development and detailed analysis of alternatives; comparative analysis of alternatives; and description of the proposed alternative.

The basis for technology identification and screening began with a series of discussions that included the following:

- Development of response action objectives (RAOs)
- Identification of Applicable or Relevant and Appropriate Requirements (ARARs)
- Identification of COCs
- Development of cleanup goals
- Identification of general response actions (GRAs)
- Identification of volumes or areas of the media of concern

6.1.1 Response Action Objectives

The purpose of this section is to develop RAOs for Block H. Development of RAOs is an important step in the CERCLA process. The RAOs are medium-specific goals that define the objective of conducting response actions to protect human health and the environment. The RAOs specify the COCs, potential exposure routes and receptors, and acceptable contaminant levels for

the site. The development of RAOs takes into consideration ARARs and To Be Considered (TBC) criteria.

This RAP addresses soil contamination at Block H. The RAOs were developed to permit consideration of a range of treatment and containment alternatives to obtain a Certificate of Completion from the MDE under a Tier IA (Residential Unrestricted) future land use and restriction category.

The following RAOs were developed for Block H:

• Prevent unacceptable human health risk associated with exposure to surface and subsurface soil containing PAHs and mercury at concentrations greater than the cleanup goals.

6.1.2 Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria

ARARs consist of the following:

- Any standard, requirement, criterion, or limitation under federal environmental law.
- Any promulgated standard, requirement, criterion, or limitation under a State environmental or facility-siting law that is more stringent than the associated federal standard, requirement, criterion, or limitation.

TBC criteria are nonpromulgated, nonenforceable guidelines or criteria that may be useful for developing a response action or are necessary for determining what is protective of human health and/or the environment. Examples of TBC criteria include United States Environmental Protection Agency's (EPA's) Reference Doses (RfDs) and Cancer Slope Factors (CSFs).

One of the primary concerns during the development of response action alternatives for hazardous waste sites is the degree of human health and environmental protection offered by a given remedy. Section 121 of CERCLA requires that primary consideration be given to response alternatives that attain or exceed ARARs. The purpose of this requirement is to make CERCLA response actions consistent with other pertinent federal and state environmental requirements.

The NCP identifies the following three categories of ARARs [40 CFR Section 300.400 (g)]:

- <u>Chemical-Specific</u>: Health-risk-based numerical values or methodologies that establish concentration or discharge limits for particular contaminants. Table 6-1 presents a list of federal and State of Maryland chemical-specific ARARs and TBC criteria. These ARARs and TBC criteria provide some medium-specific guidance on "acceptable" or "permissible" concentrations of contaminants.
- <u>Location-Specific</u>: Restrict actions or contaminant concentrations in certain environmentally sensitive areas. Examples of these areas regulated under various federal laws include floodplains, wetlands, and locations where endangered species or historically significant cultural resources are present. Table 6-2 presents a list of federal and State of Maryland location-specific ARARs and TBC criteria. These ARARs and TBC criteria place restrictions on concentrations of contaminants or the conduct of activities solely based on the site's particular characteristics or location.
- <u>Action-Specific</u>: Technology- or activity-based requirements, limitations on actions, or conditions involving special substances that control or restrict response action. Examples of action-specific ARARs include wastewater discharge standards and performance or design standards, controls, or restrictions on particular types of activities. Table 6-3 presents a list of federal and State of Maryland action-specific ARARs and TBCs.

6.1.3 Chemicals of Concern

The HHRA determined which compounds were the principal contributors to risk, also referred to as COCs. A COC is defined as a chemical that produces a cancer risk greater than 1 x 10⁻⁵ or a hazard quotient greater than 1.0. The determination of COCs was based on a Block H-wide approach rather than evaluation of results from individual soil borings. The COC determination is discussed in Section 5.

6.1.4 Cleanup Goals

Cleanup goals are chemical concentrations in environmental media that, when attained, should achieve RAOs. In general, cleanup goals are established with consideration given to the following:

- Protecting human receptors from adverse health effects
- Compliance with federal and state ARARs

Soil cleanup goals were determined for the COCs [benzo(a)pyrene and mercury] in Section 5.3, and attainment of the cleanup goals was discussed in Section 5.4. Cleanup criteria are presented on Table 5-1.

6.1.5 General Response Actions and Action-Specific ARARs

GRAs are broadly defined response approaches that may be used (by themselves or in combination with one or more of the others) to attain RAOs. GRAs describe categories of actions that could be implemented to satisfy or address a component of an RAO for the site. Response action alternatives will then be composed using GRAs individually or in combination to meet the RAOs. The response action alternatives, composed of GRAs, will be capable of achieving the RAOs for contaminated soil at Block H.

The following GRAs were considered for soil at Block H:

- No Action
- Limited Action: LUCs
- Containment
- Removal
- In-Situ Treatment
- Ex-Situ Treatment
- Disposal

6.1.6 Estimated Volume of Contaminated Soil

Preliminary surface areas and volumes of soil that would need to be managed to allow for future land use as VCP Tier 1A (Residential Unrestricted) were estimated as described in Section 8. It is estimated that a total volume of approximately 1,100 in-place cubic yards (cy) of contaminated soil with a surface area of approximately 10,000 square feet (sf) contain concentrations of COCs greater than the cleanup goals.

6.2 SCREENING OF TECHNOLOGIES AND PROCESS OPTIONS

This section identifies, screens, and evaluates the potential technologies and process options that may be applicable to develop the response action alternatives for soil at Block H. The primary objective of this phase of the RAP is to develop an appropriate range of technologies and process options that will be used for developing the response action alternatives.

Technology screening evaluation is performed in this section with the completion of the following analytical steps:

- Identification and preliminary screening of technologies and process options;
- Detailed screening of technologies and process options that pass the preliminary screening step;
- Evaluation and selection of representative process options;

In this section, a variety of technologies and process options are identified under each GRA (discussed in Section 6.1.5) and screened. The selection of technologies and process options for initial screening is based on the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA, October 1988). The screening is first conducted at a preliminary level to focus on relevant technologies and process options. Then the screening is conducted at a more detailed level based on certain evaluation criteria. Finally, process options are selected to represent the technologies that have passed the screening and detailed evaluation.

The evaluation criteria for detailed screening of technologies and process options that have been retained after the preliminary screening are effectiveness, implementability, and cost. The following are descriptions of these evaluation criteria:

Effectiveness

- Protection of human health and environment; reduction in toxicity, mobility, or volume; and permanence of solution.
- Ability of the technology to address the estimated areas or volumes of contaminated media.
- Ability of the technology to meet the cleanup goals identified in the RAOs.
- Technical reliability (innovative versus proven) with respect to contaminants and site conditions.

• Implementability

- Overall technical feasibility at the site.
- Availability of vendors, mobile units, storage and disposal services, etc.
- Administrative feasibility.
- Special long-term maintenance and operation requirements.

Cost

- Capital cost.
- Operation and maintenance (O&M) costs.

Technologies and process options will be identified for the soil response action in the following sections.

Section 6.3 discusses the development of the response action alternatives developed from the process options retained in this section and provides a description of the conceptual design for these alternatives. This section also presents an evaluation of each response action alternative with respect to the criteria of the NCP of 40 CFR Part 300. These criteria and their relative importance are also discussed in this section.

Section 6.4 compares the analyses that were presented for each of the response action alternatives. The criteria for comparison are identical to those used for the detailed analysis of individual alternatives.

6.2.1 Preliminary Screening of Technologies and Process Options

This section identifies and screens technologies and process options for soil at a preliminary stage based on implementation with respect to site conditions and COCs. Table 6-4 summarizes the preliminary screening of technologies and process options applicable to soil. This table presents the GRAs, identifies the technologies and process options, and provides a brief description of each process option followed by screening comments. The technologies and process options that pass the initial screening step are retained for detailed screening in Section 6.2.2.

The technologies and process options for the soil response action that will be retained for detailed screening are shown below.

General Response Action	Response Action Technology	Process Option
No Action	None	Not Applicable
Removal	Excavation	Mechanical
Disposal	Off-Site	Hazardous/Non-Hazardous Waste Landfill

6.2.2 Detailed Screening of Soil Treatment Technologies and Process Options

This section identifies and develops the representative process options, through a detailed screening procedure, which will be used in the formulation of response action alternatives to accomplish the RAOs and meet the cleanup goals identified for soil in Section 5.

6.2.2.1 <u>No Action</u>

No Action consists of maintaining status quo at Block H. As required under CERCLA regulations, the No Action alternative is carried through to provide a baseline for comparison of alternatives and their effectiveness in mitigating risks posed by site contaminants.

6.2.2.2 Removal

The technology considered under this GRA is excavation.

Excavation

A variety of equipment such as front-end loaders, hydraulic excavators, backhoes, and other mechanical equipment could be used to perform the excavation. The type of equipment selected must take into consideration several factors, such as the type of material to be removed, the load-bearing capacity of the ground surrounding the removal area, the depth and areal extent of removal, the required rate of removal, and the elevation of the groundwater table. Excavation is the preferred technology for the removal of well-consolidated material such as soil with significant load-bearing capacity (i.e., greater than 1,500 pounds per square foot).

Excavation logistics must take into account the available space for stormwater management, equipment decontamination, operating the equipment, loading, unloading, and stockpiling the excavated material, location of the site, etc. After excavation is completed, the location is filled and graded with certified clean fill material or treated soils.

Effectiveness

Shallow excavation is a well-proven and effective method of removing soil with contaminant concentrations greater than the cleanup criteria from a site. Properly designed excavation would remove the soil with contaminant concentrations greater than the cleanup criteria, and the remaining soil would not pose an unacceptable risk to human health or the environment.

Implementability

Excavation of soil with contaminant concentrations greater than the cleanup criteria at Block H would be implementable. Excavation equipment is readily available. This technology is well proven and a common solution in the construction/remediation industry. During excavation, site-specific health and safety procedures and Occupational Safety and Health Administration (OSHA) regulations would be complied with to ensure that the exposure of the workers to COCs is minimized.

The excavation at Block D would extend to approximately 10 feet bgs. The excavation would be cut-back or steeped, supported by trench boxes or personnel would not be permitted to enter the excavation. Existing pavement would have to be removed prior to excavation.

Cost

Cost of excavation at Block H on a unit volume basis would be low to moderate.

Conclusion

Excavation is retained in combination with other process options for the development of response action alternatives.

6.2.2.3 Disposal

The technology considered under this GRA is off-site landfilling.

Off-Site Landfilling

Off-site landfilling would consist of transporting the excavated soil for burial at a permitted off-site treatment, storage, and disposal facility (TSDF). Excavated soil characterized as Resource Conservation and Recovery Act (RCRA) non-hazardous waste could be disposed in a RCRA Subtitle D solid waste landfill. Excavated soil characterized as RCRA hazardous waste would have to be disposed in a RCRA Subtitle C TSDF.

Effectiveness

Off-site landfilling does not permanently or irreversibly reduce contaminant toxicity or mobility. However, although CERCLA preference for treatment relegates landfilling to a less preferable option, this technology can be an effective disposal option for contaminated soil and can be used in conjunction with treatment alternatives. Off-site landfills are only permitted to operate if they meet certain requirements of design and operation governing foundations, liners, leak detection, leachate collection and treatment, daily cover, post-closure inspections and monitoring, etc., which ensure the effectiveness of these facilities. The requirements of a RCRA hazardous (Subtitle C) TSDF are typically more stringent than those of a RCRA non-hazardous (Subtitle D) solid waste landfill.

Implementability

Off-site landfilling would be easily implementable. Facilities and services are available. Disposal at a RCRA Subtitle D landfill may require certain pre-treatment, mainly the removal of free liquids but, because soil would be excavated to a depth of 10 feet bgs or no deeper than to the depth of the zone of saturation under clayey soil conditions, no associated water should be present and this requirement should be easy to meet. In addition, a waste profile would have to be prepared, indicating the contaminant concentrations and their leachability potential. Disposal of any soil with Toxicity Characteristic Leaching Procedure (TCLP) levels exceeding hazardous criteria would require pre-treatment to meet Land Disposal Restrictions (LDRs) prior to landfilling. If treatment achieves Universal Treatment Standards (UTSs), then disposal of the treated soil in a RCRA Subtitle D landfill (i.e., non-hazardous) would be permissible. If not, the treated soil would need to disposed in a RCRA Subtitle C (i.e., hazardous) TSDF.

Cost

Cost of off-site landfilling would be low to moderate depending on volume and distance to the

disposal facility.

Conclusion

Off-site landfilling is retained in combination with other process options for the development of

response action alternatives.

6.2.3 **Selection of Representative Process Options**

The following GRAs, technologies, and process options, under the GRAs as noted, are retained for

the development of response action alternatives:

No Action

Removal: Excavation

Disposal: Off-Site RCRA Non-Hazardous (Subtitle D) Landfill and Off-Site RCRA

Hazardous (Subtitle C) TSDF

The next step is to select representative process options from each technology to assemble an

adequate variety of alternatives and evaluate the alternatives in sufficient detail to aid in the final

selection process. All process options listed above are retained for the formulation of alternatives

because the processes are sufficiently varied in their functions.

DEVELOPMENT AND DETAILED ANALYSIS OF 6.3

ALTERNATIVES

This section discusses the development of the soil response action alternatives from the process

options retained above and provides a description of the conceptual designs for the alternatives.

This section also presents an evaluation of each response action alternative with respect to the

criteria of the NCP of 40 CFR Part 300. The criteria and the relative importance of these criteria

are also discussed in this section.

6.3.1 Development of Alternatives

The technologies and process options retained after detailed screening in Section 6.2.3 were assembled into the following alternatives:

S-1. No Action:

This alternative is required by the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA, October 1988) as a baseline for comparison to other alternatives.

S-2. Excavation to Allow Unrestricted Residential Site Use and Off-Site Disposal:

This alternative would remove soil with COC concentrations greater than the cleanup goals to the extent necessary to allow unrestricted residential use of Block H. This would require excavation of the soil with COC concentrations greater than the cleanup goals identified in Section 5.3.

It is assumed that all excavated soil would be disposed at an off-site permitted RCRA Subtitle D landfill. If any excavated material fails TCLP testing, the material would be disposed at an off-site permitted RCRA Subtitle C TSDF. The excavated areas would then be backfilled with certified clean imported fill material and Block H would be restored to pre-response action conditions. Because the soil remaining on site would no longer contain concentrations of COCs that could be harmful to potential future residential receptors, soil-related LUCs would not be required.

6.3.2 Description and Detailed Analysis of Alternatives

This section presents a description of the conceptual design of each alternative, followed by the detailed analysis using the nine criteria of the NCP under 40 CFR Part 300. The evaluation criteria are discussed below.

6.3.2.1 Evaluation Criteria

In accordance with the NCP (40 CFR Part 300.430), the following nine criteria are used for the evaluation of response action alternatives:

- Overall Protection of Human Health and the Environment
- Compliance with ARARs
- Long-Term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, or Volume through Treatment
- Short-Term Effectiveness
- Implementability
- Cost
- State Acceptance
- Community Acceptance

Overall Protection of Human Health and the Environment

Alternatives must be assessed for adequate protection of human health and environment, in the short and long term, from unacceptable risks posed by hazardous substances or contaminants present at Block H by eliminating, reducing, or controlling exposure to levels exceeding response action goals. Overall protection draws on the assessments of other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs.

Compliance with ARARs

Alternatives must be assessed to determine whether they attain ARARs under federal environmental laws and state environmental or facility siting laws. If one or more regulations that are applicable cannot be complied with, a waiver must be invoked. Grounds for invoking a waiver would depend on the following circumstances:

- The alternative will attain a standard of performance that is equivalent to that required under the otherwise applicable standard, requirement, or limitation through use of another method or approach.
- A State requirement has not been consistently applied or the state has not demonstrated the intention to consistently apply the promulgated requirement in similar circumstances at other response actions within the state.

Long-Term Effectiveness and Permanence

Alternatives must be assessed for the long-term effectiveness and permanence they offer, along with a degree of certainty that the alternative will be successful. Factors that should be considered, as appropriate, include the magnitude of residual risk (i.e., risks posed by untreated waste or treatment residuals) and adequacy and reliability of controls (i.e., controls needed to manage untreated waste or treatment residuals).

Reduction of Toxicity, Mobility, or Volume through Treatment

The degree to which the alternative employs recycling or treatment that reduces the toxicity, mobility, or volume of the waste must be assessed, including how treatment is used to address the principal threats posed by the site.

Short-Term Effectiveness

The short-term impacts of the alternative must be assessed considering the following:

- Short-term risks that might be posed to the community during implementation.
- Potential impacts on workers during the response action and the effectiveness and reliability of protective measures.
- Potential environmental impacts of the response action and the effectiveness and reliability of mitigation measures during implementation.
- Time until protection is achieved.

Implementability

The ease or difficulty of implementing the alternatives must be assessed by considering technical feasibility, administrative feasibility, and availability of services and materials.

Cost

Capital costs must include both direct and indirect costs. Annual O&M costs must be provided. A net present worth (NPW) value of the capital and O&M costs must also be provided. Typically, the cost estimate accuracy range is plus 50 percent to minus 30 percent. Because there are no costs associated with the first alternative (No Action), a cost comparison of the two alternatives will not be performed.

State Acceptance

The MDE will review the proposed RAP and will inform Lockheed Martin in writing, on or before the end of a 75-day review period, whether the RAP has been approved or rejected. If the proposed RAP is rejected, MDE will state the modifications necessary to receive approval. The 75-day MDE review period will begin after a notice of the proposed RAP is published in a local newspaper and a sign is posted at the property indicating notice of intent to conduct the RAP.

Community Acceptance

The public will be afforded the opportunity to review and provide commentary on the proposed RAP. The MDE will receive written comments from the public for 30 days after publication of the newspaper notice and posting of the sign at the property or 5 days after the public informational meeting, whichever is later. In addition, a public informational meeting will be held within 40 days after publication of the newspaper notice.

Relative Importance of Criteria

Among the nine criteria, the threshold criteria are considered to be:

- Overall Protection of Human Health and the Environment
- Compliance with ARARs

The threshold criteria must be satisfied for an alternative to be eligible for selection.

Among the remaining criteria, the following five are considered to be the primary balancing criteria:

- Long-Term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, or Volume
- Short-Term Effectiveness
- Implementability
- Cost (not applicable to Block H)

The balancing criteria are used to weigh the relative merits of alternatives.

The remaining two of the nine criteria, State acceptance and community acceptance, are considered to be modifying criteria that must be considered during response action selection.

These last two criteria can only be evaluated after the MDE and community have reviewed the proposed RAP. Therefore, this RAP addresses only seven of the nine criteria. The remaining two criteria will be addressed through the RAP review, comment, and approval process.

6.3.2.2 Selection of Response Action

The selection of a remedy is a two-step process. The first step consists of identification of a preferred alternative and presentation of the alternative in a proposed RAP submitted to MDE and the community for review and comment. The preferred alternative must meet the following criteria:

- Protection of human health and the environment.
- Compliance with ARARs.
- Cost effectiveness in protecting human health and environment and in complying with ARARs.
- Utilization of permanent solutions and alternate treatment technologies or resource recovery technologies to the maximum extent practicable.

The second step consists of the review of the comments and consultation with the MDE to determine whether or not the preferred alternative continues to be the most appropriate response action for the site.

6.3.3 Detailed Analysis of Alternatives

6.3.3.1 <u>Alternative S-1: No Action</u>

Description of Alternative S-1

This alternative would leave Block H in its current condition. The No Action alternative is required under CERCLA to establish a basis for comparison with other alternatives.

Detailed Analysis of Alternative S-1

Overall Protection of Human Health and Environment

Alternative S-1 would not be protective of human health and the environment. Concentrations of benzo(a)pyrene and mercury would remain in the soil at levels that exceed the established site-specific cleanup goals for human health. Therefore, the RAOs for Block H would not be achieved.

Compliance with ARARs

Alternative S-1 would not achieve human health site-specific cleanup goals.

Long-Term Effectiveness and Permanence

Alternative S-1 would not be effective in the long term because soil COCs would remain on site and pose potential human health risks. Although concentrations of soil COCs might gradually decrease to acceptable levels over a long duration of time because of natural processes, monitoring would not be conducted to verify this.

Reduction of Toxicity, Mobility, and Volume through Treatment

Alternative S-1 does not employ any treatment. However, there would most likely be some reduction in toxicity (i.e., concentrations) of benzo(a)pyrene over time due to natural processes, but these processes would not be monitored.

Short-Term Effectiveness

There are no relevant issues under Alternative S-1 because no action would occur.

Implementability

There are no implementability concerns for Alternative S-1 because no action would be implemented.

Cost

There are no costs associated with Alternative S-1.

6.3.3.2 <u>Alternative S-2: Excavation to Allow Unrestricted Residential Site Use</u> and Off-Site Treatment and Disposal

<u>Description of Alternative S-2</u>

Alternative S-2 is illustrated on Figure 8-1 and would consist of two major components: (1) excavation to allow unrestricted residential site use and (2) off-site disposal.

Component 1: Excavation to Allow Unrestricted Residential Site Use

Figure 8-1 shows the areas of Block H that would be excavated to meet the cleanup goals. As part of site preparation, a material handling pad, decontamination zones, and haul routes would be designated to allow equipment to access the areas to be excavated. Small trees and underbrush would be cleared using a bulldozer or similar equipment and mulched. Excavation of soil to a depth of 10 feet would be conducted using a bulldozer, front-end loader, or similar equipment.

Post-removal/confirmation samples would be collected from the sidewalls and base of the excavation and analyzed for benzo(a)pyrene and mercury.

Following excavation and after post-removal/confirmation sample results confirm that soil with concentrations greater than the cleanup goals has been removed, the excavated areas would be backfilled with certified clean material, graded to original contours, and restored to pre-response action conditions.

Component 2: Off-Site Disposal

The following are the expected actions for the excavated soil:

- All excavated material characterized as RCRA non-hazardous waste would be transported to a permitted RCRA Subtitle D facility for direct landfilling.
- Any excavated soil that fails TCLP testing would be characterized as RCRA hazardous
 waste and would be transported to a permitted RCRA Subtitle C TSDF for treatment to
 meet TCLP limits followed by direct landfilling.

The volumes estimated for disposal at the various facilities would need to be verified based on sampling and analysis of stockpiled soil, followed by profiling as necessary for each facility.

Detailed Analysis of Alternative S-2

Overall Protection of Human Health and Environment

Alternative S-2 would be protective of human health and the environment. The removal of soil with COC concentrations greater than the cleanup goals will reduce potential risk for any future development. Block H would be suitable for revegetation and potential use as a natural and recreational corridor. All of the RAOs for Block H would be achieved.

Compliance with ARARs

Alternative S-2 would achieve the human health site-specific cleanup goal established in Section 5. Location-specific and action-specific ARARs would be complied with in substance, in particular, the following:

- RCRA regulations including Identification and Listing of Hazardous Wastes and LDRs
- OSHA regulations
- Maryland Hazardous Waste Management System Regulations
- Maryland Regulation of Water Supply, Sewage Disposal, and Solid Waste
- Maryland General Permit for Construction Activity
- Maryland OCP

Long-Term Effectiveness and Permanence

Alternative S-2 would be effective in the long term because the COCs that present an unacceptable risk to residential human receptors would be removed from Block H and deposited in a suitable landfill outside the site, resulting in residual levels that would no longer pose an unacceptable risk to these receptors.

Reduction of Toxicity, Mobility, and Volume through Treatment

Alternative S-2 would permanently and irreversibly reduce the mobility of the contaminants to the environment by depositing them in a RCRA-permitted landfill where their exposure to the environment would be adequately controlled. However, unless the excavated material is treated prior to landfilling, Alternative S-2 would not reduce the toxicity of the contaminated soil.

Short-Term Effectiveness

Alternative S-2 would be effective in the short term. Dust suppression and control measures would be implemented to minimize the emission of contaminated soil particulates during onsite response action activities. Erosion control measures would minimize the migration of COCs into

nearby streams. Transportation of the contaminated soil to an off-site landfill would be conducted in suitable containers and by reputable transporters. In the unlikely event of a traffic accident releasing contaminated soil to the environment, an immediate hazard to the community would not be posed because of the non-volatile nature and relatively low solubility of the COCs present in the soil. However, should such an event occur, measures to prevent washing away of the soil by storm events would be warranted. Workers on site would be adequately protected if suitable health and safety procedures are followed. The approximate timeframe for implementation of this alternative is 3 weeks.

Implementability

Alternative S-2 is implementable. Excavation equipment considered under this alternative are typical in the construction industry and are readily available from several local sources. Time to coordinate with stakeholders and obtain necessary permits can easily be built into the schedule. Suitable landfills are available for treatment and/or direct disposal of the excavated soil and have been identified at nearby locations.

Cost

The capital cost for Alternative S-2 is \$280,000. There are no annual O&M costs associated with Alternative S-2. The NPW value of the capital and O&M costs is \$280,000.

6.4 COMPARATIVE ANALYSIS OF ALTERNATIVES

This section compares the analyses presented for each of the response action alternatives in Section 6.3. The criteria for comparison are identical to those used for the detailed analysis of individual alternatives.

6.4.1 Soil

The following response action alternatives for soil are being compared in this section:

- Alternative S-1: No Action
- Alternative S-2: Excavation to Allow Unrestricted Residential Site Use and Off-Site Treatment and Disposal

6.4.1.1 Overall Protection of Health and the Environment

Alternative S-1 would not be protective. Alternative S-2 would be protective.

6.4.1.2 Compliance with ARARs and TBCs

There are no chemical-specific ARARs for Block H soil, only chemical-specific TBCs that are the cleanup goals developed in Section 5. Alternative S-1 would not comply with the chemical-specific TBCs. Action-specific ARARs do not apply to Alternative S-1. Alternative S-2 would comply with the chemical-specific TBCs and action-specific ARARs.

6.4.1.3 <u>Long-Term Effectiveness and Permanence</u>

Alternative S-1 would not be effective in the long term and offers no permanent solution. Alternative S-2 would be effective in the long term because it offers a remedy that removes the COCs from Block H without the need for LUCs to prevent residential and commercial/industrial development and recreational use.

6.4.1.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives S-1 and S-2 do not employ any treatment.

6.4.1.5 Short-Term Effectiveness

Alternative S-1 would not present short-term risks to workers, the community, and the environment because no actions would be taken. Short-term risks to the community, workers, and the environment associated with Alternative S-2 could be adequately controlled.

Alternative S-1 would not achieve the soil RAOs. The approximate timeframe for implementation and attainment of RAOs would be 3 weeks for Alternative S-2.

6.4.1.6 <u>Implementability</u>

There is no action to be implemented for Alternative S-1. Alternative S-2 would be easy to implement because no on-site treatment or long-term maintenance would be required.

6.4.1.7 Cost

There are no costs associated with Alternative S-1. The capital and NPW cost for Alternative S-2 is \$280,000.

6.4.2 Summary of Comparative Analysis of Alternatives

Table 6-5 summarizes the comparative analysis of the two soil response action alternatives.

6.5 PROPOSED ALTERNATIVE

The proposed alternative is Alternative S-2. This alternative would remove soil with COC concentrations greater than the cleanup goals to the extent necessary to allow unrestricted residential use of Block H. This would require excavation of the soil with COC concentrations greater than the cleanup goals identified in Section 5. Figure 8-1 shows the areas of Block H that would be excavated to meet the cleanup goals. As part of site preparation, temporary haul routes would be constructed to allow equipment to access the areas to be excavated and these areas would be cleared using a bulldozer or similar equipment and mulched. Excavation of soil would be conducted using a bulldozer, front-end loader, hydraulic excavators, backhoe, or similar equipment.

Post-removal/confirmation samples would be collected from the sidewalls and base of the excavation and analyzed for benzo(a)pyrene and mercury.

Following excavation and after post-removal/confirmation sample results confirm that soil with COC concentrations greater than the cleanup goals has been removed, the excavated areas would be backfilled with certified clean material, graded to original contours, and restored to pre-response action conditions.

It is assumed that all excavated soil would be disposed at an off-site permitted RCRA Subtitle D landfill. If any excavated material fails TCLP testing, the material would be disposed at an off-site permitted RCRA Subtitle C TSDF. Because the soil remaining on site would no longer contain concentrations of COCs that could be harmful to hypothetical future residential receptors, soil-related LUCs would not be required.

Table 6-1

Chemical-Specific ARARs Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Federal				
Cancer Slope Factors (CSFs)	NA	To Be Considered	CSFs are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	CSFs would be considered for development of human health protection PRGs for soil at this site.
Reference Doses (RfDs)	NA	To Be Considered	RfDs are guidance values used to evaluate the potential non-carcinogenic hazard caused by exposure to contaminants.	RfDs would be considered for development of human health protection PRGs for soil at this site.
State				
Cleanup Standards for Soil and Groundwater	Maryland Environmental Article 7-508/7- 208	To Be Considered	This document presents the approach and supporting documentation used to develop numeric cleanup standards for hazardous substances in the soil and groundwater for the State of Maryland.	These standards maybe considered for use in determining cleanup standards in the absence of a site-specific risk assessment.

ARARs Applicable or Relevant and Appropriate Requirements.

CSFs Cancer slope factors.

NA Not applicable.

PRGs Preliminary remediation goals.

RfDs Reference doses.

Table 6-2

Location-Specific ARARs Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Federal				
Endangered Species Act Regulations	50 CFR Parts 81, 225, and 402	Potentially Applicable	This act requires federal agencies to take action to avoid jeopardizing the continued existence of federally listed endangered or threatened species.	If a site investigation or remediation could potentially affect an endangered species or their habitat, these regulations would apply (There have been no endangered species or their habitat identified at the MRC).
Historic Sites Act Regulations	36 CFR Part 62	Potentially Applicable	Requires federal agencies to consider to existence and location of landmarks on the National Registry of Natural Landmarks to avoid undesirable impacts on such landmarks.	The existence of National Landmarks would be identified prior to remedial activities on site including remedial investigations (There have been no National Landmarks identified at the MRC).
State				
Nongame and Endangered Species Conservation Act	Annotated Code of Maryland 10-2A- 01; COMAR 08.03.08 and 08.02.12.	Potentially Applicable	Requires State agencies to use their authority to maintain and enhance nongame wildlife and endangered species populations.	If a site investigation or remediation could potentially affect an endangered species or their habitat, these regulations would apply (There have been no endangered species or their habitat identified at the MRC).
Division of Historical and Cultural Programs	Annotated Code of Maryland 5A	Potentially Applicable	The Maryland Historic Trust formed in 1961 to preserve, protect, and enhance districts, sites, buildings, structures, and objects significant in the prehistory, history, upland and underwater archeology, architecture, engineering, and culture of the State.	The existence of Maryland historic sites would be identified prior to remedial activities on site including remedial investigations (There have been no historic sites identified at the MRC).

ARARs Applicable or Relevant and Appropriate Requirements.
CFR Code of Federal Regulations.

COMAR MRC Code of Maryland Regulations. Middle River Complex.

Table 6-3

Action-Specific ARARs Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland Page 1 of 3

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken		
Federal	Federal					
RCRA Regulations, Identification and Listing of Hazardous Wastes	40 CFR Part 261	Potentially Applicable	Defines the listed and characteristic hazardous wastes subject to RCRA. Appendix II contains the TCLP.	These regulations would apply when determining whether or not a solid waste is hazardous, either by being listed or by exhibiting a hazardous characteristic, as described in the regulations.		
CAA Regulations, NAAQSs	40 CFR Part 50	Relevant and Appropriate	Establishes primary (health-based) and secondary (welfare-based) air quality standards for carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur oxides emitted from a major source of air emissions. The NAAQSs form the basis for all regulations promulgated under the CAA.	Site remediation activities must comply with NAAQSs. The principal application of these standards is during response action activities resulting in exposures through dust and vapors. In general, emissions from CERCLA activities are not expected to qualify as a major source and are therefore not expected to be applicable requirements. However, the requirements may be determined to be relevant and appropriate for non-major sources with significantly similar emissions.		
RCRA Regulations, LDRs	40 CFR Part 268	Potentially Applicable	This regulation prohibits the land disposal of untreated hazardous wastes and provides criteria for the treatment of hazardous waste prior to land disposal.	Response actions that involve excavating, treating, and redepositing hazardous soil would comply with LDRs.		
OSHA Regulations, General Industry Standards	29 CFR Part 1910	Applicable	Requires establishment of programs to assure worker health and safety at hazardous waste sites, including employee training requirements.	These regulations would apply to all response activities.		
OSHA Regulations, Occupational Health and Safety Regulations	29 CFR Part 1910, Subpart Z	Potentially Applicable	Establishes permissible exposure limits for workplace exposure to a specific listing of chemicals.	Standards are applicable for worker exposure to OSHA hazardous chemicals during response action activities.		

Table 6-3

Action-Specific ARARs Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland Page 2 of 3

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
OSHA Regulations, Recordkeeping, Reporting, and Related Regulations	29 CFR Part 1904	Potentially Applicable	Provides recordkeeping and reporting requirements applicable to response action activities.	These requirements apply to all site contractors and subcontractors and must be followed during all site work.
OSHA Regulations, Health and Safety Standards	29 CFR Part 1926	Potentially Applicable	Specifies the type of safety training, equipment, and procedures to be used during the site investigation and response action.	All phases of the response action would be executed in compliance with this regulation.
RCRA Regulations, Contingency Plan and Emergency Procedures	40 CFR 264, Subpart D	Potentially Relevant and Appropriate	Outlines requirements for emergency procedures to be followed in case of an emergency.	The administrative requirements established in this rule would be met for response actions involving the management of hazardous waste.
RCRA Regulations, Preparedness and Prevention	40 CFR Part 264, Subpart C	Potentially Relevant and Appropriate	Outlines requirements for safety equipment and spill control for hazardous waste facilities. Facilities must be designed, maintained, constructed, and operated to minimize the possibility of an unplanned release that could threaten human health or the environment.	Safety and communication equipment would be incorporated into all aspects of the response action process, and local authorities would be familiarized with site operations.
RCRA Regulations, Standards for Owners and Operators of Hazardous Waste TSDFs.	40 CFR Part 264	Potentially Relevant and Appropriate	Establishes minimum national standards defining the acceptable management of hazardous wastes for owners and operators of facilities that treat, store, or dispose of hazardous wastes.	If response actions involving management of RCRA wastes at an off-site TSDF or if RCRA wastes are managed on site, the requirements of this rule would be followed.
RCRA Regulations, Use and Management of Containers	40 CFR Part 264, Subpart I	Potentially Relevant and Appropriate	Sets standards for the storage of containers of hazardous waste.	This requirement would apply if a response action alternative involves the storage of a hazardous waste (i.e., contaminated soil) in containers prior to treatment or disposal.
Migratory Bird Treaty Act	16 USC 703-711	Potentially Applicable	Protects migratory birds and their nests.	Proposed response action shall not kill migratory birds or destroy their nests and eggs.

Table 6-3

Action-Specific ARARs Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland Page 3 of 3

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
State				
Maryland Hazardous Waste Management System	Title 26, Subtitle 13 of the COMAR	Potentially Applicable	Requires hazardous waste generators to ship their hazardous waste to a facility permitted to accept it or, with the appropriate permits, treat it themselves. Requires use of a certified hauler to ship hazardous waste off site, and shipment must be accompanied by a manifest. Requires compliance with regulations on the storage of the waste and specifies procedures to prevent the occurrence of circumstances that would threaten human health or the environment.	These regulations would apply if waste on site was deemed hazardous and needed to be stored, transported, or disposed of properly.
Maryland Regulation of Water Supply, Sewage Disposal, and Solid Waste	Title 26, Subtitle 4 of the COMAR	Potentially Applicable	Sets the requirements for construction and operation for solid waste disposal facilities.	These requirements would apply if on-site waste was deemed a non-hazardous solid waste and needed to be stored, transported, or disposed of properly.
Maryland General Permit for Construction Activity	Title 26, Subtitle 17 of the COMAR	Potentially Relevant and Appropriate	Establishes requirements for stormwater management and erosion and sediment control at construction sites.	Response actions involving excavation would require submittal of an erosion and sediment control plan and a stormwater management plan.

ARARs	Applicable or Relevant and Appropriate Requirements.	OSHA	Occupational Safety and Health Act.
CAA	Clean Air Act.	RCRA	Resource Conservation and Recovery Act.
CERCLA	Comprehensive Environmental Response,	TCLP	Toxicity Characteristic Leaching Procedure.
	Compensation, and Liability Act.	TSDF	Treatment, Storage, and Disposal Facility.
CFR	Code of Federal Regulations.	USC	United States Code.
COMAR	Code of Maryland Regulations.		
LDRs	Land Disposal Restrictions.		

Maryland Department of the Environment.

National Ambient Air Quality Standards.

MDE

NAAQSs

Table 6-4

Preliminary Screening of Technologies and Process Options Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland Page 1 of 5

General Response Action	Response Action Technology	Process Option	Description	Screening Comment
No Action	None	Not applicable	No activities conducted at Block H to address contamination. Biodegradation of PAHs may occur through natural attenuation processes, but would not be verified.	Required by the CERCLA. Retain for baseline comparison to other technologies.
Limited Action	LUCs	Engineered Controls: Physical Barriers	Fencing, markers, warning signs	Eliminate. This technology would leave soil contaminants in place. Fencing may not be compatible with future residential use. Markers and warning signs would not be effective unless combined with formal administrative controls.
		Administrative Controls: Deed or Site Use Restrictions	Administrative action using property deeds or other land use prohibitions to restrict future site activities.	Eliminate. This technology would leave soil contaminants in place leaving Block H unsuitable for residential use.
	Monitoring	Sampling and Analysis	Sampling and analysis of groundwater to evaluate if additional response actions would be warranted.	Addressed in Groundwater Response Action Plan.
Containment	Cover/Barrier	Soil Cover/Multi- Media Cap	Use of semipermeable or low permeability barriers to minimize direct exposure to contaminants and potential migration to groundwater.	Eliminate. This technology would leave soil contaminants in place leaving Block H unsuitable for residential use.
	Erosion Control	Rip-Rap Cover/Vegetation	Use of gravel/cobbles or dense plant growth to minimize migration of wastes/contaminated soils.	Eliminate. Block H is relatively flat and erosion is not a concern. However, revegetation is retained to allow future site use as a green space.
Removal	Excavation	Mechanical	Means for removal of contaminated soils by backhoe, bulldozer, loader, etc.	Retain for removal of contaminated soil.

Table 6-4

Preliminary Screening of Technologies and Process Options Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland Page 2 of 5

General Response Action	Response Action Technology	Process Option	Description	Screening Comment
In-Situ Treatment	Thermal	Vitrification	Use of high-temperature melting to fuse inorganic contaminants into a glass matrix within vadose zone or the use of moderate temperature heating to volatilize contaminants and remove them from the vadose zone.	Eliminate. This technology presents implementability concerns due to the shallow groundwater table and high moisture content of the soil.
		Radio-Frequency Heating	Use of radio-frequency energy to heat soil and cause volatilization of contaminants	Eliminate. Limited thickness and shallow depth of contaminated soil renders this technology difficult to implement with limited, commercially available equipment. Not applicable for treatment of mercury.
	Thermal (Continued)	Electrical Heating	Use of an electrical blanket or electrical heating elements within slotted pipes to volatilize contaminants	Eliminate. The shallow depth to groundwater renders this technology difficult to implement. Not applicable for treatment of mercury.
	Physical/ Chemical	Soil Flushing/ Chemical Extraction	Use of water/solvents to remove contaminants from the vadose zone by flushing and collecting the contaminated wastewater in the saturated zone followed by above-ground pump and treat.	Eliminate. The result of this technology would be the migration of COCs from soil to groundwater. Therefore, the implementation of this technology could contaminate "clean" groundwater.
		Dynamic Underground Stripping	Steam injection at the periphery of the contaminated area resulting in the vaporization of volatile compounds bound to soil and the movement of contaminants to a centrally located extraction well.	Eliminate. Difficult to implement due to the shallow groundwater table. Not applicable for treatment of mercury.
		Soil Vapor Extraction	Use of vacuum and possibly air sparging to volatilize contaminants.	Eliminate. This technology is better suited for VOCs than the PAHs present in the soil at Block H. In addition, it is not applicable to mercury.

Table 6-4

Preliminary Screening of Technologies and Process Options Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland Page 3 of 5

General Response Action	Response Action Technology	Process Option	Description	Screening Comment
In-Situ Treatment	Physical/ Chemical (Continued)	Chemical Fixation/ Solidification	Mixing of chemical agents in the vadose zone to chemically bind, solidify, and reduce contaminant mobility.	Eliminate. COCs would remain at the site.
		Electrokinetic Separation	Use of electrodes with the application of direct current-based electrical fields to induce the migration of metallic contaminants from soil towards electrodes or to induce electrochemical reactions to destroy selected organic contaminants.	Eliminate. Shallow depth to groundwater would minimize the available resistivity required for application of this technology.
	Biological	Biodegradation	Nutrients and amendments are added to surface soil to promote biodegradation of PAHs.	Eliminate. Would be difficult to achieve cleanup levels for PAHs. Not effective for mercury contamination.
		Phytoremediation	Use of selected plants cultivated in contaminated soil to lead to uptake of metallic contaminants or enhancement of biodegradation of organic contaminants by indigenous microorganisms in the root zone.	Eliminate. This innovative technology has limited demonstrated effectiveness for areas with high levels of organic contaminants. Has potential in reducing lower level organic contamination left in place, however not applicable to achieve identified cleanup goals.
	Physical/ Chemical	Soil Washing/ Chemical Extraction	Use of solubilization and chemical (oxidation/reduction/neutralization) processes to remove contaminants from the solid phase and convert them into more concentrated forms or less toxic forms in liquid phase.	Eliminate. When different classes of contaminants are present, such as metals and PAHs, a series of extraction operations using different solvents, pH adjustment, etc. may be required. By-products from the process would consist of spent solvent streams containing the wastes, requiring further treatment/disposal and recovery/recycle of the extractants.

Table 6-4

Preliminary Screening of Technologies and Process Options Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland Page 4 of 5

General Response Action	Response Action Technology	Process Option	Description	Screening Comment
Ex-situ Treatment	Physical/ Chemical	Chemical Fixation/ Solidification	Mixing of chemical agents to bind, solidify, and reduce contaminant mobility.	Eliminate. Traditional chemical fixation/stabilization processes have only limited effectiveness for the immobilization of SVOCs in contaminated soil. Not suitable for use on site to return treated soil to the excavated area because the treated matrix would be unsuitable for unrestricted use of the site (COCs would remain on site).
	Biological	On-Site Landfarming	Tilling of contaminated soils and wastes in layers of surface soil within a treatment bed to aerate and biodegrade organic contaminants.	Eliminate. Limited effectiveness for PAH contamination and not effective for mercury.
	Thermal	Off-Site Incineration	Use of high temperatures to pyrolize or oxidize organic contaminants into less toxic gases.	Eliminate. Although effective for destruction of PAHs, it would be ineffective for mercury contamination.
		Off-Site Thermal Desorption	Use of moderate temperatures to volatilize contaminants and remove them from the solid phase into the gaseous phase.	Eliminate. This technology would not be effective for the removed mercury contamination.
	Solids Processing	Size Reduction	Crushing/grinding/shredding of wastes as a preliminary process to aid in downstream treatment.	Eliminate crushing because it applies to rock that would typically not be further treated. Eliminate grinding and shredding as pretreatment step for vegetative material (tree stumps) because trees, etc. are not present at Block H in contaminated areas.

Table 6-4

Preliminary Screening of Technologies and Process Options Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland Page 5 of 5

General Response Action	Response Action Technology	Process Option	Description	Screening Comment
Ex-situ Treatment	Solids Processing (Continued)	Screening	Removal/segregation of material based on size as a preliminary process to aid in downstream treatment.	Eliminate. Removal of oversized material that is typically not contaminated is not required.
Disposal	Off-Site	Hazardous/ Non- Hazardous Waste Landfilling	Disposal of excavated wastes and treatment residuals in a permitted RCRA Subtitle C or D facility.	Retain landfilling to be used in conjunction with other response action technologies.
	On-Site	Consolidation	Excavation and relocation of contaminated soil to minimize space and closure requirements.	Eliminate. Would trigger on-site issues that are unacceptable to regulatory agencies (COCs still present on site – not suitable for unrestricted use of the site).
		Beneficial Reuse	Reuse of treated soil as fill material.	Eliminate. Soil treatment technologies not retained, eliminating need for disposition of treatment residuals.

CEDCLA	Common banding Engineers and Donners Commonstice and Linkility Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act.

COCs	Chemicals of concern.
LUCs	Land use controls.

PAHs	Polycyclic aromatic hydrocarbons.
RCRA	Resource Conservation and Recovery Act.

RAO	Response action objective.
$SVOC_{c}$	Samivalatila organia compo

SVOCs	Semivolatile organic compounds
VOCs	Volatile organic compounds.

Table 6-5

Summary of Comparative Analysis of Alternatives Block H, Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland

Evaluation Criteria	Alternative S-1: No Action	Alternative S-2: Excavation to Allow Unrestricted Site Use and Off-Site Disposal
Overall Protection of Human Health and Environment	Not protective	Protective
Chemical-Specific ARARs	Would not comply	Would comply
Location-Specific ARARs	Not applicable	Not applicable
Action-Specific ARARs	Not applicable	Would comply
Long-Term Effectiveness and Permanence	Not effective	Effective
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	None	None
Short-Term Effectiveness	No relevant issues to address	Would be effective. Minimum potential for short-term risks. Three weeks to attain soil RAOs.
Implementability	Nothing to implement	Easy to implement
Costs:		
Capital	\$0	\$280,000
NPW of O&M	\$0	\$-0-
NPW	\$0	\$280,000

ARARs Applicable or Relevant and Appropriate Requirements.

O&M Operation and maintenance. RAO Response action objective.

NPW Net present worth.

Section 7

Evaluation Criteria for the Selected Technology

7.1 EVALUATION CRITERIA

The proposed response action will remove and dispose off site soil with COC (i.e. benzo(a)pyrene and mercury) concentrations greater than the cleanup goals. Following removal of this material, the exposed soil on the excavation base and sidewalls will be visually examined for free product, sheen, staining, or other evidence suggesting that residual contamination is present. Additional removal may be performed based on the visual examination. Following completion of removal and visual examination activities, the base and sidewalls of the removal area will be sampled to confirm that all soil with COC concentrations greater than the cleanup goals has been removed. Additional removal and sampling will be performed until it is confirmed that soil with COC concentrations greater than the cleanup goals has been removed. A complete description of the post-removal/confirmation sampling and analysis plan is presented in Section 8.3. Cleanup goals are presented in Section 5.

7.2 CONTINGENCY MEASURES

Considering the limited extent of soil with COC concentrations greater than the cleanup goals and the nature of the proposed response action (i.e., removal), the development of contingency measures to address COC impacts at Block H is not warranted.

Section 8

Proposed Response Actions

8.1 INTRODUCTION

The proposed response action for Block H will address soil and groundwater with COC concentrations greater than the cleanup goals. The proposed response action for soil in Block H is described in this section. The proposed response action for groundwater in Block H is described in the Groundwater Response Action Plan provided under separate cover.

8.2 RESPONSE ACTION PLAN DESCRIPTION

The proposed soil response action is to remove soil with COC concentrations greater than the cleanup goals to obtain a Certificate of Completion under a Tier IA (Residential Unrestricted) future property use based on potential future residential development. The major components of the proposed response action, performance criteria, and sequence are described below.

8.2.1 Summary of Major Components

The major components of the response action necessary to achieve a Certificate of Completion are as follows:

- Removal of soil with COC concentrations greater than cleanup goals. Remove soil associated with soil boring SB-201 to a depth of 1 foot bgs. Remove soil associated with soil boring SB-474 to a depth of 4 feet bgs. Remove soils associated with soil borings SB-285 and SB-200 to a depth of 10 feet bgs or to the depth of the zone of saturation, whichever is less. An excavation base diameter of 20 feet is assumed. Two horizontal to one vertical excavation sideslopes are assumed for the removals. The areal extent of removal for Block H is approximately 10,000 sf and the removed soil quantity is approximately 1,100 cy. The soil boring sample and removal limits are indicated on Figure 8-1.
- Post-removal/confirmation sampling and analysis Sampling and analysis of the exposed soil on the base and sidewalls of the removal areas will be performed to confirm that soils

with contaminant concentrations greater than the cleanup criteria provided in Table 5-1 are removed. For removal areas where the proposed removal depth cannot be achieved due to the depth of the zone of saturation, post-excavation sampling and analysis of the exposed soil on the base of the removal areas will be performed to obtain data for informational purposes only. Post-removal/confirmation sampling and analysis procedures are presented in Section 8.3.

- Characterization, transport, and off-site disposal of removed soil Stockpiled soil will be characterized for the purposes of waste disposal, transported to an off-site permitted waste disposal facility, and disposed. Disposal at an off-site non-hazardous waste disposal facility is assumed based on review of the constituent concentrations provided in Tables AH-1, AH-2 and AH-3 (Appendix A). The disposal quantity is approximately 1,500 tons based on the removal limits indicated on Figure 8-1.
- Backfilling and regrading The removal areas will be backfilled and the final surface graded to match existing grades. The fill material will be certified clean material similar in grain size to removed soils and obtained from an off-site borrow source.
- Restoration The disturbed areas will either be stabilized by vegetation or repaved. All areas disturbed as a result of response action activities will be permanently stabilized.

8.2.2 Performance Criteria

The performance criteria for the response action are presented below.

Soil Removal

Soil within Block H that is identified as having COC concentrations greater than the cleanup goals will be removed to the proposed depths. The removal limits presented in the RAP were determined based on review of existing soil boring sample results provided in Tables AH-1, AH-2, and AH-3 (Appendix A). The final limits of removal will be determined after completion of post-removal/confirmation sampling. The removal limits will extend to the indicated depths or to the depth of the zone of saturation, whichever is less.

Sediments accumulated in erosion and sediment control devices (see Section 8.4) prior to confirmation that soil with COC concentrations greater than the cleanup goals has been removed will be disposed off site along with the removed soils.

Post-Removal/Confirmation Sampling

Post-removal/confirmation samples will be collected from the excavation base and sidewalls of the removal areas prior to backfilling to confirm that soils with contaminant concentrations greater than the cleanup criteria provided in Table 5-1 have been removed. Additional removal may be required based on the results of the post-removal/confirmation sampling. For removal areas where the proposed removal depth cannot be achieved due to the depth of the zone of saturation, post-removal samples will be collected from the exposed soil on the base of the removal areas to obtain data for informational purposes only. Post-removal/confirmation sampling and analysis procedures are provided in Section 8.3.

Temporary Storage

Soil from the removal areas will be stockpiled and secured within the Block H boundary on a materials handling pad that will consist of a minimum 8-mil-thick polyethylene geomembrane overlain by a drainage layer. Water from the materials handling pad will drain into the excavation of origin. The stockpiled soil will be completely covered with a minimum 8-mil-thick polyethylene geomembrane during inactive periods to prevent movement of soil to the surrounding area. The geomembrane cover will be secured daily using sandbags and rope or other suitable means. The stockpiled soil will be temporarily stored on site until waste characterization has been completed.

Waste Characterization

Removed soil will be sampled from the stockpile or container for waste disposal characterization at a minimum frequency of one sample per 500 cy. Composite samples consisting of three grab samples will be collected from the stockpile or container. The sampling frequency may be increased depending on the volume of the removed soil and waste disposal facility requirements. Samples will be analyzed for TCLP and parameters required by the waste disposal facility.

<u>Disposal</u>

Removed soil will be transported for off-site disposal after waste characterization has been completed and the waste disposal facility has approved acceptance of the waste. Removed soil will be disposed at an off-site non-hazardous waste disposal facility.

Dewatering

Dewatering of the removal areas may be required to facilitate backfilling. Water that has accumulated in the removal areas will be collected and conveyed through a sediment removal device (i.e. filter). Solids trapped in the filter will be transported to an off-site non-hazardous

waste disposal facility or off-site hazardous waste TSDF. Permits required for the proposed response action are described in Section 9.2.2. Water will be contained, characterized as required following removal of sediment, and disposed at an off-site permitted TSDF if required or discharged to a NPDES permitted outfall or to a stabilized area.

Backfilling

The removal areas will be backfilled after completion of post-removal/confirmation sampling and excavation dewatering. Backfill soil will be certified clean soil similar in grain size to removed soils and obtained from an off-site borrow source. Backfill material acceptance criteria are provided on Table 8-1. The off-site borrow source material will be evaluated in accordance with the procedures described in the MDE document titled Facts About VCP – Clean Imported Fill Material². The off-site borrow source will be identified and environmental site assessment documentation obtained if available. The documentation will be reviewed by an environmental professional to determine the borrow source's suitability for use. If the borrow source is judged acceptable, soil samples will be obtained and analyzed for the target compounds using the method and at the sampling frequency recommended in the MDE document based on the location, history, and size (i.e., area and volume) of the borrow source area. Constituents detected in the samples will be evaluated for risk using the residential cleanup standards provided in MDE's Cleanup Standards for Soil and Groundwater (August 2001).

Backfill material will be compacted to a minimum of 90 percent of the maximum dry density as determined by the Standard Proctor. Additional compactive effort may be required dependent on future use of the area.

Restoration

The top 4 inches of backfill in areas to be restored using vegetation will be medium-textured loam suitable for establishment of vegetation (i.e., topsoil). The backfilled and regraded areas along with other areas disturbed during response action implementation will be restored/stabilized using permanent stabilization practices. Vegetative restoration will consist of surface preparation, fertilizing, seeding, and mulching. Vegetative restoration procedures are presented in detail in Section 8.4.2. Pavement disturbed by response action activities may be restored to pre-response action conditions based on future use of the area.

² Document available at http://www.mde.state.md.us/assets/document/Clean Imported Fill Material.pdf

Stormwater Management and Erosion and Sediment Control

Erosion and sediment control will be performed in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control (MDE, 1994). Erosion and sediment control measures are described in Section 8.4. A stormwater management plan will be prepared in accordance with the Maryland Stormwater Design Manual (MDE, October 2000). Before removal activities begin, erosion and sediment controls will be established to prevent impacts to downgradient areas. During removal, backfilling, and regrading activities and until disturbed areas are stabilized, the erosion and sediment controls will be regularly inspected and maintained.

Stabilized Construction Entrance

Ingress to and egress from the removal area(s) will be controlled using a stabilized layer of aggregate that is underlain with a geotextile (i.e., a stabilized construction entrance).

Decontamination Pad

A temporary decontamination pad will be established to clean equipment used to remove and transport contaminated soils. The pad will be sized to accommodate all the equipment to be used during response action implementation and will be constructed in a manner that contains all the contaminated materials removed from equipment and the liquids used to clean the equipment. Contaminated materials removed from the equipment and solids removed from the wash water will be disposed off site along with the removed soils. Wash water will be contained, characterized as required following removal of sediment, and disposed at an off-site permitted TSDF if required or discharged to a NPDES permitted outfall or to a stabilized area.

8.2.3 Sequence

The field duration, excluding items 1 through 3 below, required to perform the proposed response action is estimated to be approximately 3 weeks. The generalized sequence of response action activities is presented below. The sequence of response action activities is subject to change based on the Contractor's work plan.

- 1. Obtain permits, notifications, and approvals as identified in Section 9 prior to mobilization.
- 2. Hold a pre-response action implementation meeting on site with the Contractor.

- 3. Locate and mark existing site utilities. Notify Miss Utility of Maryland (1-800-257-7777; www.missutility.net) at least 48 hours, but no more than 10 working days, prior to the day excavation will commence. Inspect the site prior to response action implementation to verify existing site conditions.
- 4. Install perimeter controls for the stabilized construction entrance and construct the stabilized construction entrance. Install the remaining perimeter erosion and sediment controls.
- 5. Install support features including but not limited to decontamination pad and storage area(s), etc.
- 6. Protect or remove existing utilities within or in close proximity to the removal limits.
- 7. Remove soil from the indicated limits. Collect post-removal/confirmation samples from the removal area to determine the need for additional removal.
- 8. Following post-removal/confirmation that soils with contaminant concentrations greater than the cleanup criteria provided in Table 5-1 have been removed or the depth of the zone of saturation has been reached, restore the area by dewatering removal areas if necessary, backfilling, regrading, and establishing permanent stabilization for all disturbed areas.
- 9. Remove decontamination pad, material storage area, etc. Following support feature removal, stabilize areas with permanent vegetation or paving.
- 10. Following permanent stabilization of all disturbed areas, remove all remaining perimeter controls and immediately stabilize all areas disturbed by the placement and removal of perimeter controls.

8.3 POST-REMOVAL/CONFIRMATION SAMPLING AND ANALYSIS

The purpose of post-removal/confirmation sampling and analysis is to obtain sufficient data to confirm that soil with COC concentrations greater than the cleanup goals has been removed. The post-removal/confirmation sampling and analysis plan is summarized below.

8.3.1 Sampling and Sample Evaluation

The response action implementation includes the removal and off-site disposal of soil with COC concentrations greater than the cleanup goals. The removal areas are shown on Figure 8-1. Following removal of this material, the exposed surfaces of the excavation (i.e., base and sidewalls) will be visually examined for evidence of remaining contamination (e.g., free-product,

sheen, staining). Additional excavation may be performed based on the visual examination. The exposed surfaces of the removal area will then be sampled to determine if all the soils with contaminant concentrations greater than the cleanup criteria provided in Table 5-1 have been removed. The purpose of the excavation base and sidewall samples will be to determine whether the depth and lateral extent of removal is sufficient or if the removal depth and lateral extent need to be increased to remove soils with contaminant concentrations greater than the cleanup criteria. For removal areas where the proposed removal depth cannot be achieved due to the depth of the zone of saturation, post-excavation sampling and analysis of the exposed soil on the base of the removal areas will be performed to obtain data for informational purposes only.

Post-removal/confirmation samples will be collected, packaged, and transported to a fixed-base laboratory. The fixed-base laboratory will analyze the samples for the constituents and per the methods indicated on Table 5-1. Post-removal/confirmation sampling results will be reviewed and the need for additional removal evaluated. If additional removal is required, additional post-removal/confirmation samples will be collected from the new exposed surfaces using the following criteria:

- If additional removal is required from the excavation base only, additional post-removal/confirmation samples will be collected from the new exposed excavation base only (i.e., no sidewall samples).
- If additional removal is required from the excavation sidewalls only, additional postremoval/confirmation samples will be collected from the new excavation sidewalls and the new exposed excavation base.
- If additional removal is required from the excavation base and sidewalls, additional postremoval/confirmation samples will be collected from the new excavation sidewalls and the new exposed excavation base.

Analytical results from the fixed-base laboratory for post-removal/confirmation samples that represent exposed surfaces of the excavation that will remain (i.e., no further removal will be performed) will be validated using EPA's Contract Laboratory Program protocol, EPA Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses (EPA, 1993), and EPA Region III Modifications to National Functional Guidelines for Organic Data Review, Multi-Media, Multi-Concentration (EPA, 1994) in conjunction with method-specific criteria. Analytical results from the fixed-base laboratory for samples representing soil that is subsequently removed and disposed off-site will not be validated.

8.3.2 Sampling Locations

Samples will be collected from the excavation base and sidewalls of each removal area. The excavation base of each removal area will be divided into areas of no more than 625 sf (i.e., 25-foot by 25-foot area). One post-removal/confirmation base sample will be collected from each 625-sf area. The post-removal/confirmation base sample will be a composite sample created from soil collected at four randomly determined grab locations. A minimum of four post-removal/confirmation sidewall samples will be collected from each removal area having excavation sidewall lengths less than 50 feet. Additional sidewall samples will be collected at a sidewall 50 one sample for every feet of exposed Post-removal/confirmation samples collected from excavation sidewalls will also be composite samples created from soil collected at two randomly determined grab locations.

8.4 EROSION AND SEDIMENT CONTROL

Erosion and sediment control measures will be implemented to minimize and/or eliminate erosion and sedimentation during the response action. The construction, implementation, and maintenance of the erosion and sediment control devices will be in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control (MDE, 1994). The number provided below with each control measure, if any, references the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control (MDE, 1994). The erosion and sediment control devices can be modified based on construction equipment and techniques presented in the Contractor's work plan.

The erosion and sediment control measures include the following:

- Silt Fence (E15.0) Placed along the downslope sides of each removal area to provide a temporary sediment barrier consisting of geotextile filter fabric.
- Stabilized Construction Entrance (17.0) Placed as a controlled site entrance to reduce the amount of sediment transported by construction vehicles onto public roads. Loose dirt will be removed from the tires of construction vehicles as they traverse the stabilized construction entrance.

- Dust Control Utilized to prevent surface and air movement of dust from exposed soil surfaces and to reduce the amount of airborne substances that may present health hazards, traffic safety problems, or harm plant/animal life.
- Permanent Seeding (20.0) Utilized to establish perennial vegetation on disturbed areas by planting seeds of native grasses.
- Mulching (20.0) Utilized to prevent erosion by protecting the soil surface from raindrop impact and to reduce the velocity of overland flow.

8.4.1 Inspection and Maintenance

In general, all erosion and sediment control measures will be checked daily and after each runoffproducing rainfall event. Any required repairs will be made immediately. The following items will be checked:

- The stabilized construction entrance will be maintained in a condition that will minimize tracking sediment onto public roads.
- Silt fence will be checked for undermining or deterioration of the fabric. Sediment will be removed when the level of sediment causes bulging or reaches one-half of the fabric height.
- Seeded areas will be checked regularly to ensure that a good stand of vegetation is maintained and will be fertilized and reseeded as needed
- The fuel and lubricant materials storage area will be checked to ensure that stored containers are not leaking and that the lining system is functioning properly.

Erosion and sediment control devices will be inspected and maintained during the response action until the disturbed areas are permanently stabilized. Damaged erosion and sediment control devices will be repaired immediately. The Contractor will maintain a logbook of all erosion and sediment control device inspections and maintenance. The logbook will be available at the site at all times for inspection by duly authorized officials. Post-response action maintenance will consist of performing periodic inspections of the disturbed areas and repair of disturbed areas until the areas are permanently stabilized.

8.4.2 Restoration

All areas disturbed by response action implementation activities (i.e., removal and support facility areas) will be restored/stabilized using permanent stabilization practices. Activities to establish permanent stabilization (i.e., preparing the area for seeding and seed application or paving) will be implemented as soon as possible following the establishing of final grades. The establishment of permanent stabilization includes seed bed preparation, seeding, and mulching. The seed mixture was selected from the list of Maryland standard seed mixtures in Section 20.0 of the Maryland Standards and Specifications for Soil Erosion and Sediment Control (MDE, 1994). The seed was selected based on the applicable hardiness zone, level of maintenance, and erosion resistance. The permanent seed mixture is based on Mixture 5 in Table 25 (page G-20-18) of the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control. Mixture 5 is suited for Plant Hardiness Zone 7a, in which the site is located. The permanent seed mixture consists of perennial ryegrass (Lolium perenne) seeded at a rate of 20 pounds of pure live seed (PLS) per acre, flatpea (Lathyrus sylvestris) seeded at a rate of 20 pounds PLS per acre. In the event that disturbed areas are brought to final grade outside of the optimal growing season for the permanent seed mixture, the disturbed areas will be temporarily stabilized using a temporary seed mixture. Erosion and sediment control devices will remain in place until permanent stabilization is established over the disturbed areas.

8.5 MISCELLANEOUS RESPONSE ACTION REQUIREMENTS

8.5.1 Utilities

Above- and below-ground utilities are known to exist on and near Block H. Storm water, sanitary sewer, and above- and below-ground electrical service are present in Block H. Known utilities are indicated on the MRC utility map included as Appendix J of the Site Characterization Report (Tetra Tech, May 2006). The Contractor will verify, locate, and stake all utility locations within the limits of the site and adequately implement protection measures or remove the utilities before any earth-disturbing activities. The Contractor will coordinate protection, removal, or temporary utility bypasses with Lockheed Martin.

8.5.2 Groundwater Monitoring Wells

Groundwater monitoring wells MW08A, MW51A, MW52A, and MW53A with flush-mounted protective casings exist within Block H. The monitoring wells will be protected during response action implementation. Groundwaters monitoring well locations within and near Block H are shown on Figure 2-2.

8.5.3 Dust Control

During construction, the Contractor will be required, as necessary, to control the generation of dust to comply with OSHA and National Institute of Occupational Safety and Health (NIOSH) requirements. Systems used for dust control could include a sprinkler systems, water trucks, etc. The Contractor will identify the methods of dust control within the Contractor's work plan.

8.5.4 Spill Mitigation Response Procedures

Potential non-stormwater discharges during response action activities include wash water resulting from decontamination efforts associated with field equipment and vehicles, fuel, lubricant, and hydraulic fluid spills from vehicle fueling, lubrication, and maintenance, and spills of fertilizers and small quantities of laboratory chemicals used in sample collection, and other flammable substances.

All decontamination wash water will be collected in a lined decontamination and equipment wash pad area. All waters generated from decontamination and/or other washing activities will be collected, solids removed, characterized, and transported to an approved off-site permitted TSDF. All vehicle fueling, lubrication, and maintenance will be performed utilizing drip pans to contain discharges and prevent a reportable spill to the ground surface. Containers of detergents and vehicle maintenance fluids (e.g., oil, grease, antifreeze, hydraulic fluid, etc.) will be stored within an enclosed, lined, diked area along with the equipment fuel, which will be stored in tanks. This area, referred to as the materials storage area, will be bermed and lined with a minimum 60-milthick polyethylene geomembrane and will be sized to contain 110 percent of the volume stored within the area. A small sump or low point in the geomembrane will be designed to serve as a collection and monitoring point for any leaks or discharge from the containers stored within the

materials storage area. When not in use, chemicals, paints, and other flammable substances will be stored in a flammable storage cabinet located within the Contractor's equipment trailer.

Good housekeeping procedures will be followed to reduce risks associated with these materials. These procedures include, but are not limited to, keeping materials in their original containers whenever possible, maintaining original labels and Material Safety Data Sheets (MSDSs), and using proper disposal methods for surplus materials. Accidental spills that may occur will be contained as appropriate for the spilled medium (liquid or solid) and collected and containerized immediately after discovery of the spill. Containerized material will be characterized for off-site transportation and disposal. The following spill mitigation equipment should be available on site during response action activities:

- Drip pans
- Oil-dry or similar compound
- Absorbent socks
- Shovels
- 55-Gallon drums or storage tank (for containerization)
- Labels for contents identification

Following spill cleanup, the cause of the spill will be investigated and material storage and handling procedures will be reviewed and revised where appropriate.

8.6 REPORTING REQUIREMENTS

Analytical reports and documentation generated as a result of the approved RAP and as necessary to obtain a Certificate of Completion will be included in the Notification of Completion Report. The Notification of Completion Report will be submitted to MDE within 90 days after completion of response action activities. The reports and documentation are described below.

Analytical reports of post-removal confirmation sample and backfill material data deliverables submitted to MDE will be in hardcopy format and electronic data deliverable (EDD) format. The EDD will be provided in Microsoft Excel[®] format to facilitate efficient and time-sensitive evaluation by MDE.

Removal activities for each discrete removal area will be documented on removal logs. The removal logs will include documentation such as identification and location of the removal area (e.g., associated soil boring sample number), contractor's name, removal date(s), backfill date(s), removal equipment used, removal area dimensions at both the ground surface and base of excavation, removal depth(s), lithology, groundwater elevation, direct-reading instrument and field screening results if applicable, visual observations, olfactory observations if any, and photographs. The final removal area limits at ground surface will be surveyed by a professional land surveyor registered in the State of Maryland. Post-removal/confirmation sampling field documentation including grab sample locations will be documented on a separate Soil Sample Log Sheet.

Waste profiles, waste characterization results, TSDF pre-approval or approval documentation, shipment manifests, delivery tickets or certificates, and treatment and disposal certificates will be provided for all contaminated media removed from Block H.

8.6.1 Recordkeeping

Lockheed Martin will maintain complete records of the response action for a minimum of 5 years.

Backfill Material Acceptance Criteria
Block H, Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

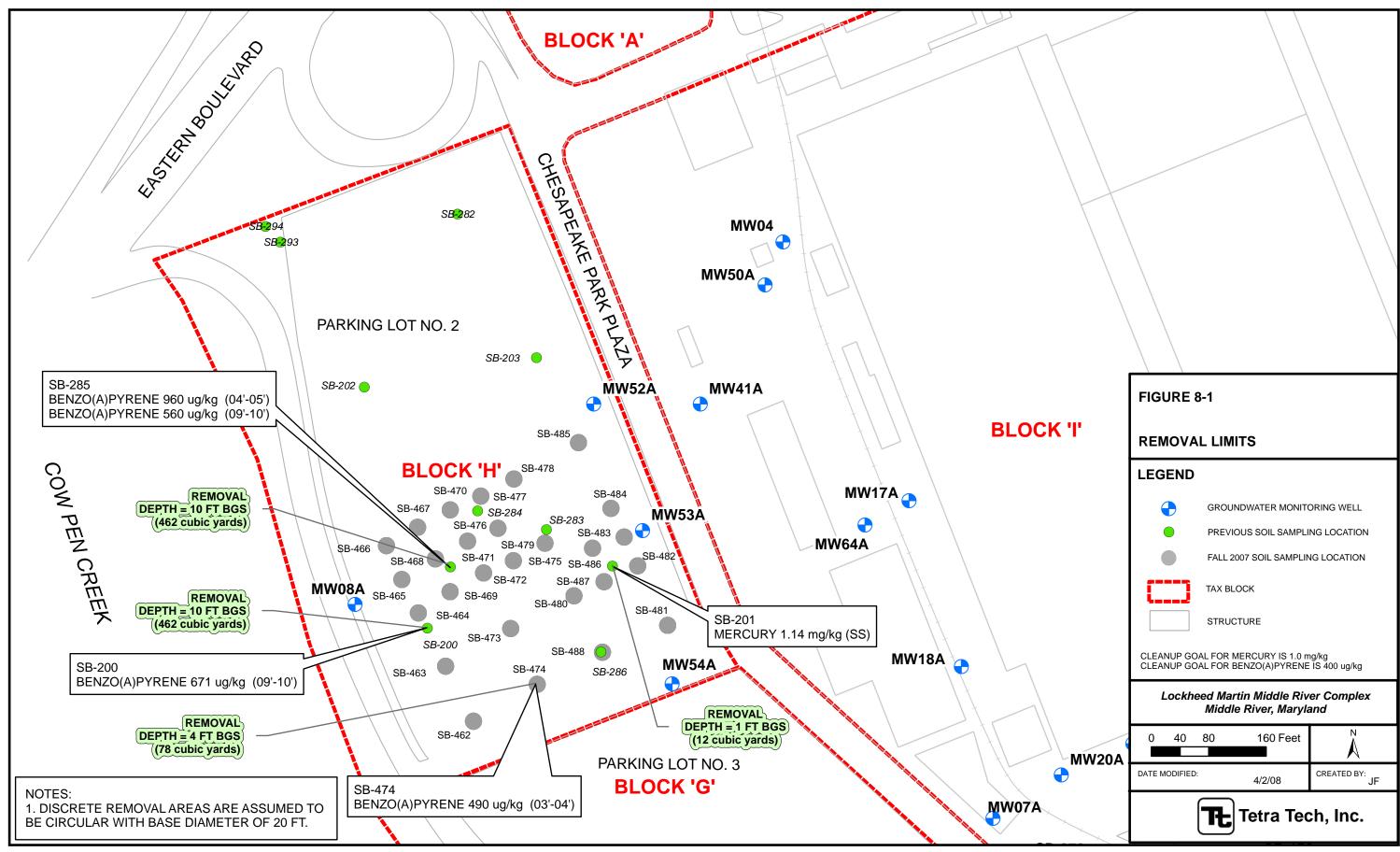
Table 8-1

Parameter	Criteria	Test Method
USCS Classification	GW, GP, GM, SW, SP, and SM	ASTM D 2487
Atterberg Limits		
Liquid Limit	35 maximum	ASTM D 4318
- Plasticity Index	12 maximum	
Amount finer than the No. 200 U.S. Standard Sieve	25 percent maximum	ASTM D 1140
Maximum Particle Size	1 inch maximum	ASTM D 422

1 Backfill material will be evaluated for constituents as described in Section 8.2.2 paragraph titled "Backfilling."

ASTM American Society for Testing and Materials International.

USCS Unified Soil Classification System.



Section 9

Permits, Notifications, and Contingencies

9.1 INTRODUCTION

This section describes the permits required for the proposed response action and the required notifications and contingencies if unexpected conditions are encountered during implementation of the RAP.

9.2 PERMITS

Lockheed Martin will meet all local, State, and federal permitting requirements for the response action described in Section 8. Based on a review of requirements of MDE and Baltimore County, permitting requirements for the response action are related to earth-moving activities and excavation dewatering, if necessary.

9.2.1 Earth-Moving Activities

This section describes permits related to earth-moving activities including grading, erosion and sediment control, and stormwater management.

Although the proposed response action will not result in a planned disturbance of 1 acre or more, a Notice of Intent form will be submitted to MDE to obtain coverage under the General Permit for Construction Activity for stormwater discharges. Conditions of the General Permit include compliance with approved erosion and sediment control and stormwater management plans. The erosion and sediment control plan will be submitted to the Baltimore County Soil Conservation District for review and approval, and the stormwater management plan will be submitted to the

Baltimore County Department of Environmental Protection and Resource Management (DEPRM) for review and approval, as discussed below. As a condition of erosion and sediment control plan approval, Lockheed Martin will certify that a "responsible person" trained in techniques and standards of erosion and sediment controls will be on site during construction. After Block H has been finally stabilized and all stormwater discharges from construction sites that are authorized by this permit are eliminated, a Notice of Termination form will be submitted to MDE.

Miss Utility for Maryland will be notified (1-800-257-7777, www.missutility.net) at least 48 hours, but not more than 10 working days, before excavation begins.

A Baltimore County grading permit is required for any land disturbance and any grading activities that disturb greater than 5,000 sf or more than 100 cy of fill material. As a condition of grading permit issuance, a stormwater management plan will be submitted to the Baltimore County DEPRM for review and approval by DEPRM and the Baltimore County Soil Conservation District. The stormwater management plan will be prepared in accordance with the 2000 Maryland Stormwater Design Manual, Volumes I and II (MDE, October 2000). As an additional condition of grading permit issuance, a grading plan will be submitted to the Baltimore County DEPRM for review and approval, and an erosion and sediment control plan will be submitted to the Soil Conservation District for review and approval. The erosion and sediment control plan will be prepared in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control (MDE, 1994). The approved plans will be included with the grading permit application.

A Baltimore County stormwater management permit is required because stormwater management devices and practices are required. The approved stormwater management plan will be included with the stormwater management permit application.

9.2.2 Excavation Dewatering

Water resulting from excavation dewatering will be managed in one of the following ways:

- Contained, characterized as required, and disposed at an off-site permitted TSDF
- Filtered and subsequently discharged to surface water (regulated by MDE and EPA)

• Filtered and subsequently discharged to the local sanitary sewer system (regulated by Baltimore County)

The industrial surface water discharge permit is a combined state and federal permit under NPDES. A completed application will be submitted to MDE if required. MDE develops discharge limits based on the information provided in the permit application and issues the permit considering public comments, if any.

A wastewater discharge permit is required to discharge industrial wastewater to the local sanitary sewer system. A completed application for discharge to the Baltimore County sanitary sewer system will be submitted to the Engineering and Regulation Division of the Bureau of Utilities if required. There are specific limits set by the treatment plant for certain pollutants. Discharge limits for these and other pollutants may be set on a case-by-case basis. The discharge permit is issued by the Baltimore County Department of Public Works and Development Management.

9.3 NOTIFICATIONS

MDE will be notified immediately of any previously undiscovered contamination, changes in the RAP schedule, previously undiscovered storage tanks and other oil-related issues, and citations from regulatory entities related to health and safety practices.

9.4 CONTINGENCIES

If soil with COC concentrations greater than the cleanup goals is discovered outside the planned limits of soil removal, based on the results of post-removal/confirmation sampling and analysis, it will be addressed as discussed in Section 8.3.

Section 10 Implementation Schedule

The response action proposed in this The RAP for Block H is anticipated to take approximately two months to complete. The response actions for the six properties that have RAPs submitted to MDE for review. Lockheed Martin (Blocks B, D, E, F, G, and H) will be executed in sequence. Lockheed Martin is committed to commence begin the work within 30 days of approval of the RAPs and the entire project is expected to take approximately twelve months to complete. Upon approval of the RAPs, Lockheed Martin will provide a more detailed schedule for the entire project and then provide the MDE with an updated schedule each month for tracking purposes. Lockheed Martin reserves the right to stage or execute each block in sequential order to minimize site disruption and costs. A draft schedule for the Block H is presented below:

Deliverable/Milestone	Completion Date
Soil RAP Submittal to MDE	On or about April 22, 2008
Soil RAP Approval	On or about July 8, 2008
Submit Permits/Notifications	Within 30 days of approval
Mobilization/Site Preparation	In conjunction with other blocks over a 6 to -12 month time frame
Soil Excavation, Removal and Sampling	2 months after commencing work
Demobilization	Within 30 days of completion of soil removal excavation
Reporting	Within 60 days of demobilization

Section 11

Administrative Requirements

11.1 INTRODUCTION

MDE's VCP stipulates several administrative requirements with which the applicant must comply. The administrative requirements include a written agreement, zoning certification, performance bond or other form of security, and health and safety plan requirements. These administrative requirements are described below.

11.2 WRITTEN AGREEMENT

A written agreement is provided with this RAP in compliance with Section 7-508 of the Environment Article, Annotated Code of Maryland. The written agreement stipulates that if the RAP is approved, the applicant agrees, subject to the withdrawal provisions set forth in Section 7-512 of the Environment Article, to comply with the provisions of the RAP. The written agreement is provided in Appendix E.

11.3 ZONING CERTIFICATION

A zoning certification is provided with this RAP in compliance with Section 7-508 of the Environment Article, Annotated Code of Maryland. Section 7-508 requires that RAPs include a certified written statement that the property meets all applicable county and municipal zoning requirements. The zoning certification is provided in Appendix E.

11.4 PERFORMANCE BOND OR OTHER SECURITY

Lockheed Martin will post a performance bond with MDE within ten days of RAP approval. The bond amount (\$35,000) will be adequate to secure and stabilize the property if the RAP is not completed.

11.5 HEALTH AND SAFETY PLAN

A project-specific Health and Safety Plan (HASP) will be prepared and submitted to MDE prior to implementation of the MDE-approved RAP. The HASP will address each planned response action activity that is performed by workers engaged in hazardous waste site activities. The project-specific HASP will reference applicable regulations that may apply to response action activities. At a minimum, the HASP will contain the required elements specified in 29 CFR Parts 1910.120 and 1926.65, as well as other regulatory and Lockheed Martin requirements that apply to the nature of the activities that will be performed. At a minimum, the project-specific HASP will address the following (29 CFR Part 1910 citation in parentheses):

- Health and safety personnel requirements and responsibilities [29 CFR Part 1910.120(b)(4)(iv)]
- Pertinent site information [29 CFR Part 1910.120(b)(4)(iv)]
- Scope of work [29 CFR Part 1910.120(b)(4)(iv)]
- A safety and health risk or hazard analysis for each planned site activity [29 CFR Part 1910.120(b)(4)(iv)]
- Training requirements [29 CFR Part 1910.120(e)]
- Personal protective equipment (PPE) requirements for each planned site activity [29 CFR Part 1910.120(c)(5)]
- Medical surveillance requirements [29 CFR Part 1910.120(h)(1)(i)]
- Air monitoring and sampling requirements
- Site control measures [29 CFR Part 1910.120(d)]
- Decontamination procedures [29 CFR Part 1910.120(k)(1)]

- An Emergency Response Plan [29 CFR Part 1910.120(1)(1)]
- Confined-space entry procedures (29 CFR Part 1910.146)
- Spill containment [29 CFR Part 1910.120(j)(1)(viii)]
- Recordkeeping [29 CFR Part 1910.120(f)(8)]

The HASP will present information to adequately address appropriate hazard recognition and evaluation and control for the potential hazards that may be anticipated for the specific planned activities.

The project-specific HASP is recognized as a dynamic document that is subject to review and possible revision, as appropriate. Potential factors that could warrant the revision of a HASP include a change in the scope of work or as a result of evaluating data collected throughout implementation of the response action.

Implementation of the appropriate portions of the project-specific HASP will be accomplished by the Site Safety Officer (SSO) (with assistance from project management, as appropriate) assigned to the response action. The SSO will be on site during all intrusive activities. Specific health and safety program implementation elements are summarized below.

11.5.1 Training and Medical Surveillance

All personnel who participate in on-site work where there is a potential for exposure to hazardous waste-related safety or health hazards will be current participants in health and safety training and medical surveillance programs. These programs are in accordance with regulatory requirements. In general, the employee training and medical requirements specified in the OSHA hazardous waste regulations are regarded as minimum requirements.

At a minimum, employees who will or may participate in any on-site activities that may involve potential exposures to hazardous waste-related safety or health hazards will first have to satisfy the following health and safety training requirements:

- 40-Hour introductory hazardous waste general worker training [29 CFR Part 1910.120(e)(3)(i)].
- On their first assignment, an additional 24 hours of activity under the direction of a trained, experienced supervisor [29 CFR Part 1910.120(e)(3)(i)].
- Individuals who will be in a supervisory position must also complete an additional 8 hours of management/supervisory health and safety training [29 CFR Part 1910.120(e)(4)].
- 8 Hours of annual health and safety refresher training for all general workers and supervisors [29 CFR Part 1910.120(e)(8)].
- Project-specific training prior to the onset of any on-site intrusive activities.

Additional health and safety training requirements may also be specified in the project-specific HASP depending on the nature of the planned activities (e.g., confined space entry training, fall protection training, excavation safety training, etc.).

11.5.2 On-Site Health and Safety Functions

The SSO will be responsible for ensuring that all health and safety requirements specified in the HASP are adequately performed and documented. This commonly includes activities such as the following:

- Conducting and documenting on-site health and safety training.
- Implementing a project-specific hazard communication program (e.g., chemical inventory, MSDSs, chemical container labeling, etc.).
- Implementing other project-specific health and safety programs that may be relevant based on the response action scope of work and the nature of planned activities (e.g., hearing conservation program, confined space entry program, respiratory protection program, etc.).
- Performing and documenting equipment inspections for equipment that is intended to be used on site.
- Calibration and use of air monitoring devices (e.g., organic vapor meters, particulate meters, etc.) and air sampling devices.
- Ensuring that specified PPE is appropriately used.

- Overseeing personnel and equipment decontamination activities.
- Coordinating with appropriate on- and off-site contacts and agencies and managing the emergency response plan, when/as appropriate.
- Other duties as specified in the HASP.

Section 12 References

- 1. Aerial Photographs dated: 1954.
- 2. Cassell, J.R., July 1977. Drainage Area Map Existing Storm Water Drains, Chesapeake Park Plaza/Dark Head Cove Road; Sheet A1 of 7.
- 3. United States Environmental Protection Agency (EPA), October 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final EPA/540/G-89/004: Office of Emergency and Remedial Response, Washington, D.C.
- 4. EPA, 1993. EPA Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analysis.
- 5. EPA, 1994. EPA Region III Modifications to National Functional Guidelines for Organic Data Review, Multi-Media, Multi-Concentration.
- 6. Maryland Department of the Environment (MDE), 1994. 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control, Maryland Department of the Environment, Water Management Administration in association with Soil Conservation Service and State Soil Conservation Committee.
- 7. MDE, October 2000. 2000 Maryland Stormwater Design Manual Volumes I & II, Maryland Department of the Environment, Water Management Administration.
- 8. MDE, August 2001. Cleanup Standards for Soil and Groundwater, Interim Final Guidance (Update No. 1).
- 9. MDE, March 2006. Guidance Document, Voluntary Cleanup Program.
- 10. Tetra Tech, Inc. (Tetra Tech), May 2006. Site Characterization Report, Revision 1.0, Lockheed Martin Middle River Complex.
- 11. Tetra Tech, December 2006. Comment Response Document No. 2, Site Characterization Report, Lockheed Martin Middle River Complex.
- 12. Tetra Tech, November, 2007. Soil Characterization Work Plan, Lockheed Martin Middle River Complex, Middle River, MD.

APPENDIX A - SUMMARY OF DETECTED CONCENTRATIONS IN SOIL	

TABLE AH-1

SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 1 OF 3

SAMPLE ID: LABORATORY ID: SAMPLE DATE: LOCATION: INORGANICS (mg/kg)	SB-200-SS 9612833001 5/13/2005 SB-200	SB-201-SS 9612833004 5/13/2005 SB-201	SB-202-SS 9612833010 5/13/2005 SB-202	SB-203-SS 9612833007 5/13/2005 SB-203	SB-294-0001 WV5857-11 10/28/2005 SB-294
ANTIMONY	0.9	1	0.6	1	
ARSENIC		6	0.7	1	2
BARIUM	25	74	23	38	20.1
BERYLLIUM	0.5	1.4	0.3	0.6	0.37 B
CADMIUM	0.09	0.5	0.2	0.06	
CHROMIUM	8.8	24.8	7.8	12.1	11.1
COBALT	2.8	19.7	3.3	8.5	2.9
COPPER	6	9	6	5	4.7
LEAD	7	18	6	6	4.8
MERCURY	0.4 L	1.14 L	0.06 L	0.04 L	0.01
MOLYBDENUM		0.9 B	0.4 B		0.55 K
NICKEL	7	11	7	13	7.5
SELENIUM			2		
SILVER				0.1 B	
VANADIUM	14.5	34.7	13.1	20.4	15.7
ZINC	20	45	18	35	15.9
MISCELLANEOUS (%)					
TOTAL SOLIDS	NA	NA	NA	NA	91
MISCELLANEOUS (S.U.)					
PH	6	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (mg/kg)					
DIESEL RANGE ORGANICS	168	242	223	37.3	NA
GASOLINE RANGE ORGANICS	6.13 B			6.48 B	
TPH (C09-C36)	NA	NA	NA	NA	14
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)					
1-METHYLNAPHTHALENE	183				
2-METHYLNAPHTHALENE	161				
ACENAPHTHENE	125				
ANTHRACENE	283			40 J	
BENZO(A)ANTHRACENE	372	35 J		60 J	
BENZO(A)PYRENE	367	40 J		57 J	
BENZO(B)FLUORANTHENE	205	46 J		30 J	
BENZO(G,H,I)PERYLENE	159			37 J	
BENZO(K)FLUORANTHENE	284	42 J		48 J	

TABLE AH-1

SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 2 OF 3

SAMPLE ID: LABORATORY ID: SAMPLE DATE: LOCATION:	SB-200-SS 9612833001 5/13/2005 SB-200	SB-201-SS 9612833004 5/13/2005 SB-201	SB-202-SS 9612833010 5/13/2005 SB-202	SB-203-SS 9612833007 5/13/2005 SB-203	SB-294-0001 WV5857-11 10/28/2005 SB-294
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)	•	=== .			
BENZOIC ACID	100 J	723 J		67.4 J	
CHRYSENE	407	49 J		69 J	
DIBENZO(A,H)ANTHRACENE	56 J				
DIBENZOFURAN	27 J				
DI-N-BUTYL PHTHALATE				31 J	
FLUORANTHENE	840	80 J		132	
FLUORENE	159			28 J	
INDENO(1,2,3-CD)PYRENE	147			34 J	
NAPHTHALENE	239				
N-NITROSODIPHENYLAMINE					
PHENANTHRENE	1020	46 J		130	
PYRENE	869	66 J	32 J	131	
VOLATILE ORGANIC COMPOUNDS (ug/kg)			Г		
1,2,3-TRIMETHYLBENZENE	NA	NA	NA	NA	
1,2,4-TRIMETHYLBENZENE		1.3 B	2 B	1.3 B	
1,3,5-TRIMETHYLBENZENE					NA
2-BUTANONE	9.19	29.4	13.2	13	
ACETONE	107 J	210 J	138 J	157 J	
CARBON DISULFIDE	1.7 J		3	2	
CHLOROMETHANE					
ETHYLBENZENE		1.5 J		0.31 J	
M+P-XYLENES					
METHYLENE CHLORIDE		2.9 J	4.9 J	3 J	14 B
NAPHTHALENE	35.4	0.94 B		2 B	
N-BUTYLBENZENE					
O-XYLENE					
TERTIARY-BUTYL ALCOHOL	5 J	7 J		-	
TOLUENE		7.8	13.3	8	
TRICHLOROETHENE		2.9	4.8	3.4	
TRICHLOROFLUOROMETHANE					

TABLE AH-1

SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 3 OF 3

1 Highlighted values indicate positive detection in exceedance of cleanup goals.

μg/kg - Micrograms per kilogram.

MDE - Maryland Department of the Environment.

mg/kg - Milligrams per kilogram.

NA - Not applicable.

NC - No criterion.

SB - Soil boring.

S.U. - Standard Units.

-- - Not detected.

VOC - Volatile organic compound

SVOC - Semi-volatile organic compound

TPH - Total petroleum hydrocarbons

- B Analyte was detected but is considered to be a laboratory contaminant.
- J Positive value is considered estimated as a result of technical noncompliance.
- K Positive value is considered biased high as a result of techical noncompliance.
- L Positive value is considered biased low as a result of technical noncompliance.

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 1 OF 9

SAMPLE ID: LABORATORY ID: SAMPLE DATE:	SB-200-05 9612833002 5/13/2005	SB-200-10 9612833003 5/13/2005	SB-201-05 9612833005 5/13/2005	SB-201-10 9612833006 5/13/2005	SB-202-05 9612834001 5/13/2005	SB-202-10 9612834002 5/13/2005	SB-203-05 9612833008 5/13/2005	SB-203-10 9612833009 5/13/2005
LOCATION:	SB-200	SB-200	SB-201	SB-201	SB-202	SB-202	SB-203	SB-203
INORGANICS (mg/kg)								
ANTIMONY			0.9					0.8
ARSENIC	5	4	3	1	4	2	3	4
BARIUM	36	79	26	15	25	20	22	15
BERYLLIUM	1.9	3.6	0.6	0.6	3.3	4.5	1.6	0.5
CADMIUM	0.1	0.09	0.08		0.2	0.2	0.08	0.09
CHROMIUM	39.4	38.9	18	14.4	31.8	32.1	31.9	20.6
COBALT	27.1	10.8	2.4	8.1	14.9	10.4	30.8	8.3
COPPER	14	17	10	6	12	10	23	12
LEAD	14	17	4 B	5	17	11	13	5
MERCURY	0.02 L	0.01 L	0.24 L	0.17 L			0.02 L	0.03 L
MOLYBDENUM				0.5 B			-	
NICKEL	22	27	5	10	35	33	44	19
SELENIUM		3		3			-	
SILVER	0.2 B	0.3 B		0.3 B			0.3 B	
THALLIUM								
VANADIUM	45.9	52.9	33.9	25.7	52.2	39.7	49.2	39.2
ZINC	44	62	25	30	51	68	55	26
MISCELLANEOUS (%)								
TOTAL SOLIDS	NA							
MISCELLANEOUS (mg/kg)								
HEXAVALENT CHROMIUM			NA	NA			0.78	NA
TOTAL ORGANIC CARBON	NA							
MISCELLANEOUS (S.U.)								
PH	4.9	5	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (mg/kg)								<u>.</u>
DIESEL RANGE ORGANICS	64.4	173	11.1	30	3.8 B	15.9	13	2.4 B
GASOLINE RANGE ORGANICS								
TPH (C09-C36)	NA							
SVOCs (ug/kg)								
1-METHYLNAPHTHALENE	41.7 J	452						
2-METHYLNAPHTHALENE	39 J	412						
ACENAPHTHENE	36 J	381						
ANTHRACENE	72 J	595						
BENZO(A)ANTHRACENE	111	752		23 J		54 J		

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 2 OF 9

SAMPLE LABORATORY SAMPLE DA LOCATI	ID: 9612833002 TE: 5/13/2005	SB-200-10 9612833003 5/13/2005 SB-200	SB-201-05 9612833005 5/13/2005 SB-201	SB-201-10 9612833006 5/13/2005 SB-201	SB-202-05 9612834001 5/13/2005 SB-202	SB-202-10 9612834002 5/13/2005 SB-202	SB-203-05 9612833008 5/13/2005 SB-203	SB-203-10 9612833009 5/13/2005 SB-203
SVOCs (ug/kg) (Continued)	•	•						
BENZO(A)PYRENE	100	671				63 J		
BENZO(B)FLUORANTHENE	61 J	435				61 J		
BENZO(G,H,I)PERYLENE	69 J	337						
BENZO(K)FLUORANTHENE	78 J	536				55 J		
BENZOIC ACID			48.7 J	51 J			43.1 J	43 J
CHRYSENE	118	819		30 J		63 J		
DIBENZO(A,H)ANTHRACENE		116						
DIBENZOFURAN		91 J						
DI-N-BUTYL PHTHALATE			38 J					
FLUORANTHENE	253	1770		42 J		86		
FLUORENE	52 J	507						
INDENO(1,2,3-CD)PYRENE	55 J	311						
NAPHTHALENE		260						
N-NITROSODIPHENYLAMINE		34 J					-	
PHENANTHRENE	329	2610				48 J		
PYRENE	269	1960		34 J		128		
VOCs (ug/kg)								
1,2,3-TRIMETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	1.1 B	3.3	0.62 B	1.7 B	0.81 B	0.55 B	0.8 B	1.3 B
1,3,5-TRIMETHYLBENZENE		0.94 J						
2-BUTANONE		2.14 J	7.39 J	5.33 J	4.17 J			
ACETONE	12.8 J	12.7 J	111 J	63 J	78 J	4.4 J	9.3 J	30 J
CARBON DISULFIDE		0.68 J	1.9 J					
CHLOROMETHANE								
ETHYLBENZENE		1.2 J						
M+P-XYLENES		4.9						
METHYLENE CHLORIDE				3.8 J				2.4 J
NAPHTHALENE	28.1	66.4	0.56 J					
N-BUTYLBENZENE								
O-XYLENE		1.2 J						
TERTIARY-BUTYL ALCOHOL		5 J	5 J	6 J				6 J
TOLUENE		3.8	1.5 J	7.6	6.4	5.7	5.4	5.3
VOCs (ug/kg) (Continued)	<u> </u>							
TRICHLOROETHENE		1.1 J		2.7	2.7	2.5	2.5	2.4
TRICHLOROFLUOROMETHANE					0.74 J	0.74 J		

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 3 OF 9

SAMPLE ID: LABORATORY ID: SAMPLE DATE: LOCATION:	SB-282-0102 WV5697-11 10/26/2005 SB-282	SB-282-0405 WV5697-12 10/26/2005 SB-282	SB-282-0910 WV5697-13 10/26/2005 SB-282	SB-283-0102 WV5856-1 10/27/2005 SB-283	SB-283-0405 WV5856-2 10/27/2005 SB-283	SB-283-0910 WV5856-3 10/27/2005 SB-283	SB-284-0102 WV5856-4 10/27/2005 SB-284	SB-284-0405 WV5856-5 10/27/2005 SB-284
INORGANICS (mg/kg)		<u> </u>	<u> </u>	<u> </u>	0		V V -	
ANTIMONY								
ARSENIC	6.1	3.5	5.2	2 B	1.6 B	7.4	1.2 B	5.3 B
BARIUM	29.2	11.6	2.8	39.8	22.7	19.7	16.3	20
BERYLLIUM	1.2	1.8	0.33 L	0.23	0.9	2.1	0.46	2.6
CADMIUM								
CHROMIUM	23.9 K	18.5 K	19.6 K	11.2	39.2	27	8.9	28.9
COBALT	6	6.7	4	4.5	8.4	18.4	5.4	8.4
COPPER	7.3 K	23 K	6.7 K	8.2	5 K	14.5	5.4	16.2
LEAD	7.5	5.7	3.6	4	5	9.4	3.4	9.3
MERCURY	0.01						0.02	
MOLYBDENUM	0.6 B	0.43 B	0.53 B	0.3		0.34	0.2	
NICKEL	11.6	17.7	6.8	6	13.5	43.1	8.1	37.2
SELENIUM		-	-	-				
SILVER		-	-	-				
THALLIUM		1	1	1	1.5 B	2 B		2.6 B
VANADIUM	32.8 K	27.2 K	34.4 K	19.3	20.4	45.9	14.2	43.8
ZINC	38.8 K	28.1 K	9.5 K	18.6	40.2	83.1	18.2	65.5
MISCELLANEOUS (%)								
TOTAL SOLIDS	87	86	87	85	83	84	88	70
MISCELLANEOUS (mg/kg)								
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (mg/kg)								
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	12			3.2				3.6
TPH (C09-C36)	3.3 J	4.6 J	130	22	19	4.9 B	34	8.7 B
SVOCs (ug/kg)								
1-METHYLNAPHTHALENE							210 J	340 J
2-METHYLNAPHTHALENE							180 J	260 J
ACENAPHTHENE				130 J			110 J	140 J
ANTHRACENE			70 J	210 J			170 J	120 J
BENZO(A)ANTHRACENE			200 J	350 J			200 J	

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 4 OF 9

	SAMPLE ID: BORATORY ID: SAMPLE DATE:	SB-282-0102 WV5697-11 10/26/2005	SB-282-0405 WV5697-12 10/26/2005	SB-282-0910 WV5697-13 10/26/2005	SB-283-0102 WV5856-1 10/27/2005	SB-283-0405 WV5856-2 10/27/2005	SB-283-0910 WV5856-3 10/27/2005	SB-284-0102 WV5856-4 10/27/2005	SB-284-0405 WV5856-5 10/27/2005
SVOCs (ug/kg) (Continued)	LOCATION:	SB-282	SB-282	SB-282	SB-283	SB-283	SB-283	SB-284	SB-284
BENZO(A)PYRENE				150 J	290 J			170 J	
BENZO(B)FLUORANTHENE				170 J	250 J			150 J	
BENZO(G,H,I)PERYLENE					180 J				
BENZO(K)FLUORANTHENE				97 J				75 J	
BENZOIC ACID									
CHRYSENE				240 J	420			220 J	
DIBENZO(A,H)ANTHRACENE									
DIBENZOFURAN									
DI-N-BUTYL PHTHALATE									
FLUORANTHENE				430	590	110 J		450	140 J
FLUORENE					180 J			170 J	210 J
INDENO(1,2,3-CD)PYRENE					170 J				
NAPHTHALENE								200 J	250 J
N-NITROSODIPHENYLAMINE									
PHENANTHRENE				530	1000	120 J		840	570
PYRENE				720	970	180 J		590	220 J
VOCs (ug/kg)	<u>'</u>	<u>"</u>							
1,2,3-TRIMETHYLBENZENE								0.4 J	
1,2,4-TRIMETHYLBENZENE									
1,3,5-TRIMETHYLBENZENE		NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE								4 J	
ACETONE		27 B	15 B	6 B	59 L	14 J		69 J	7 J
CARBON DISULFIDE		3 J			2 J				
CHLOROMETHANE								3 J	
ETHYLBENZENE									
M+P-XYLENES									
METHYLENE CHLORIDE		13 B	6 B	9 B		3 B		4 B	4 B
NAPHTHALENE								180 J	3 J
N-BUTYLBENZENE								0.9 J	
O-XYLENE							-		
TERTIARY-BUTYL ALCOHOL									
TOLUENE							-		
VOCs (ug/kg) (Continued)									
TRICHLOROETHENE									
TRICHLOROFLUOROMETHANE									

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 5 OF 9

SAMPLE ID: LABORATORY ID: SAMPLE DATE: LOCATION:	SB-284-0910 WV5856-6 10/27/2005 SB-284	SB-285-0102 WV5856-7 10/27/2005 SB-285	SB-285-0405 WV5856-8 10/27/2005 SB-285	SB-285-0910 WV5856-9 10/27/2005 SB-285	SB-286-0102 WV5856-10 10/27/2005 SB-286	SB-286-0405 WV5856-11 10/27/2005 SB-286	SB-286-0910 WV5856-12 10/27/2005 SB-286	SB-293-0102 WV5857-8 10/28/2005 SB-293
INORGANICS (mg/kg)		Ī	Ī					
ANTIMONY								
ARSENIC	1.9 B	4.8 B	4.9 B	5.2 B	2.8 B	0.54 B	0.77 B	1.7
BARIUM	46.6	19.9	13.8	41.2	38.4	28.9	17.5	20.9
BERYLLIUM	2	1.3	1.7	2.2	0.56	0.51	0.34	0.43
CADMIUM								
CHROMIUM	24.5	22.4	31.4	27	30.7	90.4	54.1	11.7
COBALT	17.5	6.6	8.1	7.6	7.4	1.8	3	4.4
COPPER	10.7	13.6	14.8	18.2	4.5	4.1	2.3 B	5.8
LEAD	7.1	5.9	6.6	8.9	7.3	5.9	1.8	5
MERCURY					0.01			0.03
MOLYBDENUM		0.38	0.33	0.74	0.54		0.28	0.34
NICKEL	23.5	15	22.2	30.9	5.1	5.9	2.7	9.3
SELENIUM								
SILVER								0.41 L
THALLIUM	1.6 B	1.4 B				1.1 B	0.76 B	
VANADIUM	30.6	37.9	35.6	42.6	18.7	24.6	5.7	17.4
ZINC	47.3	33.4	45.1	79.2	16.3	11.8	21	20
MISCELLANEOUS (%)								
TOTAL SOLIDS	85	82	81	84	89	75	82	92
MISCELLANEOUS (mg/kg)								
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (mg/kg)								
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS							6.1	
TPH (C09-C36)	2.2 B		200	54	30	4.5 B	110	12
SVOCs (ug/kg)								
1-METHYLNAPHTHALENE			700	340 J			220 J	
2-METHYLNAPHTHALENE			1100	410			84 J	
ACENAPHTHENE			430	240 J			190 J	
ANTHRACENE			580	310 J			290 J	
BENZO(A)ANTHRACENE			900	520			400 J	

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 6 OF 9

LABORAT SAMPLE		SB-284-0910 WV5856-6 10/27/2005 SB-284	SB-285-0102 WV5856-7 10/27/2005 SB-285	SB-285-0405 WV5856-8 10/27/2005 SB-285	SB-285-0910 WV5856-9 10/27/2005 SB-285	SB-286-0102 WV5856-10 10/27/2005 SB-286	SB-286-0405 WV5856-11 10/27/2005 SB-286	SB-286-0910 WV5856-12 10/27/2005 SB-286	SB-293-0102 WV5857-8 10/28/2005 SB-293
SVOCs (ug/kg) (Continued)	ATION.	36-204	3B-203	3B-203	3B-203	3B-200	36-200	3B-200	36-293
BENZO(A)PYRENE				960	560			340 J	
BENZO(B)FLUORANTHENE				960	570			340 J	
BENZO(G,H,I)PERYLENE				650	340 J			210 J	
BENZO(K)FLUORANTHENE				360 J	86 J				
BENZOIC ACID									
CHRYSENE				1200	650			490	
DIBENZO(A,H)ANTHRACENE									
DIBENZOFURAN				110 J					
DI-N-BUTYL PHTHALATE									
FLUORANTHENE				1400	820			620	
FLUORENE				480	280 J			250 J	
INDENO(1,2,3-CD)PYRENE				590	330 J			190 J	
NAPHTHALENE				1200	460			110 J	
N-NITROSODIPHENYLAMINE									
PHENANTHRENE				2200	1300			1300	
PYRENE				2900	1700			1100	
VOCs (ug/kg)									
1,2,3-TRIMETHYLBENZENE				0.8 J					
1,2,4-TRIMETHYLBENZENE			1	-	1			1	-
1,3,5-TRIMETHYLBENZENE		NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE						8 J			
ACETONE			39 L	13 J	12 J	75 L	70 J		
CARBON DISULFIDE			2 J			3 J			
CHLOROMETHANE									
ETHYLBENZENE									
M+P-XYLENES									
METHYLENE CHLORIDE		4 B	3 B	7 B	6 B	8 B	8 B	6 B	16 B
NAPHTHALENE		5 J	5 J	130	34	2 J	12	6 J	
N-BUTYLBENZENE									
O-XYLENE									
TERTIARY-BUTYL ALCOHOL			-	-	-				
TOLUENE									
VOCs (ug/kg) (Continued)									
TRICHLOROETHENE				-					
TRICHLOROFLUOROMETHANE				-					

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 7 OF 9

SB-293-0405	SB-293-0910	SB-294-0405	SB-294-0910
WV5857-9	WV5857-10	WV5857-12	WV5857-13
10/28/2005	10/28/2005	10/28/2005	10/28/2005
SB-293	SB-293	SB-294	SB-294
2.7	1.7	2.4	3.4
11.7	2.9	8.7	11
0.48	0.14 B	0.31 B	0.37 B
12.6	7.5	9.4	16.6
3.3	1.8	2.6	3
8.3	6.6	5.3	9.3
3.7	1.6	2.6	3.5
0.02		0.01	
0.46	0.17	0.3 K	1.2
5.2	3	3.4	5.1
	0.44 L		-
		-	-
28.6	13.7	17.8	26.3
11.9	4	9	10.5
83	84	84	81
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
9			
2.9 J	3.8 J		
	WV5857-9 10/28/2005 SB-293 2.7 11.7 0.48 12.6 3.3 8.3 3.7 0.02 0.46 5.2 28.6 11.9 83 NA NA NA NA NA NA P 2.9 J	WV5857-9 10/28/2005 SB-293 SB-293 SB-293 2.7 1.7 11.7 2.9 0.48 0.14 B 12.6 7.5 3.3 1.8 8.3 6.6 3.7 1.6 0.02 0.46 0.17 5.2 3 28.6 13.7 11.9 4 NA	WV5857-9 10/28/2005 SB-293 WV5857-10 10/28/2005 SB-293 WV5857-12 10/28/2005 SB-294 2.7 1.7 2.4 11.7 2.9 8.7 0.48 0.14 B 0.31 B 12.6 7.5 9.4 3.3 1.8 2.6 8.3 6.6 5.3 3.7 1.6 2.6 0.02 0.01 0.46 0.17 0.3 K 5.2 3 3.4 28.6 13.7 17.8 11.9 4 9 83 84 84 NA NA NA NA NA NA NA NA NA 2.9 J 3.8 J <td< td=""></td<>

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LMC MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 8 OF 9

SAMPL	E ID: SB-293-0405	SB-293-0910	SB-294-0405	SB-294-0910
LABORATOR		WV5857-10	WV5857-12	WV5857-13
SAMPLE D		10/28/2005	10/28/2005	10/28/2005
LOCAT		SB-293	SB-294	SB-294
SVOCs (ug/kg) (Continued)				
BENZO(A)PYRENE				
BENZO(B)FLUORANTHENE				
BENZO(G,H,I)PERYLENE				
BENZO(K)FLUORANTHENE				
BENZOIC ACID				
CHRYSENE				
DIBENZO(A,H)ANTHRACENE				
DIBENZOFURAN				
DI-N-BUTYL PHTHALATE				
FLUORANTHENE				
FLUORENE				
INDENO(1,2,3-CD)PYRENE				
NAPHTHALENE				
N-NITROSODIPHENYLAMINE				
PHENANTHRENE				
PYRENE				
VOCs (ug/kg)				
1,2,3-TRIMETHYLBENZENE				
1,2,4-TRIMETHYLBENZENE				
1,3,5-TRIMETHYLBENZENE	NA	NA	NA	NA
2-BUTANONE				
ACETONE	32 J	17 J	37 L	16 J
CARBON DISULFIDE				
CHLOROMETHANE				
ETHYLBENZENE				
M+P-XYLENES				
METHYLENE CHLORIDE	11 B	9 B	10 B	5 B
NAPHTHALENE				
N-BUTYLBENZENE				
O-XYLENE				
TERTIARY-BUTYL ALCOHOL				
TOLUENE				
VOCs (ug/kg) (Continued)				
TRICHLOROETHENE				
TRICHLOROFLUOROMETHANE	2 J			

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL BLOCK H, SOIL RESPONSE ACTION PLAN LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 9 OF 9

1 Highlighted values indicate positive detection in exceedance of cleanup goals

μg/kg - Micrograms per kilogram.

MDE - Maryland Department of the Environment

mg/kg - Milligrams per kilogram.

NA - Not applicable.

NC - No criterion.

SB - Soil boring.

S.U. - Standard Units.

-- - Not detected.

VOC - Volatile organic compound

SVOC - Semi-volatile organic compound

TPH - Total petroleum hydrocarbons

- B Analyte was detected but is considered to be a laboratory contaminant
- J Positive value is considered estimated as a result of technical noncompliance
- K Positive value is considered biased high as a result of techical noncompliance
- L Positive value is considered biased low as a result of technical noncompliance

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL, FALL 2007 BLOCK H, SOIL RESPONSE ACTION PLAN LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 1 OF 7

SAMPLE ID: LABORATORY ID: SAMPLE DATE: LOCATION: DEPTH RANGE: MISCELLANEOUS (%)	A7J240271001 10/23/2007 SB-462	SB-462-0203 A7J240271002 10/23/2007 SB-462 2 - 3	SB-462-0304 A7J240271003 10/23/2007 SB-462 3 - 4	SB-462-0506 A7J240271004 10/23/2007 SB-462 5 - 6	SB-462-0708 A7J240271005 10/23/2007 SB-462 7 - 8	SB-463-0102 A7J240271006 10/23/2007 SB-463 1 - 2	SB-463-0203 A7J240271007 10/23/2007 SB-463 2 - 3	SB-464-0708 A7J240271015 10/23/2007 SB-464 7 - 8	SB-465-0102 A7J240271016 10/23/2007 SB-465 1 - 2	SB-465-0203 A7J240271017 10/23/2007 SB-465 2 - 3
PERCENT SOLIDS	89.1	87.1	87.1	79.1	81.5	86.3	73.9	84.7	88.4	89.9
SEMIVOLATILE SOIL (ug/kg)										
BENZO(A)PYRENE	26 J	-			-	69 J				
INORGANICS (mg/kg)										
MERCURY	0.091	0.21			-	0.036	0.063		0.04	
						T .				
SAMPLE ID:		SB-463-0506	SB-463-0708	SB-464-0102		SB-464-0304				
LABORATORY ID:					SB-464-0203		SB-464-0506	SB-466-0203	SB-466-0304	SB-466-0506
04401 5 0475	A7J240271008	A7J240271009	A7J240271010	A7J240271011	A7J240271012	A7J240271013	A7J240271014	A7J240256002	A7J240256003	A7J240256004
SAMPLE DATE:	10/23/2007	10/23/2007	10/23/2007	A7J240271011 10/23/2007	A7J240271012 10/23/2007	A7J240271013 10/23/2007	A7J240271014 10/23/2007	A7J240256002 10/23/2007	A7J240256003 10/23/2007	A7J240256004 10/23/2007
LOCATION:	10/23/2007 SB-463	10/23/2007 SB-463	10/23/2007 SB-463	A7J240271011 10/23/2007 SB-464	A7J240271012 10/23/2007 SB-464	A7J240271013 10/23/2007 SB-464	A7J240271014 10/23/2007 SB-464	A7J240256002 10/23/2007 SB-466	A7J240256003 10/23/2007 SB-466	A7J240256004 10/23/2007 SB-466
LOCATION: DEPTH RANGE:	10/23/2007 SB-463	10/23/2007	10/23/2007	A7J240271011 10/23/2007	A7J240271012 10/23/2007	A7J240271013 10/23/2007	A7J240271014 10/23/2007	A7J240256002 10/23/2007	A7J240256003 10/23/2007	A7J240256004 10/23/2007
LOCATION: DEPTH RANGE: MISCELLANEOUS (%)	10/23/2007 SB-463 3 - 4	10/23/2007 SB-463 5 - 6	10/23/2007 SB-463 7 - 8	A7J240271011 10/23/2007 SB-464 1 - 2	A7J240271012 10/23/2007 SB-464 2 - 3	A7J240271013 10/23/2007 SB-464 3 - 4	A7J240271014 10/23/2007 SB-464 5 - 6	A7J240256002 10/23/2007 SB-466 2 - 3	A7J240256003 10/23/2007 SB-466 3 - 4	A7J240256004 10/23/2007 SB-466 5 - 6
LOCATION: DEPTH RANGE: MISCELLANEOUS (%) PERCENT SOLIDS	10/23/2007 SB-463	10/23/2007 SB-463	10/23/2007 SB-463	A7J240271011 10/23/2007 SB-464	A7J240271012 10/23/2007 SB-464	A7J240271013 10/23/2007 SB-464	A7J240271014 10/23/2007 SB-464	A7J240256002 10/23/2007 SB-466	A7J240256003 10/23/2007 SB-466	A7J240256004 10/23/2007 SB-466
LOCATION: DEPTH RANGE: MISCELLANEOUS (%) PERCENT SOLIDS SEMIVOLATILE SOIL (ug/kg)	10/23/2007 SB-463 3 - 4	10/23/2007 SB-463 5 - 6	10/23/2007 SB-463 7 - 8	A7J240271011 10/23/2007 SB-464 1 - 2	A7J240271012 10/23/2007 SB-464 2 - 3	A7J240271013 10/23/2007 SB-464 3 - 4	A7J240271014 10/23/2007 SB-464 5 - 6	A7J240256002 10/23/2007 SB-466 2 - 3	A7J240256003 10/23/2007 SB-466 3 - 4	A7J240256004 10/23/2007 \$B-466 5 - 6
LOCATION: DEPTH RANGE: MISCELLANEOUS (%) PERCENT SOLIDS	10/23/2007 SB-463 3 - 4	10/23/2007 SB-463 5 - 6	10/23/2007 SB-463 7 - 8	A7J240271011 10/23/2007 SB-464 1 - 2	A7J240271012 10/23/2007 SB-464 2 - 3	A7J240271013 10/23/2007 SB-464 3 - 4	A7J240271014 10/23/2007 SB-464 5 - 6	A7J240256002 10/23/2007 SB-466 2 - 3	A7J240256003 10/23/2007 SB-466 3 - 4	A7J240256004 10/23/2007 SB-466 5 - 6

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL, FALL 2007 BLOCK H, SOIL RESPONSE ACTION PLAN LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 2 OF 7

SAMPLE ID: LABORATORY ID: SAMPLE DATE: LOCATION: DEPTH RANGE: MISCELLANEOUS (%)	SB-465-0304 A7J240271018 10/23/2007 SB-465 3 - 4	SB-465-0506 A7J240271019 10/23/2007 SB-465 5 - 6	SB-465-0708 A7J240271020 10/23/2007 SB-465 7 - 8	SB-466-0102 A7J240256001 10/23/2007 SB-466 1 - 2	SB-467-0506 A7J240256009 10/23/2007 SB-467 5 - 6	SB-467-0708 A7J240256010 10/23/2007 SB-467 7 - 8	SB-468-0102 A7J240256011 10/23/2007 SB-468 1 - 2	SB-468-0203 A7J240256012 10/23/2007 SB-468 2 - 3	SB-468-0304 A7J240256013 10/23/2007 SB-468 3 - 4	SB-468-0506 A7J240256014 10/23/2007 SB-468 5 - 6
PERCENT SOLIDS	84.7	83.9	84.2	85	83.6	86.4	88.8	85.5	85.1	83.9
SEMIVOLATILE SOIL (ug/kg)										
BENZO(A)PYRENE				11 J						
INORGANICS (mg/kg)										
MERCURY										
		1	ı	T	T	I		I	I	
SAMPLE ID:	SB-466-0708	SB-467-0102	SB-467-0203	SB-467-0304	SB-469-0102	SB-469-0203	SB-469-0304	SB-469-0506	SB-469-0708	SB-470-0102
LABORATORY ID:	A7J240256005	A7J240256006	A7J240256007	A7J240256008	A7J240256016	A7J240256017	A7J240256018	A7J240256019	A7J240256020	A7J260310001
LABORATORY ID: SAMPLE DATE:	A7J240256005 10/23/2007	A7J240256006 10/23/2007	A7J240256007 10/23/2007	A7J240256008 10/23/2007	A7J240256016 10/23/2007	A7J240256017 10/23/2007	A7J240256018 10/23/2007	A7J240256019 10/23/2007	A7J240256020 10/23/2007	A7J260310001 10/23/2007
LABORATORY ID: SAMPLE DATE: LOCATION:	A7J240256005 10/23/2007 SB-466	A7J240256006 10/23/2007 SB-467	A7J240256007 10/23/2007 SB-467	A7J240256008 10/23/2007 SB-467	A7J240256016 10/23/2007 SB-469	A7J240256017 10/23/2007 SB-469	A7J240256018 10/23/2007 SB-469	A7J240256019 10/23/2007 SB-469	A7J240256020 10/23/2007 SB-469	A7J260310001 10/23/2007 SB-470
LABORATORY ID: SAMPLE DATE: LOCATION: DEPTH RANGE:	A7J240256005 10/23/2007	A7J240256006 10/23/2007	A7J240256007 10/23/2007	A7J240256008 10/23/2007	A7J240256016 10/23/2007	A7J240256017 10/23/2007	A7J240256018 10/23/2007	A7J240256019 10/23/2007	A7J240256020 10/23/2007	A7J260310001 10/23/2007
LABORATORY ID: SAMPLE DATE: LOCATION: DEPTH RANGE: MISCELLANEOUS (%)	A7J240256005 10/23/2007 SB-466 7 - 8	A7J240256006 10/23/2007 SB-467 1 - 2	A7J240256007 10/23/2007 SB-467 2 - 3	A7J240256008 10/23/2007 SB-467 3 - 4	A7J240256016 10/23/2007 SB-469 1 - 2	A7J240256017 10/23/2007 SB-469 2 - 3	A7J240256018 10/23/2007 SB-469 3 - 4	A7J240256019 10/23/2007 SB-469 5 - 6	A7J240256020 10/23/2007 SB-469 7 - 8	A7J260310001 10/23/2007 SB-470 1 - 2
LABORATORY ID: SAMPLE DATE: LOCATION: DEPTH RANGE: MISCELLANEOUS (%) PERCENT SOLIDS	A7J240256005 10/23/2007 SB-466	A7J240256006 10/23/2007 SB-467	A7J240256007 10/23/2007 SB-467	A7J240256008 10/23/2007 SB-467	A7J240256016 10/23/2007 SB-469	A7J240256017 10/23/2007 SB-469	A7J240256018 10/23/2007 SB-469	A7J240256019 10/23/2007 SB-469	A7J240256020 10/23/2007 SB-469	A7J260310001 10/23/2007 SB-470
LABORATORY ID: SAMPLE DATE: LOCATION: DEPTH RANGE: MISCELLANEOUS (%)	A7J240256005 10/23/2007 SB-466 7 - 8	A7J240256006 10/23/2007 SB-467 1 - 2	A7J240256007 10/23/2007 SB-467 2 - 3	A7J240256008 10/23/2007 SB-467 3 - 4	A7J240256016 10/23/2007 SB-469 1 - 2	A7J240256017 10/23/2007 SB-469 2 - 3	A7J240256018 10/23/2007 SB-469 3 - 4	A7J240256019 10/23/2007 SB-469 5 - 6	A7J240256020 10/23/2007 SB-469 7 - 8	A7J260310001 10/23/2007 SB-470 1 - 2
LABORATORY ID: SAMPLE DATE: LOCATION: DEPTH RANGE: MISCELLANEOUS (%) PERCENT SOLIDS SEMIVOLATILE SOIL (ug/kg) BENZO(A)PYRENE	A7J240256005 10/23/2007 SB-466 7 - 8	A7J240256006 10/23/2007 SB-467 1 - 2	A7J240256007 10/23/2007 SB-467 2 - 3	A7J240256008 10/23/2007 SB-467 3 - 4	A7J240256016 10/23/2007 SB-469 1 - 2	A7J240256017 10/23/2007 SB-469 2 - 3	A7J240256018 10/23/2007 SB-469 3 - 4	A7J240256019 10/23/2007 SB-469 5 - 6	A7J240256020 10/23/2007 SB-469 7 - 8	A7J260310001 10/23/2007 SB-470 1 - 2
LABORATORY ID: SAMPLE DATE: LOCATION: DEPTH RANGE: MISCELLANEOUS (%) PERCENT SOLIDS SEMIVOLATILE SOIL (ug/kg)	A7J240256005 10/23/2007 SB-466 7 - 8	A7J240256006 10/23/2007 SB-467 1 - 2	A7J240256007 10/23/2007 SB-467 2 - 3	A7J240256008 10/23/2007 SB-467 3 - 4	A7J240256016 10/23/2007 SB-469 1 - 2	A7J240256017 10/23/2007 SB-469 2 - 3	A7J240256018 10/23/2007 SB-469 3 - 4	A7J240256019 10/23/2007 SB-469 5 - 6	A7J240256020 10/23/2007 SB-469 7 - 8	A7J260310001 10/23/2007 SB-470 1 - 2

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL, FALL 2007 BLOCK H, SOIL RESPONSE ACTION PLAN LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 3 OF 7

LABORATO SAMPLE LOCA DEPTH R MISCELLANEOUS (%)	DATE: 10/23/2007 TION: SB-468 ANGE: 7 - 8	SB-470-0304 A7J260310003 10/23/2007 SB-470 3 - 4	SB-470-0506 A7J260310004 10/23/2007 SB-470 5 - 6	SB-470-0708 A7J260310005 10/23/2007 SB-470 7 - 8	SB-471-0102 A7J260310006 10/23/2007 SB-471 1 - 2	SB-471-0203 A7J260310007 10/23/2007 SB-471 2 - 3	SB-471-0304 A7J260310008 10/23/2007 SB-471 3 - 4	SB-471-0506 A7J260310009 10/23/2007 SB-471 5 - 6	SB-473-0203 A7J260310017 10/24/2007 SB-473 2 - 3	SB-473-0304 A7J260310018 10/24/2007 SB-473 3 - 4
PERCENT SOLIDS	84.6	86.8	82.3	83.7	80.5	81.1	80.7	82.7	87.9	85.1
SEMIVOLATILE SOIL (ug/kg) BENZO(A)PYRENE INORGANICS (mg/kg)						21 J				
MERCURY										
	LE ID: SB-470-0203		00 470 0400	00 470 0000	SB-472-0304	SB-472-0506	SB-472-0708	SB-473-0102	DD 474 0500	OD 474 0700
LABORATO		SB-471-0708 A7J260310010	SB-472-0102 A7J260310011	SB-472-0203 A7J260310012	A7J260310013	A7J260310014	A7J260310015	A7J260310016	SB-474-0506 A7J260337004	SB-474-0708 A7J260337005
SAMPLE		10/23/2007	10/23/2007	10/23/2007	10/23/2007	10/23/2007	10/23/2007	10/24/2007	10/24/2007	10/24/2007
	TION: SB-470	SB-471	SB-472	SB-472	SB-472	SB-472	SB-472	SB-473	SB-474	SB-474
DEPTH R		7 - 8	1 - 2	2-3	3 - 4	5 - 6	7 - 8	1 - 2	5 - 6	7 - 8
MISCELLANEOUS (%)	ı						ı			
PERCENT SOLIDS	88.5	83.7	86.3	86.6	81.5	83.1	83.2	89.3	90.9	86.3
SEMIVOLATILE SOIL (ug/kg)										
BENZO(A)PYRENE										
INORGANICS (mg/kg)										
MERCURY	0.023 L									

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL, FALL 2007 BLOCK H, SOIL RESPONSE ACTION PLAN LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 4 OF 7

SAMPLE ID LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE	A7J260310019 10/24/2007 SB-473	SB-473-0708 A7J260310020 10/24/2007 SB-473 7 - 8	SB-474-0102 A7J260337001 10/24/2007 SB-474 1 - 2	SB-474-0203 A7J260337002 10/24/2007 SB-474 2 - 3	SB-474-0304 A7J260337003 10/24/2007 SB-474 3 - 4	SB-476-0102 A7J260337011 10/25/2007 SB-476 1 - 2	SB-476-0203 A7J260337012 10/25/2007 SB-476 2 - 3	SB-476-0304 A7J260337013 10/25/2007 SB-476 3 - 4	SB-476-0506 A7J260337014 10/25/2007 SB-476 5 - 6	SB-476-0708 A7J260337015 10/25/2007 SB-476 7 - 8
PERCENT SOLIDS	76.1	80.5	85.1	86	77.6	87.7	85.8	79.9	83.3	83.6
SEMIVOLATILE SOIL (ug/kg)										
BENZO(A)PYRENE			24 J	31 J	490					
INORGANICS (mg/kg)										
MERCURY				0.025	0.095					
SAMPI FID	SR-475-0102	SR-475-0203	SR-475-0304	SR-475-0506	SR-475-0708	SR-477-0304	SR-477-0506	SR-477-0708	SR_478_0102	SR-478-0203
SAMPLE ID		SB-475-0203	SB-475-0304 A7.1260337008	SB-475-0506	SB-475-0708	SB-477-0304	SB-477-0506	SB-477-0708	SB-478-0102	SB-478-0203
SAMPLE ID LABORATORY ID SAMPLE DATE	A7J260337006	SB-475-0203 A7J260337007 10/25/2007	SB-475-0304 A7J260337008 10/25/2007	SB-475-0506 A7J260337009 10/25/2007	SB-475-0708 A7J260337010 10/25/2007	SB-477-0304 A7J260337018 10/25/2007	SB-477-0506 A7J260337019 10/25/2007	SB-477-0708 A7J260337020 10/25/2007	SB-478-0102 A7J300180001 10/25/2007	SB-478-0203 A7J300180002 10/25/2007
LABORATORY ID:	A7J260337006 10/25/2007	A7J260337007	A7J260337008	A7J260337009	A7J260337010	A7J260337018	A7J260337019	A7J260337020	A7J300180001	A7J300180002
LABORATORY ID SAMPLE DATE	A7J260337006 10/25/2007 SB-475	A7J260337007 10/25/2007	A7J260337008 10/25/2007	A7J260337009 10/25/2007	A7J260337010 10/25/2007	A7J260337018 10/25/2007	A7J260337019 10/25/2007	A7J260337020 10/25/2007	A7J300180001 10/25/2007	A7J300180002 10/25/2007
LABORATORY ID SAMPLE DATE LOCATION	A7J260337006 10/25/2007 SB-475	A7J260337007 10/25/2007 SB-475	A7J260337008 10/25/2007 SB-475	A7J260337009 10/25/2007 SB-475	A7J260337010 10/25/2007 SB-475	A7J260337018 10/25/2007 SB-477	A7J260337019 10/25/2007 SB-477	A7J260337020 10/25/2007 SB-477	A7J300180001 10/25/2007 SB-478	A7J300180002 10/25/2007 SB-478
LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE	A7J260337006 10/25/2007 SB-475	A7J260337007 10/25/2007 SB-475	A7J260337008 10/25/2007 SB-475	A7J260337009 10/25/2007 SB-475	A7J260337010 10/25/2007 SB-475	A7J260337018 10/25/2007 SB-477	A7J260337019 10/25/2007 SB-477	A7J260337020 10/25/2007 SB-477	A7J300180001 10/25/2007 SB-478	A7J300180002 10/25/2007 SB-478
LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE MISCELLANEOUS (%)	A7J260337006 10/25/2007 SB-475 1 - 2	A7J260337007 10/25/2007 SB-475 2 - 3	A7J260337008 10/25/2007 SB-475 3 - 4	A7J260337009 10/25/2007 SB-475 5 - 6	A7J260337010 10/25/2007 SB-475 7 - 8	A7J260337018 10/25/2007 SB-477 3 - 4	A7J260337019 10/25/2007 SB-477 5 - 6	A7J260337020 10/25/2007 SB-477 7 - 8	A7J300180001 10/25/2007 SB-478 1 - 2	A7J300180002 10/25/2007 SB-478 2 - 3
LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE MISCELLANEOUS (%) PERCENT SOLIDS	A7J260337006 10/25/2007 SB-475 1 - 2	A7J260337007 10/25/2007 SB-475 2 - 3	A7J260337008 10/25/2007 SB-475 3 - 4	A7J260337009 10/25/2007 SB-475 5 - 6	A7J260337010 10/25/2007 SB-475 7 - 8	A7J260337018 10/25/2007 SB-477 3 - 4	A7J260337019 10/25/2007 SB-477 5 - 6	A7J260337020 10/25/2007 SB-477 7 - 8	A7J300180001 10/25/2007 SB-478 1 - 2	A7J300180002 10/25/2007 SB-478 2 - 3
LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE MISCELLANEOUS (%) PERCENT SOLIDS SEMIVOLATILE SOIL (ug/kg)	A7J260337006 10/25/2007 SB-475 1 - 2	A7J260337007 10/25/2007 SB-475 2 - 3	A7J260337008 10/25/2007 SB-475 3 - 4	A7J260337009 10/25/2007 SB-475 5 - 6	A7J260337010 10/25/2007 SB-475 7 - 8	A7J260337018 10/25/2007 SB-477 3 - 4	A7J260337019 10/25/2007 SB-477 5 - 6	A7J260337020 10/25/2007 SB-477 7 - 8	A7J300180001 10/25/2007 SB-478 1 - 2	A7J300180002 10/25/2007 SB-478 2 - 3

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL, FALL 2007 BLOCK H, SOIL RESPONSE ACTION PLAN LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 5 OF 7

SAMPLE ID LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE MISCELLANEOUS (%) PERCENT SOLIDS	A7J260337016 10/25/2007 SB-477	SB-477-0203 A7J260337017 10/25/2007 SB-477 2 - 3	SB-478-0708 A7J300180005 10/25/2007 SB-478 7 - 8	SB-479-0102 A7J300180006 10/25/2007 SB-479 1 - 2	SB-479-0203 A7J300180007 10/25/2007 SB-479 2 - 3	SB-479-0304 A7J300180008 10/25/2007 SB-479 3 - 4	SB-479-0506 A7J300180009 10/25/2007 SB-479 5 - 6	SB-479-0708 A7J300180010 10/25/2007 SB-479 7-8	SB-480-0102 A7J300180011 10/25/2007 SB-480 1 - 2	SB-481-0506 A7J300180019 10/29/2007 SB-481 5 - 6
SEMIVOLATILE SOIL (ug/kg)	00.0	10.2	03.0	00	65.9	03.0	04.0	65.9	00.9	02.2
BENZO(A)PYRENE INORGANICS (mg/kg)				15 J						
MERCURY							-			
		ı	ı	ı	Ī	ı		ı		
SAMPLE ID		SB-478-0506	SB-480-0203	SB-480-0304	SB-480-0506	SB-480-0708	SB-481-0102	SB-481-0203	SB-481-0304	SB-483-0102
LABORATORY ID	A7J300180003	A7J300180004	A7J300180012	A7J300180013	A7J300180014	A7J300180015	A7J300180016	A7J300180017	A7J300180018	A7J300202006
LABORATORY ID SAMPLE DATE	A7J300180003 10/25/2007	A7J300180004 10/25/2007	A7J300180012 10/25/2007	A7J300180013 10/25/2007	A7J300180014 10/25/2007	A7J300180015 10/25/2007	A7J300180016 10/29/2007	A7J300180017 10/29/2007	A7J300180018 10/29/2007	A7J300202006 10/29/2007
LABORATORY ID SAMPLE DATE LOCATION	A7J300180003 10/25/2007 SB-478	A7J300180004 10/25/2007 SB-478	A7J300180012 10/25/2007 SB-480	A7J300180013 10/25/2007 SB-480	A7J300180014 10/25/2007 SB-480	A7J300180015 10/25/2007 SB-480	A7J300180016 10/29/2007 SB-481	A7J300180017 10/29/2007 SB-481	A7J300180018 10/29/2007 SB-481	A7J300202006 10/29/2007 SB-483
LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE	A7J300180003 10/25/2007 SB-478	A7J300180004 10/25/2007	A7J300180012 10/25/2007	A7J300180013 10/25/2007	A7J300180014 10/25/2007	A7J300180015 10/25/2007	A7J300180016 10/29/2007	A7J300180017 10/29/2007	A7J300180018 10/29/2007	A7J300202006 10/29/2007
LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE MISCELLANEOUS (%)	A7J300180003 10/25/2007 SB-478 3 - 4	A7J300180004 10/25/2007 SB-478 5 - 6	A7J300180012 10/25/2007 SB-480 2 - 3	A7J300180013 10/25/2007 SB-480 3 - 4	A7J300180014 10/25/2007 SB-480 5 - 6	A7J300180015 10/25/2007 SB-480 7 - 8	A7J300180016 10/29/2007 SB-481 1 - 2	A7J300180017 10/29/2007 SB-481 2 - 3	A7J300180018 10/29/2007 SB-481 3 - 4	A7J300202006 10/29/2007 SB-483 1 - 2
LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE MISCELLANEOUS (%) PERCENT SOLIDS	A7J300180003 10/25/2007 SB-478	A7J300180004 10/25/2007 SB-478	A7J300180012 10/25/2007 SB-480	A7J300180013 10/25/2007 SB-480	A7J300180014 10/25/2007 SB-480	A7J300180015 10/25/2007 SB-480	A7J300180016 10/29/2007 SB-481	A7J300180017 10/29/2007 SB-481	A7J300180018 10/29/2007 SB-481	A7J300202006 10/29/2007 SB-483
LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE MISCELLANEOUS (%)	A7J300180003 10/25/2007 SB-478 3 - 4	A7J300180004 10/25/2007 SB-478 5 - 6	A7J300180012 10/25/2007 SB-480 2 - 3	A7J300180013 10/25/2007 SB-480 3 - 4	A7J300180014 10/25/2007 SB-480 5 - 6	A7J300180015 10/25/2007 SB-480 7 - 8	A7J300180016 10/29/2007 SB-481 1 - 2	A7J300180017 10/29/2007 SB-481 2 - 3	A7J300180018 10/29/2007 SB-481 3 - 4	A7J300202006 10/29/2007 SB-483 1 - 2
LABORATORY ID SAMPLE DATE LOCATION DEPTH RANGE MISCELLANEOUS (%) PERCENT SOLIDS SEMIVOLATILE SOIL (ug/kg)	A7J300180003 10/25/2007 SB-478 3 - 4	A7J300180004 10/25/2007 SB-478 5 - 6	A7J300180012 10/25/2007 SB-480 2 - 3	A7J300180013 10/25/2007 SB-480 3 - 4	A7J300180014 10/25/2007 SB-480 5 - 6	A7J300180015 10/25/2007 SB-480 7 - 8	A7J300180016 10/29/2007 SB-481 1 - 2	A7J300180017 10/29/2007 SB-481 2 - 3	A7J300180018 10/29/2007 SB-481 3 - 4	A7J300202006 10/29/2007 SB-483 1 - 2

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL, FALL 2007 BLOCK H, SOIL RESPONSE ACTION PLAN LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 6 OF 7

SAMPLE ID: LABORATORY ID: SAMPLE DATE: LOCATION: DEPTH RANGE:	SB-481-0708 A7J300180020 10/29/2007 SB-481 7 - 8	SB-482-0102 A7J300202001 10/29/2007 SB-482 1 - 2	SB-482-0203 A7J300202002 10/29/2007 SB-482 2 - 3	SB-482-0304 A7J300202003 10/29/2007 SB-482 3 - 4	SB-482-0506 A7J300202004 10/29/2007 SB-482 5-6	SB-482-0708 A7J300202005 10/29/2007 SB-482 7 - 8	SB-484-0304 A7J300202013 10/29/2007 SB-484 3 - 4	SB-484-0506 A7J300202014 10/29/2007 SB-484 5 - 6	SB-484-0708 A7J300202015 10/29/2007 SB-484 7 - 8	SB-485-0102 A7J300202016 10/29/2007 SB-485 1 - 2
PERCENT SOLIDS	82.6	78.1	82.7	85.1	84	82.7	82.7	86.5	84.2	88
SEMIVOLATILE SOIL (ug/kg)										
BENZO(A)PYRENE		13 J								10 J
INORGANICS (mg/kg)										
MERCURY		0.063								
SAMPLE ID:	SB-483-0203	SB-483-0304	SB-483-0506	SB-483-0708	SB-484-0102	SB-484-0203	SB-485-0708	SB-486-0102	SB-486-0203	SB-486-0304
LABORATORY ID:	A7J300202007	A7J300202008	A7J300202009	A7J300202010	A7J300202011	A7J300202012	A7J300202020	A7J300211001	A7J300211002	A7J300211003
SAMPLE DATE:	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007
LOCATION:	SB-483	SB-483	SB-483	SB-483	SB-484	SB-484	SB-485	SB-486	SB-486	SB-486
DEPTH RANGE:	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	7 - 8	1 - 2	2 - 3	3 - 4
MISCELLANEOUS (%)					1	1		1		
PERCENT SOLIDS	82.9	81.6	83.5	82.9	82.9	86.2	84.8	89.4	86.3	84.9
SEMIVOLATILE SOIL (ug/kg)					l	ı		ı		
BENZO(A)PYRENE	28 J				21 J					
INORGANICS (mg/kg)										
MERCURY	0.035				0.028					

SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL, FALL 2007 BLOCK H, SOIL RESPONSE ACTION PLAN LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND PAGE 7 OF 7

•								
SAMPLE ID:	SB-485-0203	SB-485-0304	SB-485-0506	SB-487-0203	SB-487-0304	SB-487-0506	SB-487-0708	SB-488-0102
LABORATORY ID:	A7J300202017	A7J300202018	A7J300202019	A7J300211007	A7J300211008	A7J300211009	A7J300211010	A7J300211011
SAMPLE DATE:	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007
LOCATION:	SB-485	SB-485	SB-485	SB-487	SB-487	SB-487	SB-487	SB-488
DEPTH RANGE:	2 - 3	3-4	5 - 6	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)								
PERCENT SOLIDS	88.7	84.4	85	82.4	88	83.8	85.3	88.9
SEMIVOLATILE SOIL (ug/kg)								
BENZO(A)PYRENE	43 J							9 J
INORGANICS (mg/kg)								
MERCURY								

SAMPLE ID:	SB-486-0506	SB-486-0708	SB-487-0102	SB-488-0203	SB-488-0304	SB-488-0506	SB-488-0708			
LABORATORY ID:	A7J300211004	A7J300211005	A7J300211006	A7J300211012	A7J300211013	A7J300211014	A7J300211015			
SAMPLE DATE:	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007			
LOCATION:	SB-486	SB-486	SB-487	SB-488	SB-488	SB-488	SB-488			
DEPTH RANGE:	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8			
MISCELLANEOUS (%)										
PERCENT SOLIDS	81.3	85.6	89.6	88.5	86.3	82.1	85.2			
SEMIVOLATILE SOIL (ug/kg)										
BENZO(A)PYRENE										
INORGANICS (mg/kg)	NORGANICS (mg/kg)									
MERCURY					-	-				

¹ Highlighted values indicate positive detection in exceedance of cleanup goals.

μg/kg - Micrograms per kilogram.

NC - No criterion.

VOC - Volatile organic compound

MDE - Maryland Department of the Environment.

SB - Soil boring.

SVOC - Semi-volatile organic compound

mg/kg - Milligrams per kilogram.

S.U. - Standard Units.

TPH - Total petroleum hydrocarbons

NA - Not applicable.

-- - Not detected.

B - Analyte was detected but is considered to be a laboratory contaminant.

J - Positive value is considered estimated as a result of technical noncompliance.

K - Positive value is considered biased high as a result of techical noncompliance.

L - Positive value is considered biased low as a result of technical noncompliance.

APPENDIX B - STATISTICAL SUMMARY OF PRE- AND POST-REMOVAL ACTION DATA

Appendix B

Statistical Summary of Pre- and Post-Removal Data Block H Lockheed Martin Middle River Complex Middle River, Maryland

Arsenic, vanadium, mercury, and carcinogenic polycyclic aromatic hydrocarbons (cPAH) were identified as chemicals of concern (COC) in soil.

Arsenic and vanadium are considered to be present within site-specific background concentrations in surface and subsurface soil. For arsenic, Lockheed Martin, Inc. and the Maryland Department of the Environment (MDE) agreed that no sample can remain on site with a concentration greater than 12 milligrams per kilogram (mg/kg) and the 95 percent upper confidence limit of the mean (UCL) concentration must be less than 6 mg/kg to be considered background. For vanadium, Lockheed Martin, Inc. and the MDE agreed that no sample can remain on site with a concentration greater than 91 mg/kg and the UCL concentration must be less than 55 mg/kg to be considered background. These criteria are attained under current conditions in surface soil and subsurface soil (Tables B-1 and B-2).

For mercury, the criteria being used for remediation is the average typical concentration (ATC). The post-excavation UCL concentration for mercury must be less than the ATC of 0.5 mg/kg. This criterion has not been attained in surface soil (Table B-1), but has been met in subsurface soil (Table B-2).

To attain a UCL concentration less than the cleanup level, the most contaminated soil samples are identified for removal. Iteratively, the highest concentration is virtually removed and replaced with a "post-remediation" concentration, such as a detection limit; then, the UCL is recalculated. If the UCL is less than the cleanup level, there is attainment; otherwise, the next highest concentrations are virtually removed until there is attainment. The maximum concentration remaining provides the basis for defining the remedial action level.

To attain this cleanup criterion for mercury, sample locations with concentrations greater than 1 mg/kg need to be removed. In the surface soil, where the UCL is greater than the cleanup level, surface soil sample SB-210 (1.14 mg/kg mercury) needed to be removed to achieve a UCL mercury concentration less than 0.5 mg/kg (Table B-3). The maximum mercury concentration remaining following the virtual removal is 0.4 mg/kg (Tables B-3 and B-4). Therefore, it was decided that 1 mg/kg would be considered the remedial action level for the block.

To demonstrate that target UCL concentrations are attained for arsenic, vanadium, and mercury, replacement values must be included in the samples that are targeted for excavation. The contract required detection limit identified in the laboratory data were

used as the replacement values. For arsenic, vanadium, and mercury, these values are 0.5 mg/kg, 0.1 mg/kg, and 0.002 mg/kg, respectively (Tables B-5 and B-6).

The UCLs were calculated using EPA's ProUCL software. The output of the software and the data used for the calculations are attached (Tables B-7 through B-18).

In addition, soil sample boring locations must be less than the target incremental lifetime cancer risk of 1 x 10⁻⁵ and the target hazard index of 1.0. Because arsenic and vanadium meet the background requirements, risks associated with exposure to arsenic and vanadium are removed from the total risk at each boring. In the surface soil, no risks exceed the MDE target risk levels. In the subsurface soil, the cancer and noncancer risk at SB-285 exceed 1 x 10⁻⁵ and 1.0, respectively. Surface soil sample SB-201 is already slated for removal because of mercury being present at a concentration greater than 1.0 mg/kg. SB-285 is slated for removal because of risks associated with carcinogenic PAHs. The maximum benzo[a]pyrene concentration remaining following the virtual removal of soil is 386 ug/kg. Using benzo[a]pyrene to represent risks associated with carcinogenic PAHs, soil with benzo[a]pyrene concentrations greater than 400 ug/kg should be excavated (Table B-19 and B-20).

TABLE B-1 SUMMARY OF PRE- AND POST-REMOVAL ANALYSIS BLOCK H SURFACE SOIL LOCKHEED MARTIN MIDDLE RIVER COMPLEX MIDDLE RIVER, MARYLAND

		Pre-R	emoval		Post-l	Removal	Individual Soil	Post-Response Action UCL	
Metal	Maximum	UCL	Basis of UCL	Maximum	UCL	Basis of UCL	Sample Result		
Arsenic	6	4.2	Student's t UCL	2	1.5	Student's t UCL	< 12 mg/kg	< 6 mg/kg	
Vanadium	34.7	28.1	Student's t UCL	20.4	20	Student's t UCL	< 91 mg/kg	< 55 mg/kg	
Mercury	1.14	0.78	Student's t UCL	0.4	0.4	Maximum		< 0.5 mg/kg	

¹ All concentrations in milligrams per kilogram (mg/kg).

UCL - Upper confidence limit of the mean

TABLE B-2 SUMMARY OF PRE- AND POST-REMOVAL ANALYSIS BLOCK H SUBSURFACE SOIL LOCKHEED MARTIN MIDDLE RIVER COMPLEX MIDDLE RIVER, MARYLAND

	Pre-Removal				Po	st-Removal	Individual Soil	Post-Response	
Metal	Maximum	UCL	Basis of UCL	Maximum	UCL	Basis of UCL	Sample Result	Action UCL	
Arsenic	7.4	3.3	Student's t UCL	7.4	3.1	Student's t UCL	< 12 mg/kg	< 6 mg/kg	
Vanadium	52.9	35.4	Student's t UCL	52.9	33.5	Student's t UCL	< 91 mg/kg	< 55 mg/kg	
Mercury	0.24	0.12	99% Chebyshev (Mean, SD)	0.24	0.12	99% Chebyshev (Mean, SD)		< 0.5 mg/kg	

¹ All concentrations in milligrams per kilogram (mg/kg).

UCL - Upper confidence limit of the mean

TABLE B-3 PRE-RESPONSE ACTION COC CONCENTRATIONS BLOCK H SURFACE SOIL LOCKHEED MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

Soil Boring	Arsenic	Vanadium	Mercury		
MRC-MW08(0809)	NA	NA	NA		
SB-200-SS	0.7 U	14.5	0.4 L		
SB-201-SS	6	34.7	1.14 L		
SB-202-SS	0.7	13.1	0.06 L		
SB-203-SS	1	20.4	0.04 L		
SB-294-0001	2	15.7	0.01		

¹ All concentrations are in milligrams per kilogram (mg/kg).

COC - Chemical of concern.

SB - Soil boring

U - Not detected.

L - Concentration is biased low.

² Highlighted samples are those targeted for removal.

TABLE B-4 PRE-RESPONSE ACTION COC CONCENTRATIONS BLOCK H

SUBSURFACE SOIL LOCKHEED MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

Soil Boring	Arse	enic	Vana	dium	Mer	cury
SB-200-05	5		45.9		0.02	L
SB-200-10	4		52.9		0.01	
SB-201-05	3		33.9		0.24	
SB-201-10	1		25.7		0.17	
SB-202-05	4		52.2		0.002	
SB-202-10	2		39.7	,	0.002	
SB-203-05	3		49.2		0.02	
SB-203-10	4		39.2		0.03	L
SB-282-0102 ·	6.1		32.8	K	0.01	
SB-282-0405	3.5		27.2	K	0.01	U
SB-282-0910	5.2		34.4	K	0.01	U
SB-283-0102	2	В	19.3		0.01	U
SB-283-0405	1.6	В	20.4		0.01	U
SB-283-0910	7.4		45.9		0.01	U
SB-284-0102	1.2	В	14.2		0.02	-
SB-284-0405	5.3	В	43.8		0.01	U
SB-284-0910	1.9	В	30.6		0.01	U
SB-285-0102	4.8	В	37.9		0.01	U
SB-285-0405	4.9	В	35.6		0.01	U
SB-285-0910	5.2	В	42.6		0.01	U
SB-286-0102	2.8	В	18.7		0.01	U
SB-286-0405	` 0.54	В	24.6		0.01	U
SB-286-0910	0.77	В	5.7	••	0.01	,
SB-293-0102	1.7		17.4		0.03	
SB-293-0405	2.7		28.6		0.02	
SB-293-0910	1.7		13.7		0.01	U
SB-294-0405	2.4		17.8		0.01	
SB-294-0910	3.4		26.3		0.01	U

- 1 All concentrations are in milligrams per kilogram (mg/kg).
- 2 Highlighted samples are those targeted for removal.

COC - Chemical of concern.

SB - Soil boring

- B Analyte was detected but is considered to be a laboratory contaminant.
- U Not detected.
- L Concentration is biased low.
- K Concentration is biased high.

TABLE B-5 POST-RESPONSE ACTION COC CONCENTRATIONS BLOCK H SURFACE SOIL LOCKHEED MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

Soil Boring	Arsenic	Vanadium	Merc	ury
MRC-MW08(0809)	NA	NA	NA	
SB-200-SS	0.7 U	14.5	0.4	L
SB-201-SS	0.5 U	0.1 U	0.002	U
SB-202-SS	0.7	13.1	0.06	L
SB-203-SS	1	20.4	0.04	L
SB-294-0001	2	15.7	0.01	

- 1 All concentrations are in milligrams per kilogram (mg/kg).
- 2 Concentrations of excavated samples are replaced with the following detection limits:

Arsenic

0.5 U mg/kg

Vanadium 0.1 U mg/kg

0.002U mg/kg

Mercury

3 Highlighted samples are those targeted for removal.

COC - Chemical of concern.

SB - Soil boring

U - Not detected.

L - Concentration is biased low.

TABLE B-6 POST-RESPONSE ACTION COC CONCENTRATIONS **BLOCK H** SUBSURFACE SOIL LOCKHEED MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

Soil Boring	Arsenic	Vanadium	Mercury
SB-200-05	5	45.9	0.02 L
SB-200-10	4	52.9	0.01
SB-201-05	3	33.9	0.24
SB-201-10	1	25.7	0.17
SB-202-05	4	52.2	0.002
SB-202-10	2	39.7	0.002
SB-203-05	3	49.2	0.02
SB-203-10	4	39.2	0.03 L
SB-282-0102	6.1	32.8 K	0.01
SB-282-0405	3.5	27.2 K	0.01 U
SB-282-0910	5.2	34.4 K	0.01 U
SB-283-0102	2 B	19.3	0.01 U
SB-283-0405	1.6 B	20.4	0.01 U
SB-283-0910	7.4	45.9	0.01 U
SB-284-0102	1.2 B	14.2	0.02
SB-284-0405	5.3 B	43.8	0.01 U
SB-284-0910	1.9 B	30.6	0.01 U
SB-285-0102	0.5 U	0.1 U	0.002 U
SB-285-0405	0.5 U	0.1 U	0.002 U
SB-285-0910	5.2 B	42.6	0.01 U
SB-286-0102	2.8 B	18.7	0.01 U
SB-286-0405	0.54 B	24.6	0.01 U
SB-286-0910	0.77 B	5.7	0.01
SB-293-0102	1.7	17.4	0.03
SB-293-0405	2.7	28.6	0.02
SB-293-0910	1.7	13.7	0.01 U
SB-294-0405	2.4	17.8	0.01
SB-294-0910	3.4	26.3	0.01 U

- 1 All concentrations are in milligrams per kilogram (mg/kg).
- 2 Concentrations of excavated samples are replaced with the following detection limits:

Arsenic

0.5 U mg/kg

Vanadium 0.1 U mg/kg

Mercury 0.002U mg/kg

3 Highlighted samples are those targeted for removal.

COC - Chemical of concern.

SB - Soil boring

- B Analyte was detected but is considered to be a laboratory contaminant.
- U Not detected.
- L Concentration is biased low.
- K Concentration is biased high.

TABLE B-7 PRO-UCL PRE-REMOVAL ARSENIC CONCENTRATION BLOCK H SURFACE SOIL

Data File: AS V HG BLOCK H	APPENDIX.xls	Variable: Arsenic (PRE SURF)	
		, , , , , , , , , , , , , , , , , , , ,	
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	5	Shapiro-Wilk Test Statistic	0.773125
Number of Unique Samples	5	Shapiro-Wilk 5% Critical Value	0.762
Minimum	0.35	Data are normal at 5% significance level	
Maximum	6		
Mean	2.01	95% UCL (Assuming Normal Distribu	ution)
Median	1	Student's-t UCL	4.215818
Standard Deviation	2.313655		1.2.100.10
Variance	5.353	Gamma Distribution Test	1
Coefficient of Variation	1.151072	A-D Test Statistic	0.314139
Skewness	1.872848	A-D 5% Critical Value	0.689585
		K-S Test Statistic	0.238223
Gamma Statistics	· ·	K-S 5% Critical Value	0.363455
k hat	1.175036	Data follow approximate gamma distribut	
k star (bias corrected)	0.603348	at 5% significance level	
Theta hat	1.710586		
Theta star	3.331412	95% UCLs (Assuming Gamma Distribut	ion)
nu hat	11.75036	Approximate Gamma UCL	7.3222
nu star	6.033478	Adjusted Gamma UCL	14.44641
Approx.Chi Square Value (.05)	1.656236	, ajastos danina oce	17.77041
Adjusted Level of Significance	0.0086	Lognormal Distribution Test	
Adjusted Chi Square Value	0.839467	Shapiro-Wilk Test Statistic	0.978638
	5.555 107	Shapiro-Wilk 5% Critical Value	0.370030
Log-transformed Statistics		Data are lognormal at 5% significance lev	
Minimum of log data	-1.049822		<u> </u>
Maximum of log data	1.791759	95% UCLs (Assuming Lognormal Distr	ibution
Mean of log data	0.215682	95% H-UCL	38.47489
Standard Deviation of log data	1.082544	95% Chebyshev (MVUE) UCL	5.773846
Variance of log data	1.171901	97.5% Chebyshev (MVUE) UCL	7.441139
		99% Chebyshev (MVUE) UCL	10.71621
		, , , , , , , , , , , , , , , , , , , ,	10.7.1021
		95% Non-parametric UCLs	
		CLT UCL	3.711927
		Adj-CLT UCL (Adjusted for skewness)	4.637928
		Mod-t UCL (Adjusted for skewness)	4.360255
	+	Jackknife UCL	4.215818
		Standard Bootstrap UCL	3.472493
		Bootstrap-t UCL	12.8368
RECOMMENDATION		Hall's Bootstrap UCL	11.72852
Data are normal (0.05)		Percentile Bootstrap UCL	3.81
		BCA Bootstrap UCL	4.2
Use Student's-t UCL		95% Chebyshev (Mean, Sd) UCL	6.520144
		97.5% Chebyshev (Mean, Sd) UCL	8.471687
		99% Chebyshev (Mean, Sd) UCL	12.30512
		00 /0 Onebyshev (Mean, Ou) UCL	12.30312

TABLE B-8 PRO-UCL PRE-REMOVAL VANADIUM CONCENTRATION BLOCK H SURFACE SOIL

Data File:	AS V HG B	LOCK H A	PPENDIX.xls		Variable:	Vanadium	(PRE SURF	=)

P	Raw Statistic	S			Normal D	istribution T	est	
Number of	Valid Samp	les	5	Shapiro	-Wilk Test	Statistic		0.797781
	Unique Sar		5			ritical Value		0.762
Minimum		_ '	13.1	· · · · · · · · · · · · · · · · · · ·		5% signific		
Maximum			34.7			T		
Mean			19.68	95%	6 UCL (Ass	sumina Norr	nal Distribut	ion)
Median			15.7	Student			I	28.10131
Standard D	Deviation		8.833006					
Variance	1		78.022		Gamm	na Distributio	on Test	
	of Variation	L	0.448832	A-D Tes	t Statistic		T	0.483479
Skewness	or variation		1.754507		Critical Va	lue		0.679757
OKEWHESS		-	1.754507	K-S Test Statistic				0.283584
	Gamma Sta	ntictice.			Critical Val			0.357933
k hat	Gamma St	21131103	7.618429				ı na distributio	
	s corrected)		3.180705		gnificance		la distribution	
Theta hat	corrected)		2.58321	at 5 /6 Si	grimcance	levei		
			6.187308	050/ 11	CLo (Acous	mina Comm	Diatributio	<u> </u>
Theta star			1		95% UCLs (Assuming Gamma Distribution Approximate Gamma UCL			
nu hat			76.18429					31.42499
nu star	ļ	. (05)	31.80705	Adjusted	d Gamma l	JUL		39.25673
	i Square Va		19.91927		<u> </u>			
	evel of Sign		0.0086			nal Distribut	ion Lest	
Adjusted C	hi Square V	alue	15.94536		-Wilk Test			0.872453
						ritical Value		0.762
	nsformed St	atistics		Data are	e lognorma	l at 5% sign	ificance leve	el
Minimum c			2.572612					
Maximum			3.54674			uming Logn	ormal Distril	
Mean of lo			2.912539	95% H-I				33.17305
	Deviation of I	log data	0.390654			(IVUE) UCL		34.35794
Variance o	f log data		0.15261			(MVUE) UC	L	40.76535
				99% Ch	ebyshev (N	IVUE) UCL		53.35147
		•				arametric U	CLs	
				CLT UC	L			26.17757
				Adj-CLT	UCL (Adju	isted for ske	ewness)	29.48944
				Mod-t U	CL (Adjuste	ed for skew	ness)	28.61789
		-		Jackknit				28.10131
					d Bootstrap	UCL		25.4623
				Bootstra				56.01188
P	RECOMMEN	DATION			Hall's Bootstrap UCL			
	ta are norm				Percentile Bootstrap UCL			63.6209 26.34
			+		otstrap UC			27.8
Use Sti	ıdent's-t UC	l	 			lean, Sd) U	CL	36.8987
- 550 510	14011101100					(Mean, Sd)		44.34924
					, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			

TABLE B-9 PRO-UCL PRE-REMOVAL MERCURY CONCENTRATION BLOCK H SURFACE SOIL

Data File: AS V HG BLOCK H	APPENDIX.xls	Variable: Mercury (PRE SURF)	
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	5	Shapiro-Wilk Test Statistic	0.762733
Number of Unique Samples	. 5	Shapiro-Wilk 5% Critical Value	0.762
Minimum	0.01	Data are normal at 5% significance level	
Maximum	1.14		
Mean	0.33	95% UCL (Assuming Normal Distribu	
Median	0.06	Student's-t UCL	0.78733
Standard Deviation	0.479687		
Variance	0.2301	Gamma Distribution Test	
Coefficient of Variation	1.453598	A-D Test Statistic	0.322817
Skewness	1.717401	A-D 5% Critical Value	0.709239
		K-S Test Statistic	0.28674
Gamma Statistics		K-S 5% Critical Value	0.37092
k hat	0.534669	Data follow approximate gamma distributi	on
k star (bias corrected)	0.347201	at 5% significance level	
Theta hat	0.617204		
Theta star	0.950458	95% UCLs (Assuming Gamma Distributi	on)
nu hat	5.346689	Approximate Gamma UCL	2.144161
nu star	3.472009	Adjusted Gamma UCL	5.993119
Approx.Chi Square Value (.05)	0.534364		
Adjusted Level of Significance	0.0086	Lognormal Distribution Test	
Adjusted Chi Square Value	0.19118	Shapiro-Wilk Test Statistic	0.962744
		Shapiro-Wilk 5% Critical Value	0.762
Log-transformed Statistics		Data are lognormal at 5% significance lev	
Minimum of log data	-4.60517		
Maximum of log data	0.131028	95% UCLs (Assuming Lognormal Distr	bution
Mean of log data	-2.284544	95% H-UCL	2612.819
Standard Deviation of log data	1.887133	95% Chebyshev (MVUE) UCL	1.372454
Variance of log data	3.561272	97.5% Chebyshev (MVUE) UCL	1.821511
		99% Chebyshev (MVUE) UCL	2.703596
	-	95% Non-parametric UCLs	
		CLT UCL	0.682858
		Adj-CLT UCL (Adjusted for skewness)	0.85891
		Mod-t UCL (Adjusted for skewness)	0.81479
		Jackknife UCL	0.78733
`	<u> </u>	Standard Bootstrap UCL	0.646519
		Bootstrap-t UCL	6.664232
RECOMMENDATION		Hall's Bootstrap UCL	4.519608
Data are normal (0.05)		Percentile Bootstrap UCL	0.698
2444 475 77511141 (0.00)		BCA Bootstrap UCL	0.090
Use Student's-t UCL	-	95% Chebyshev (Mean, Sd) UCL	1.265083
000 014401110 1 002		97.5% Chebyshev (Mean, Sd) UCL	1.669694
		99% Chebyshev (Mean, Sd) UCL	2.464474
	. [.	33 /0 Chebyshev (weah, 30) UCL	2.4044/4

TABLE B-10 PRO-UCL PRE-REMOVAL ARSENIC CONCENTRATION BLOCK H SUBSURFACE SOIL

Data File: AS V HG E	BLOCK H AF	PPENDIX.xls	3	Variable:	Arsenic (Pl	RE SUB)	
		-			\		
Raw Statistics				Normal D	istribution T	est	
Number of Valid Samp	ples	28	Shapiro	-Wilk Test	Statistic		0.942075
Number of Unique Sa		22			ritical Value		0.924
Minimum		0.27	<u>.</u>		5% significa		
Maximum		7.4					
Mean		2.700179	959	% UCL (Ass	uming Norn	nal Distribut	ion)
Median		2.525		's-t UCL	I		3.268386
Standard Deviation		1.765216					
Variance		3.115986		Gamm	a Distributio	on Test	
Coefficient of Variation	n	0.65374	A-D Tes	st Statistic	1		0.256768
Skewness		0.839015	A-D 5%	Critical Val	ue		0.757704
				st Statistic			0.134894
Gamma St	tatistics			Critical Val	ue		0.167531
k hat	·	2.068946			mate gamm	na distributio	
k star (bias corrected)		1.871083		ignificance l			
Theta hat		1.305098					
Theta star		1.44311	95% L	CLs (Assur	ning Gamm	a Distributio	on)
nu hat		115.861		mate Gamr			3.443628
nu star		104.7807		d Gamma l			3.496313
Approx.Chi Square Va	lue (.05)	82.15.941	<u>-</u>				
Adjusted Level of Sign		0.0404		Lognorm	al Distributi	on Test	
Adjusted Chi Square \		80.92139	Shapiro	-Wilk Test S			0.941034
					ritical Value		0.924
Log-transformed S	tatistics				at 5% signi		el
Minimum of log data		-1.309333		1			
Maximum of log data		2.00148	95%	UCLs (Assu	iming Logno	ormal Distril	oution
Mean of log data		0.732594	95% H-				4.147223
Standard Deviation of	log data	0.818398	95% Ch	ebyshev (N	IVUE) UCL		4.994779
Variance of log data		0.669776	97.5% (Chebyshev ((MVUE) UC	L	5.917014
			99% Ch	ebyshev (M	IVUE) ÚCL		7.728565
			ļ	95% Non-pa	arametric U	CLs	
			CLT UC	L			3.248893
			Adj-CL1	UCL (Adju	sted for ske	wness)	3.305411
			Mod-t U	CL (Adjuste	ed for skewr	ness)	3.277202
			Jackkni	fe UCL			3.268386
			Standar	d Bootstrap	UCL		3.250305
				ap-t UCL			3.319746
RECOMMEN	IDATION	·		ootstrap UC	L.		3.337562
Data are norm	nal (0.05)			ile Bootstra			3.276786
				otstrap UCI	·	*************	3.274643
Use Student's-t UC	L				lean, Sd) U	CL	4.154283
					(Mean, Sd)		4.783475
1							

TABLE B-11 PRO-UCL PRE-REMOVAL VANADIUM CONCENTRATION BLOCK H SUBSURFACE SOIL

Data File:	AS V HG BLOCK	H APPENDIX.xl:	s Variable:	Vanadium	(PRE SUB)		
R	aw Statistics		Normal [Distribution T	est		
Number of	Valid Samples	28	Shapiro-Wilk Test	Shapiro-Wilk Test Statistic			
Number of	Unique Samples	27	Shapiro-Wilk 5% (Critical Value		0.924	
Minimum		5.7	Data are normal a	t 5% significa	ance level		
Maximum		52.9					
Mean		31.29286	95% UCL (As	suming Norn	nal Distribut	ion)	
Median		31.7	Student's-t UCL			35.3683	
Standard D	eviation	12.66093					
Variance		160.2992	Gamr	na Distributio	on Test		
Coefficient	of Variation	0.404595	A-D Test Statistic			0.364597	
Skewness		-0.037931	A-D 5% Critical Va	alue		0.748458	
			K-S Test Statistic			0.10059	
	Gamma Statistics		K-S 5% Critical Va	lue		0.165891	
k hat		5.065249	Data follow approx		na distributio		
k star (bias	corrected)	4.546353	at 5% significance				
Theta hat	,,,	6.177951					
Theta star		6.883068	95% UCLs (Assu	ming Gamm	a Distributio	on)	
nu hat		283.6539	Approximate Gam			36.43727	
nu star		254.5958	Adjusted Gamma			36.78315	
1	Square Value (.05		- rajustou auriiria	1		00110010	
	evel of Significance		Lognorr	⊥ mal Distributi	on Test		
	hi Square Value	216.5945	Shapiro-Wilk Test		1011 1001	0.90805	
/ lajusteu O	in Oquare Value	210.0040	Shapiro-Wilk 5% (0.924	
Log-tran	nsformed Statistics		Data not lognorma			1	
Minimum o		1.740466	Data not lognomic	i at 0 70 digiti	litoarioc ieve		
Maximum o		3.968403	95% UCLs (Ass	umina Loan	ormal Distril	bution	
Mean of log		3.341442	95% H-UCL		38.73739		
	eviation of log data		95% Chebyshev (I		45.71753		
Variance of		0.253237	97.5% Chebyshev		 	51.69053	
variance of	log data	0.200207	99% Chebyshev (f			63.42334	
			00 /0 Official Street (1	1		00.42004	
			95% Non-r	parametric U	Cle		
			CLT UCL		OL3	35.22848	
			Adj-CLT UCL (Adj	uetod for eke	l mueel	35.21016	
			Mod-t UCL (Adjust			35.36544	
			Jackknife UCL	Ted for skewi	1633)	35.3683	
			Standard Bootstra	n UCI		35.13759	
			Bootstrap-t UCL	POCL		35.21174	
	ECOMMENDATIO	NI I				35.20593	
	ta are normal (0.05			Hall's Bootstrap UCL Percentile Bootstrap UCL			
Da	ia are nonnai (0.03	<i>'</i>		<u> </u>		35.16429	
Hoo Ct.	dent's-t UCL		BCA Bootstrap UC			35.03929	
Use Stu	uents-t UCL		95% Chebyshev (f			41.72236	
			97.5% Chebyshev	<u> </u>		46.23521	
			99% Chebyshev (I	viean, Sa) U	UL	55.09983	

TABLE B-12 PRO-UCL PRE-REMOVAL MERCURY CONCENTRATION BLOCK H SUBSURFACE SOIL

Data File: AS V HG	BLOCK H A	PPENDIX.xls		Variable:	Mercury (P	RE SUB)	
5 0: ::	17.			Name 15	in Anthony in T		
Raw Statis		-	01-		istribution T	est	0.44004=
Number of Valid Sar		28		Shapiro-Wilk Test Statistic			0.410217
Number of Unique S	amples	7			ritical Value		0.924
Minimum		0.002	Data no	t normal at	5% significa	ance level	
Maximum		0.24			L		
Mean		0.023714			uming Norn	nal Distribut	
Median		0.005	Student	's-t UCL			0.040669
Standard Deviation		0.052674					
Variance		0.002775	,		a Distributio	on Test	
Coefficient of Variati	on	2.221176		st Statistic			3.824099
Skewness		3.582381		Critical Val	ue		0.794518
				t Statistic	·		0.284144
Gamma	Statistics			Critical Val			0.173051
k hat		0.654124			w a gamma	distribution	
k star (bias correcte	d)	0.607849	at 5% si	gnificance	level		
Theta hat		0.036254	*				•
Theta star		0.039013	95% U	CLs (Assur	ning Gamm	a Distributio	on)
nu hat		36.63094	Approxi	mate Gamr	na UCL		0.037206
nu star		34.03953	Adjuste	d Gamma l	JCL		0.038282
Approx.Chi Square \	Value (.05)	21.69597					
Adjusted Level of Si	gnificance	0.0404		Lognorm	nal Distributi	on Test	
Adjusted Chi Square	Value	21.08608	Shapiro	-Wilk Test S			0.807988
			Shapiro	-Wilk 5% C	ritical Value		0.924
Log-transformed	Statistics		Data no	t lognormal	at 5% signi	ficance leve	<u> </u>
Minimum of log data		-6.214608					
Maximum of log data		-1.427116	95%	UCLs (Assu	iming Logno	ormal Distrik	oution
Mean of log data		-4.674522	95% H-I	UCL			0.031064
Standard Deviation	of log data	1.12604	95% Ch	ebyshev (M	IVUE) UCL		0.035461
Variance of log data		1.267966			(MVUE) UC	L	0.043456
				ebyshev (M			0.05916
	-			,			
			(95% Non-pa	arametric U	CLs	•
			CLT UC				0.040088
					sted for ske	wness)	0.047289
					ed for skewr		0.041793
			Jackknii		,		0.040669
				d Bootstrap	UCL		0.039195
		 -		ap-t UCL			0.122445
BECOMMI	ENDATION			ootstrap UC	L I		0.121391
Data are Non-		05)		ile Bootstra			0.041607
2414 475 14011	paramotrio (c			otstrap UCI			0.050429
Use 99% Chebys	hey (Mean S	Sd) LICI			∟ lean, Sd) U(0.050429
Use 33 /6 Offebys	ilov (Mean, C	OOL			(Mean, Sd)		0.085879
					·		
					lean, Sd) U		0.00567

TABLE B-13 PRO-UCL POST-REMOVAL ARSENIC CONCENTRATION BLOCK H SURFACE SOIL

Data File:	AS V HG B	LOCK H A	PPENDIX.xls		Variable:	Arsenic (Po	OST SURF	
·								
R	aw Statistic	s		Normal Distribution Test				
Number of	Valid Samp	les	5	Shapiro	-Wilk Test	Statistic		0.881195
Number of	Unique Sar	nples	5	Shapiro	-Wilk 5% C	ritical Value		0.762
Minimum		,	0.25	Data are	e normal at	5% significa	ance level	
Maximum			2					
Mean			0.86	95%	6 UCL (Ass	uming Norn	nal Distribut	ion)
Median			0.7	Student				1.530262
Standard D	eviation		0.703029					
Variance			0.49425		Gamm	a Distributio	n Test	
Coefficient	of Variation		0.817476	A-D Tes	st Statistic			0.232695
Skewness			1.343705	A-D 5%	Critical Val	ue		0.684483
					t Statistic			0.204584
	Gamma Sta	atistics			Critical Val	ue		0.36049
k hat			2.008716			mate gamm	na distributio	L
k star (bias	corrected)		0.93682		gnificance			
Theta hat			0.428134		9			
Theta star			0.917999	95% U	CLs (Assur	ning Gamm	a Distributio	on)
nu hat			20.08716		mate Gamr			2.267799
nu star			9.368197		d Gamma l			3.705071
	Square Va	lue (05)	3.552629	7.0,000				
Approx.Chi Square Value (.05) Adjusted Level of Significance			0.0086		Lognorm	nal Distributi	on Test	
	hi Square V		2.174493	Shapiro	-Wilk Test			0.972494
, rajustou s	,, oqua, o					ritical Value		0.762
Log-tran	nsformed St	atistics				at 5% signi		
Minimum o		<u> </u>	-1.386294	01101 011	- 10 g. 10 11 11 11		, , , , , , , , , , , , , , , , , , , ,	
Maximum o			0.693147	95%	UCLs (Assı	uming Logn	ormal Distril	oution
Mean of log			-0.419929	95% H-				5.245506
	eviation of	log data	0.829142			IVUE) UCL		2.199593
Variance of		- 9	0.687477			(MVÚE) UC	L	2.781342
					ebyshev (N			3.924076
-		,			(1.	1		
					95% Non-p	arametric U	CLs	
				CLT UC				1.377149
						sted for ske	wness)	1.579026
			 			ed for skewr		1.56175
				Jackkni			[1.530262
			 		d Bootstrap	UCI		1.331355
		<u> </u>			ap-t UCL			1.960186
R	ECOMMEN	DATION			ootstrap UC	 CL		3.892856
	ta are norm				ile Bootstra			1.39
Da		a. (0.00)			otstrap UC			1.45
Hea Stu	dent's-t UC					lean, Sd) U	CI	2.230456
036 Olu	301113-1 00					(Mean, Sd)		2.823454
						lean, Sd) U		3.988282
				33 /0 UI	CDYSTIEV (IV	icari, cuj U	<u></u>	0.300202

TABLE B-14 PRO-UCL POST-REMOVAL VANADIUM CONCENTRATION BLOCK H SURFACE SOIL

AS V HG BLOC	CK H APPENI	OIX.xls		Variable:	Vanadium	(POST SU	RF)
aw Statistics				Normal D	istribution T	est	
Valid Samples		5	Shapiro	-Wilk Test	Statistic		0.864389
Unique Sample	s	5	Shapiro	-Wilk 5% C	ritical Value	,	0.762
		0.05					
		20.4			1		
	-	12.75	95%	6 UCL (Ass	uming Norr	nal Distribu	ition)
		14.5					20.00611
Deviation	7.61	0848					
	57	7.925		Gamm	a Distribution	on Test	
of Variation	0.59	6929	A-D Tes	st Statistic			1.10385
	-1.4	8348	A-D 5%	Critical Val	ue .		0.703437
·	· · · · · · · · · · · · · · · · · · ·		K-S Tes	t Statistic			0.469932
Gamma Statisti	cs				ue		0.368682
		4887				distribution	
corrected)							
				J			
			95% U	CLs (Assur	nina Gamm	na Distributi	on)
							72.1471
			<u>- </u>				186.506
Square Value (
				Loanorm	al Distributi	ion Test	
			Shapiro				0.614258
)	0.762
sformed Statist	ics		<u>-</u>			1	
		5732					
			95%	UCLs (Assu	imina Loan	ormal Distr	ibution
							7.31E+08
					IVUE) UCL		171.7312
		8779				L.	230.1621
							344.9382
					<u> </u>		
				95% Non-pa	arametric U	CLs	
							18.34855
					sted for ske	ewness)	15.93572
							19.62976
							20.00611
					UCL		17.89183
					-		17.22789
ECOMMENDAT	ION				;		16.33934
							17.06
	/						16.4
						L	
dent's-t UCL		1	95% Ch	ebvshev (M	lean. Sd) U	CL	27.586271
dent's-t UCL				ebyshev (M Chebyshev (lean, Sd) U Mean, Sd)		27.58627 34.00594
	aw Statistics Valid Samples Unique Sample Unique Sample Oeviation of Variation Gamma Statistic corrected) Square Value (evel of Signification in Square Value insformed Statistic f log data of log data of log data of log data ceviation of log of f log data ECOMMENDAT	aw Statistics Valid Samples Unique Samples Unique Samples Deviation Oction Oction	aw Statistics Valid Samples Unique Samples 5 Unique Samples 5 0.05 20.4 12.75 14.5 14.5 0eviation 7.610848 57.925 of Variation 0.596929 -1.48348 Gamma Statistics 0.64887 corrected) 0.392881 19.64954 32.45254 6.488702 3.928814 Square Value (.05) 0.694309 evel of Significance hi Square Value 0.268583 0sformed Statistics f log data 0sformed Statistics 0sformed St	Valid Samples	aw Statistics Valid Samples Unique Samples 5 Shapiro-Wilk Test Stapiro-Wilk 5% C 0.05 Data are normal at 20.4 12.75 95% UCL (Ass 14.5 Student's-t UCL Peviation 7.610848 57.925 Gamm of Variation 0.596929 A-D Test Statistic -1.48348 A-D 5% Critical Val K-S Test Statistic Gamma Statistics 0.64887 Data does not follor corrected) 0.392881 at 5% significance of the state of the stat	aw Statistics	aw Statistics

TABLE B-15 PRO-UCL POST-REMOVAL MERCURY CONCENTRATION BLOCK H SURFACE SOIL

Data File:	AS V HG I	BLOCK H A	PPENDIX.xls		Variable:	Mercury (F	OST SURF)
1						(1		
F	aw Statistic	cs			Normal D	istribution T	est	
Number of	Valid Sam	ples	5	Shapiro	-Wilk Test S			0.679735
	Unique Sa		5		-Wilk 5% C			0.762
Minimum	1		0.001		ot normal at			0.702
Maximum			0.4	- Data H	l morma at		100 1000	
Mean		-	0.1022	959	⊥ % UCL (Ass	umina Norr	∟ nal Distribut	ion)
Median			0.04		's-t UCL		Tidi Distribut	0.262498
Standard E	Deviation		0,168134	Otadom	T			0.202400
Variance	- CVICALION		0.028269		Gamm	a Distributio	n Test	
	of Variation	ា រ	1.645151	Δ-D To	st Statistic	Distribution	7111631	0.244526
Skewness	- Variation	İ	2.127972		Critical Val	110		0.717132
<u>ekewiieee</u>			2.12/0/2		st Statistic	ue 		0.717132
	Gamma St	atistics	 		Critical Val			0.229102
k hat	Garrina Or	distics	0.45651		llow approxi		a dictributio	
k star (bias	corrected)		0.315937		ignificance I		ia distributio)
Theta hat	Corrected		0.223872	at 3 /0 S	grillicance i	evei		
Theta star			0.323482	05% 1	⊥ ICLs (Assur	ning Comm	o Diotributio)
nu hat			4.5651		mate Gamn		a Distributio	
nu star		1	3.159373		d Gamma L			0.759918
	i Square Va	luo (OE)	0.424899	Aujuste	u Gamma C	JOL		2.336295
	evel of Sigr		0.424699		1	al Diadella di	T .	
	hi Square \		<u> </u>	Charina		al Distributi	on rest	0.000400
Aujusteu C	ni Square v	/alue	0.138205		-Wilk Test S			0.980406
l og tron	oformed C	totiotics	1		-Wilk 5% Cı			0.762
	nsformed S	lausucs	0.007755	Data ar	e lognormal	at 5% signi	ficance leve	! !
Minimum o			-6.907755	050/	1101 (4		15:::	
Maximum of last			-0.916291		UCLs (Assu	iming Logno	ormal Distrib	
Mean of log		!	-3.692301	95% H-				33472.52
Standard D		log data	2.229086		ebyshev (M			0.53366
Variance of	log data		4.968822		Chebyshev (L	0.712399
	····			99% Ch	ebyshev (M	VUE) UCL		1.063498
								<u> </u>
			-		95% Non-pa	arametric U	CLs	
				CLT UC				0.22588
					UCL (Adju			0.30234
					CL (Adjuste	d for skewr	ness)	0.274424
				Jackkni				0.262498
					d Bootstrap	UCL		0.215009
					p-t UCL	,		0.849687
	ECOMMEN				ootstrap UC			0.957833
Assum	ing gamma	distribution	(0.05)		ile Bootstrap			0.192
					otstrap UCL			0.2522
Use Adj	usted Gam	ma 95% UC	L		ebyshev (M			0.429954
					Chebyshev (0.571774
				99% Ch	ebyshev (M	ean, Sd) U(CL	0.850351
Recommen	ded UCL e	xceeds the	maximum ob	servation				
		– . – – – – – – – – – – – – – – – –						

TABLE B-16 PRO-UCL POST-REMOVAL ARSENIC CONCENTRATION BLOCK H SUBSURFACE SOIL

Data File:	AS V HG BI	LOCK H AF	PPENDIX.xl	S	Variable:	Arsenic (PC	OST SUB)	
Raw Statistics					istribution Te	est		
Number of	Valid Sampl	es	28		Shapiro-Wilk Test Statistic			0.931735
Number of	Unique Sam	nples	22			ritical Value		0.924
Minimum			0.25	Data ar	e normal at	5% significa	ince level	
Maximum			7.4					
Mean			2.544821	959	% UCL (Ass	suming Norm	nal Distribut	ion)
Median			2.5	Student	's-t UCL			3.1496
Standard D	Deviation		1.878828					
Variance			3.529995		Gamn	na Distributio	n Test	
	of Variation		0.738295	A-D Tes	st Statistic			0.366261
Skewness			0.78694	A-D 5%	Critical Va	lue		0.762514
					st Statistic			0.117671
	Gamma Sta	ntistics			Critical Va	lue		0.168368
k hat			1.519742			imate gamm	a distributio	on .
	corrected)		1.380722		ignificance			
Theta hat	1		1.674509	0.0740				
Theta star			1.843109	95% [ICI s (Assu	ming Gamm	a Distributio	on)
nu hat			85.10555		mate Gami			3.388765
nu star	1		77.32043		d Gamma			3.450075
	i Square Val	uo (05)	58.06442	Adjuste		1		0
	evel of Signi		0.0404		Lognorn	nal Distributi	on Test	
	Chi Square V		57.03258		-Wilk Test		011 1 000	0.916769
Aujusteu C	ili Squale V	aiue	37.03230			ritical Value		0.924
Log tro	nsformed Sta	otictics				l at 5% signi	ficance leve	
Minimum o		alistics	-1.386294		i lognorma	at 575 Sigili	nounce leve	
Maximum			2.00148		IICI e (Ase	uming Logno	ormal Distrik	Lution
Mean of lo			0.570303			diffiling Login	Jimai Biotini	4.581012
	g data Deviation of I	og data	0.986552			//VUE) UCL		5.411313
		og dala	0.900332			(MVUE) UC	<u> </u>	6.538024
Variance o	l log data		0.973203			AVUE) UCL		8.751228
				. 99 /6 01	Tenysitev (i	TVOL) COL		0.701220
					059/ Non n	arametric U	CL e	
				CLT UC		arametric o	OL3	3.128852
			-			usted for ske	wnoee)	3.185274
						ed for skewr		3.158401
						ed for skewi	1622)	3.130401
					ife UCL	- UOI		3.115699
					rd Bootstra	JUCL		
	150011115	DATION			ap-t UCL			3.231218
	RECOMMEN		-		ootstrap U			3.230622
Da	ata are norm	ai (0.05)			tile Bootstra			3.132857
					ootstrap UC			3.2175
Use Stu	udent's-t UC					Mean, Sd) U		4.092515
						(Mean, Sd)		4.762203
				99% CI	nebyshev (l	Mean, Sd) U	CL	6.077675

TABLE B-17 PRO-UCL POST-REMOVAL VANADIUM CONCENTRATION BLOCK H SUBSURFACE SOIL

Data File:	AS V HG B	LOCK H A	PPENDIX.xls		Variable:	Vanadium	(POST SUE	3)
	0,	_			Ni- mar al D	[
	aw Statistic					istribution T	est	0.00000
	Valid Samp		28		-Wilk Test			0.965609
	Unique Sar	nples	26			ritical Value		0.924
Minimum		,	0.05	Data ar	e normal at	5% signific	ance level	***************************************
Maximum			52.9	···				
Mean			28.67143			uming Norr	mal Distribut	
Median			27.9	Student	's-t UCL			33.48016
Standard D	eviation (14.939					
Variance			223.1738		Gamm	na Distributi	on Test	
Coefficient	of Variation	i	0.521041	A-D Tes	st Statistic			2.722656
Skewness			-0.184231	A-D 5%	Critical Va	lue		0.770079
				K-S Tes	st Statistic			0.25153
-	Gamma Sta	atistics		K-S 5%	Critical Val	ue		0.169597
k hat			1.167625	Data do	es not follo	w a gamma	distribution	
k star (bias	corrected)		1.066331	at 5% s	ignificance	level		
Theta hat			24.55535		[
Theta star			26.88791	95% U	CLs (Assur	ning Gamn	na Distributio	on)
nu hat			65.38698		mate Gamr			39.86664
nu star			59.71456		d Gamma l			40.70033
	Square Va	lue (.05)	42.94573			T		
_ ' '	evel of Sign		0.0404		Lognorm	nal Distribut	ion Test	
	hi Square V		42.06604	Shapiro	-Wilk Test			0.540942
7.4,45154 6	qua					ritical Value	9	0.924
Log-trar	nsformed St	atistics					ificance leve	
Minimum o			-2.995732					
Maximum (3.968403	95%	UCLs (Assi	ımina Loan	ormal Distrik	oution
Mean of log			2.870058	95% H-				251.7353
	Deviation of	og data	1.729866			IVUE) UCL		198.8406
Variance of		og data	2.992437			(MVUE) UC		254.5831
vanarios o	l log data		2.002 107		ebyshev (M			364.0786
				007001	Coyonev (iv	102,002		001.0700
					95% Non-n	ı arametric U	ICLs	
				CLT UC				33.31519
						ısted for sk	ewness)	33.21016
					<u> </u>	ed for skew		33.46378
				Jackkni		ed for skew		33.48016
					d Bootstrap	LICI		33.31151
		-				JOCE		
		DATION			ap-t UCL	1		33.40754
	ECOMMEN				ootstrap UC		-	33.42118
Da	ta are norm	ai (0.05)			ile Bootstra			33.39464
		•			otstrap UC		 C	33.27857
Use Stu	dent's-t UC	<u>L</u>				lean, Sd) U		40.9775
						(Mean, Sd)		46.30234
				99% Ch	ebyshev (N	lean, Sd) U	CL	56.76197

APPENDIX B

TABLE B-18 PRO-UCL POST-REMOVAL MERCURY CONCENTRATION BLOCK H SUBSURFACE SOIL

Data File:	AS V HG B	LOCK H AF	PPENDIX.xls	3	Variable:	Mercury (P	OST SUB)	
R	aw Statistic	S			Normal D	istribution T	est	
Number of	Valid Samp	les	28	Shapiro	-Wilk Test	Statistic		0.41841
Number of	Unique Sar	nples	8	Shapiro	-Wilk 5% C	ritical Value		0.924
Minimum			0.001	Data no	t normal at	5% significa	ance level	
Maximum			0.24					
Mean			0.023429	959	6 UCL (Ass	uming Norn	nal Distribut	on)
Median			0.005	Student	's-t UCL			0.040421
Standard D	Deviation		0.052789					
Variance			0.002787		Gamm	na Distributio	n Test	
Coefficient	of Variation	1	2.253197	A-D Tes	st Statistic			2.972275
Skewness			3.573585	A-D 5%	Critical Va	lue		0.800361
				K-S Tes	st Statistic			0.263006
	Gamma Sta	atistics		K-S 5%	Critical Val	ue		0.173735
k hat			0.597057	Data do	es not follo	w a gamma	distribution	
k star (bias	corrected)		0.556896		ignificance			,
Theta hat			0.03924					
Theta star			0.04207	95% L	CLs (Assur	ming Gamm	a Distributio	n)
nu hat			33.43519	Approxi	mate Gamr	na UCL		0.037608
nu star			31.18618		d Gamma l			0.038754
Approx.Chi	Square Va	lue (.05)	19.42795					
	evel of Sign		0.0404		Lognorn	nal Distributi	on Test	
Adjusted C	hi Square V	'alue	18.85361	Shapiro	-Wilk Test	Statistic		0.890919
			· · · · · ·			ritical Value		0.924
Log-trar	nsformed St	atistics		Data no	t lognormal	at 5% signi	ficance leve	
Minimum o			-6.907755					
Maximum o	of log data		-1.427116	95%	UCLs (Assi	uming Logno	ormal Distrib	ution
Mean of log	g data		-4.789482	95% H-				0.036553
Standard D	Deviation of	log data	1.262881	95% Ch	ebyshev (N	IVUE) UCL		0.039634
Variance o	f log data		1.594869	97.5% (Chebyshev	(MVUE) UC	L	0.049166
				99% Ch	ebyshev (N	IVUE) UCL		0.067891
					95% Non-p	arametric U	CLs	
				CLT UC	CL			0.039838
				Adj-CL	UCL (Adju	sted for ske	wness)	0.047037
				Mod-t L	CL (Adjuste	ed for skewr	ness)	0.041544
		-		Jackkni				0.040421
				Standa	d Bootstrap	UCL		0.039446
					ap-t UCL			0.116538
R	ECOMMEN	IDATION		Hall's B	ootstrap UC)L		0.122564
	are Non-pa		.05)		ile Bootstra			0.040821
		\-	,		otstrap UC	1		0.048464
Use 999	% Chebyshe	ev (Mean, S	d) UCL			lean, Sd) U	CL	0.066914
	,	, , , , , ,				(Mean, Sd)		0.08573
						lean, Sd) U		0.122691

APPENDIX B

TABLE B-19 PRE- AND POST-RESPONSE ACTION RISKS BLOCK H SURFACE SOIL

Surface Soil	Residen (Pre-Respo	tial Risks nse Action)	(Pre-Respor	tial Risks nse Minus round) ⁽²⁾		tial Risks onse Action)	B[a]P Concentration
Boring	Cancer	Noncancer	Cancer	Noncancer	Cancer	Noncancer	(ug/kg) ⁽⁴⁾
SB-200	1.00E-05	0.55	9.00E-06	0.15	9.00E-06	0.15	367
SB-201	2.00E-05	1.6	2.50E-06	0.39	0	0	40
SB-202	3.90E-06	0.45	1.90E-06	0.07	1.90E-06	0.07	ND
SB-203	5.20E-06	0.69	2.30E-06	0.1	2.30E-06	0.1	57
SB-294	1.30E-05	0.56	7.60E-06	0.53	7.60E-06	0.53	ND

- 1 Soil boring location risks as identified in the Site Characterization Report (Tetra Tech, May 2006). Soil boring location risks as identified in the Site Characterization Report (Tetra Tech, May 2006)
- 2 minus risks associated with arsenic and vanadium.
- 3 Soil boring location risks excluding those attributable to arsenic and vanadium (less than Block D-specific background reference concentration of 12 and 91 mg/kg, respectively).
- 4 Concentration used to calculate risk in the Site Characterization Rerpot (Tetra Tech, May 2006)

ND

Not detected

APPENDIX B

TABLE B-20 PRE- AND POST-RESPONSE ACTION RISKS BLOCK H SUBSURFACE SOIL

	(Pre-Respor	- 1	(Pre-Respon		(Post-Resp	tial Risks onse Action)	B[a]P
Subsurface Soil	. (*	1) .	Backgr	ound) ⁽²⁾		(3)	Concentration
Boring	Cancer -	Noncancer	Cancer	Noncancer	Cancer	Noncancer	(ug/kg) ⁽⁴⁾
SB-200	2.50E-05	1.7	1.10E-05	0.17	1.10E-05	0.17	386
SB-201	1.10E-05	1.2	2.10E-06	0.14	2.10E-06	0.14	43
SB-202	1.40E-05	1.7	2.60E-06	0.14	2.60E-06	0.14	52
SB-203	1.30E-05	1.7	2.70E-06	0.19	2.70E-06	0.19	ND
SB-282	2.60E-05	1.2	8.20E-06	0.08	8.20E-06	0.08	ND
SB-283	3.20E-05	1.2	1.10E-05	0.11	1.10E-05	0.11	290
SB-284	8.80E-06	0.89	8.80E-06	0.11	8.80E-06	0.11	200
SB-285	1.70E-05	1.1	1.70E-05	0.12	0	0	573
SB-286	1.00E-05	0.58	1.00E-05	0.15	1.00E-05	0.15	248
SB-293	1.40E-05	0.68	8.10E-06	0.06	8.10E-06	0.06	ND
SB-294	1.70E-05	0.77	8.40E-06	0.06	8.40E-06	0.06	ND

Soil boring location risks as identified in the Site Characterization Report (Tetra Tech, May 1 2006).

Soil boring location risks as identified in the Site Characterization Report (Tetra Tech, May 2006)

2 minus risks associated with arsenic and vanadium.

Not detected

- 3 Soil boring location risks excluding those attributable to arsenic and vanadium (less than Block D-specific background reference concentration of 12 and 91 mg/kg, respectively).
- 4 Concentration used to calculate risk in the Site Characterization Rerpot (Tetra Tech, May 2006)

ND

APPENDIX C – FIELD DOCUMENTATION NOTES AND BORING LOGS	3

PROJ PROJ	JECT JECT LING	NAME NUME COMF	E:	NUS, Inc			DRILLER:	SB 462 10/23/07	Page _	0	†
	Depth	Blows /	Sample	Lithology	N	IATEI	RIAL DESCRIPTION		PID/FII	D Readi	ing (p
No. and Type or RQD	(Ft.) or Run No.	6" or RQD (%)	Recovery / Sample Length		Soil Density/ Consistency or Rock Hardness	Color	S	Remarks	Sample	Sampler BZ	Borehole**
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	-			-			Same as above			┷	

* When rock coring, enter rock ** Include monitor reading in 6 Remarks:		crease reading freque	ency if elevated reponse read.	Drilling Area Background (ppm):
Converted to Well:	Yes	No	Well I.D. #:	

Sam No an Type RQ	. (Ft.)		T					DRILLER:	-			·····
	or Run	Blows / 6" or RQD (%)	Sample Recovery / Sample Length		Soil Density	,	RIAL DESCRIF		U S C S *	Remarks	Sample Sample	Sampler BZ as
			1002				Weather	ed Asph	es.			
٦				241	4.P	Red	Br Clay	Med	Pla	st		
3				35 n	97.K2 97.K2	Res	NOT SILLY 2 Clay 1	reary	s t-			
4			4-8				Lt-Gray C	Yay				
5			00Z									
7												
8							Same A	s Alpane				

		Ŗ,	,		NUS, Ind	c.	В	ORING LC)G			ıge _		of_	
	PRO DRIL	JECT LING	FNAMFNUM GCOM GRIG:		**************************************				BORING N DATE: GEOLOGI DRILLER:	√o.: ST:	SB 464 10/23/07				
	Sample	Depth	Blows /	Sample	Lithology	1	MATE	RIAL DESCRIP	TION			PID/FI	D Rea	iding	(ppn
	No. and Type or RQD	(Ft.) or Run No.	6" or RQD (%)	Recovery / Sample Length				Material Clas	sification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
		-		0-4				Wathered	11.1			1	-	-	-
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** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

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

	PRC DRIL	JEC ⁻	ノ T NAM T NUM	E:	NUS, Ind	C.	<u>B</u>	DRING LOG BORING I DATE: GEOLOGI DRILLER:	ST:	SB 465 10/23/07	'age _		of	
	Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length				RIAL DESCRIPTION Material Classification	U S C S *	Remarks	Sample Sample	Sampler BZ de	Borehole**	Driller BZ**
				0-4 1006		·		Weathered Asphalt			0			
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*When rock coring, enter rock brokeness.

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

Remarks:

Background (ppm):

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

	PRC PRC	JEC.) T NAM T NUW	1E:	NUS, Ind	C.	<u>B(</u>	DRING LOG BORING No. DATE:	: <u>S</u>	B 466 123/07	Page _		of _	
			RIG:	11 /AINT ,				 GEOLOGIST DRILLER:	:	•				
	Sample	5	-			ı	MATE	RIAL DESCRIPTION	T		PID/FI	D Rea	ding	maa
	No. and Type or RQD	Depth (Ft.) or Run No.	Blows (6" or RQD (%)	Sample Recovery / Sample Length		Soil Density, Consistency or Rock Hardness			U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
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				100%				Weathered Asphalt			V			
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F	Remarl	<s:< td=""><td></td><td></td><td></td><td>T. T.O. TITO</td><td></td><td>admig inequality in elevated reponse read.</td><td>-</td><td>Backgrou</td><td>illing Are nd (ppm</td><td>;a i): [</td><td></td><td></td></s:<>				T. T.O. TITO		admig inequality in elevated reponse read.	-	Backgrou	illing Are nd (ppm	;a i): [
C	Conver	ted to	Well:	Y	es		N	o Well I.D. #:						

	C.		,		NUS, Inc	,	BC	DRING L				age _		01_	
			NAME NUMI						BORING N	lo.:	SB 467 10/23/07				
			COMI	PANY:				***************************************	GEOLOGI		7-785/01				
	DINIE	LING	NG.				/ATE	RIAL DESCR	DRILLER:	T		PID/FI	D.D	-11	
	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	(Depth/Ft.) or Screened	Soil Density/ Consistency or	Color		lassification	U S C S	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
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** Include monitor reading in 6 Remarks:			rease reading freque	ency if elevated reponse read.	Drilling Area Background (ppm):
Converted to Well:	Yes	****	No	Well I.D. #:	

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			NUMI	BER: PANY:				DATE:	ςΤ.	10/23/07				
			RIG:					DRILLER:	J 1 .					
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	Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
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** Include monitor reading in 6 Remarks:		s @ borehole. Increase reading frequence	cy if elevated reponse read.	Drilling Area Background (ppm):
Converted to Well:	Yes	No	Well I.D. #:	

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	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		Color		U S C S	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
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* When rock coring, enter rock** Include monitor reading in 6		s @ borehole. Increase reading free	quency if elevated reponse read.	Drilling Area
Remarks:				Background (ppm):
Converted to Well:	Yes	No	Well I.D. #:	

Tetra Tech	NUS, Inc.
PROJECT NAME:	
PROJECT NUMBER:	***************************************
DRILLING COMPANY:	***************************************
DRILLING RIG:	

Page <u>____</u> of ____

	PRO. DRIL	JECT LING	NAME NUME COME RIG:	BER:					BORING N DATE: GEOLOGIS DRILLER:		SB 470 10/23/07 5. Dolur				
						٨	/ATE	RIAL DESCRI	PTION			PID/FII	D Read	ding (ppm)
	Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Cla	assification	U S C S	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
								0-1	Asphalt	-/ .	Kill		П		
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Sampl No. and Type o RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color		assification	U S C S	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
							0'-1'	asphal-						
							Dry had	nd iden	5	8 Silki Cla	u i	C.		
							low plas	FELLY.	1.8		Ψ			
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<u> </u>														
** Inclu		itor readin		intervals @) borehole. II		reading frequency	f elevated reponse r	ead.	Drillii Background				

(Tt)	Tetra	Tech	NUS,	Inc.
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PRO DRIL	JECT LING	NAME NUME COME RIG:	BER:	117 11 1	D METO OGGS MYERS		<u></u>			SB-472 10/23/07 CHARLIE WAR	<u>ہر</u>	ě		
Sample No.	Depth (Ft.)	Blows / 6" or	Sample Recovery	Lithology Change		IATE	RIAL DESCRIPT	ION	U		PID/FII	D Rea	ding (ppm
and Type or RQD	or	RQD (%)	/ Sample Length	(Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Class	ification	S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
		/												
A.	_						ASPHALT, GAS	verit Fee						
0-	2	/												-
		-												
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<i>X-</i>	クロ					,								
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					l		ZEDDISH BOC		CL					
3.5	-8.	0			<u> </u>	T.	CUMY, MED,	PUSTICITY.	4				_	
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	de mon	•	r rock bro		D borehole. I	ncrease	reading frequency if ele	evated reponse r	ead.	Drillin Background				·
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TŁ	Tetra Tech NUS, Inc
PROJECT	NAME:

Page ____ of ____

					l N	/ATE	RIAL DESCRIP	TION			PID/FII) Rea	ding (ppm)
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	Soil Density/ Consistency or Rock Hardness	Color	Material Clas	sification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
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					Sitt	<u>y</u> S	and (SH)	Rew	V.	sitt traces	ar	1		
					mB	4.	of the	18464	May .	4'- 3'-4				
					W8	T	to 5	1/13 17/	يوصر	1 /8 /	1 /			_
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											<u> </u>	<u> </u>		
				7		- 1			â		_	_		
				**		Clo	XCCC H	SH har	d_{η}	08458	-	<u> </u>	_	
							Whoth		0	V 7 81/5	17 /			1.4
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(Æ	Tetra	Tech N	NUS, Inc	
PRO DRIL	JECT LING	NAME NUME COMF RIG:	BER:		
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550		~					DIVING LOG						
		NAM					BORING I	\o.:	SB-474				
		NUM ?	BER: PANY:				DATE:						
			PANY:				GEOLOGI						
DKIL	LIIVC	RIG:					DRILLER:						
l					N	MATE	RIAL DESCRIPTION			PID/FII	D Read	ling ((ppm)
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Densityl Consistency or Rock Hardness		Material Classification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
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0= z	_					PHA	LT / FILL	+		-			
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						í	BROWNISH- GRAY	-			\dashv		
2'-					511	77	SAWD.	SM					
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		-											
4= 4	1,5	-			50.	AE A	s 430vE	SM	·				
								igsquare					
4.5	-60			1	Mole	٦,	it Brown - Zeddish Ba.	دواد					
					SILT		LAY, MED PLASTICITY.	1 1					
6.0	8.0				SAM	EA	SABOUE	a			1		

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	e monit	or reading				ncrease	reading frequency if elevated reponse	read.	Drillin Background				
Conve	erted	to Well		Yes _			No Well I.E). #: _					

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		,			<u>BC</u>	<u>DRING L</u>	<u>-OG</u>		. 490 01
		MAM		Lou	HUED MART	1 🚵	BORING N	0.:	58-475
		NUM		11216	00948		DATE:		10125107
DRILLING COMPANY:				BL,	MYERS		GEOLOGIS	ST:	CHIELLE WALLAU
DRIL	LING	RIG:		UESER	BE		DRILLER:		
					MATE	RIAL DESC	RIPTION		PID/FID Reading (ppm
Sample No.	Depth (Ft.)	Blows / 6" or	Sample Recovery	Lithology Change				U	

					I\	IAIL	RIAL DESCRIPTION	j		PID/FI	D Rea	ading	(ppm)
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
				2	4								
				,	Αş	PHA	4 FILE			1			
1	7				File	νυ i>έ	RASSMALT IS FINE						
					TAN	SAL	d i fins bravely						
		//			NVI	TE 1211							
2-	3				LT	3R0i	NOIST SILTY						
100 A A	A A	-			4,4	ろび	,	514					
UV.	P.P.	-											
3-	Ч				Mois	T is	REDDISH BROWN						
		\leq			5117	Υć	LUC. MED PUSTUAY	cı.					
		-									$\vdash \vdash$		
<i>i</i>	-				GAM	Ε A	5 ABOVE. 40.46					-	
45	2				brur	4 ^	D BLACK	CL				_	
					Druce	Lors	11025				\vdash	_	
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										\dashv	\dashv		
6-	21				1 . 00			cr		-	\dashv	\dashv	
0 -	U	-		ŀ	9,414	> 4	S ABOVE	a			\dashv		
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				ŀ							\dashv	\dashv	
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				ŀ				\dashv			\dashv	\dashv	
				ŀ						\dashv	\dashv	\dashv	\dashv

* When rock coring, enter rock	brokeness.			
** Include monitor reading in 6	foot intervals	borehole. Increase reading frequency if	elevated reponse read.	Drilling Area
Remarks:				Background (ppm):
Converted to Well:	Yes	No	Well I.D. #:	



Page	1	of	

Ľ)			•	BO	DRING LOG		۱ ۵۱	JC	<u> </u>	O, _			
PRO DRIL	JECT LING	NAME NUMI COMI RIG:	BER:	Were Be	aebo pas bogrb Mybrs bor po b	enn	BORING N DATE:	BORING No.: 5B DATE: 1012 GEOLOGIST: 2014 DRILLER:			SB-47L 10/25/67 curene warns				
							RIAL DESCRIPTION	ТÏ		PID/FII	D Rea	ding /	(nnm		
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color		บ ร с ร *	Remarks	Sample	Sampler BZ		Driller BZ**		
					149	MAV.	T/FILL								
<u> </u>	2				FIL		DER ALPHAET IS								
		<u> </u>			TAN	8-12	E soud And Ruic						Ĺ		
							Y MATERIAL								
2'-	3	/_			Mo	151	UT BROWN SILTY								
					5A	ND,		5M	***************************************			_			
,000	4										\dashv	\dashv			
3-	4						CEDDISH-BROWN WY. MED. PLASTICITY,	U			\dashv				
					716	112	CAT. MUD. FLASHINIT,			\vdash	\dashv				
					SAMI		IS ABOVE, SOME				\dashv	\neg			
4-	b				GRAY		BLACK DISCOLUCIATION	CL							
						•	***************************************								
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		-									_	\dashv			
6-	93'	-						Ci				\dashv			
					441	- (6	AS DBOVE				\dashv	\dashv			
											\dashv	\dashv			
		/										\bot			
		$\langle \cdot \rangle$			*****		***************************************		***************************************	\dashv		\dashv			
* Whan	rock as	ring anta	r rock bro	konoss							\perp		_		
	de moni) borehole. I	ncrease	reading frequency if elevated reponse	read.	Drillin Background						

Remarks: Background (ppm): Converted to Well: Yes No Well LD #:	** Include monitor reading in 6	foot intervals @ boreh	ole. Increase reading frequen	cy if elevated reponse read.	Drilling Area
Converted to Well: Yes No Well LD #:	Remarks:				Background (ppm):
	Converted to Well:	Yes	No	Well I.D. #:	

PRO PRO	JECT JECT	NAME NUMI	Ξ:	NUS, Inc		<u>B</u> (DRING LOG BORING I DATE: GEOLOG		58-477	ge _		of _	
DRIL	.LING	RIG:					DRILLER:	_					
Sample	Depth	Blows /	Sample	Lithology	N	MATE	RIAL DESCRIPTION	I., [PID/FI	D Rea	ıding (ppn
No. and Type or RQD	(Ft.) or	6" or RQD (%)	Recovery / Sample Length		Soil Density/ Consistency or Rock Hardness	Color	Material Classification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
0-	1					AS	714LT			T			
						215		11		T			
								11	ψ _ζ	T			
1	e T				Mo	151	TAN/BROWN GILTY	5M					i
							FUE-FINE GRAIND	11	·				
					Max	91 i	LEIDDISH-BROWN			\Box			_
					!!!	_	LAT. MED. PLASTICITY				П		
2					1		LALK DISCOLURATIONS	a			П		
->(l				Тнасч								
							3.50 / 1						-
					5A	MÉ	AS ABOVE						
4	- 6												
													-
1,	p 												
V	4				4A	ME	AS ABOVE						*******
													-
	- 1		- 1		1			1 1					

** Include monitor reading in 6 Remarks:		evated reponse read.	Drilling Area Background (ppm):			
Converted to Well:	Yes		No	Well I.D. #:		_

TŁ.	Tetra Tech NUS, Inc.
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Ľ		J				<u>B(</u>	DRING LOG			J		_	
PRO	JECT	NAM	E:	tour	IOUD M	arri	BORING N	lo.:	98-478				
		NUM			100099		DATE:		10/25/07				
			PANY:	BLM	45123		GEOLOGI	ST:	CHATCHE WA	ewo			
DRIL	LING	RIG:		650?	1036		DRILLER:						
					V	/ATE	RIAL DESCRIPTION			PID/FI	D Rea	iding	(ppm
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness		Material Classification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
1.0	-].]	15"			ASPWA	ir).	GRAVER FILE			-			
***	1.					,							
1.75	- Z	10			DK 130	رد درن	GRAY SLUTY SAND. ELMANED, MOIST.	Gn					
					V. F1VE	FIN	E CARANED, MOIST.						
2.0	- y	48			<u>/</u> -т в	و مدروع	, MOIST-WET, SICT			+			
					l .	l	1. FINE-FINE BRAINED	Sm					
										<u> </u>			<u> </u>
										+			
										-			
4.0	-6	10			GA	ME	A A-301E	Sin					
		$\frac{1}{2}$			60!	n E	FINE GRAVEL						
6.0	- 6.	25			4AM	eg ,	DE, ABOVE	БМ					
6.2		26"			RED	からん	BROWN SHITT WAT						
					··········		*	CL					
		\angle			50 M	E FIR	NED. PLYSTICITE. DE UNSVEL FROM GI	25-	7.0				
													ļ
												\dashv	
			, .										
	de moni		r rock brol g in 6 foot) borehole. I	ncrease	reading frequency if elevated reponse r	ead.	Drilli Background				
Conv	erted	to Wel	1:	Yes	***************************************		No Well I.D). #:					
				_				-					

Tt.	Tetra Tech NUS, Inc.
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DRILLING RIG:

BORING LOG

Page ____ of ____

PROJECT NAME:	CONTROL LOCALORD MARTIN	BORING
PROJECT NUMBER:	11216 00998	DATE:
DRILLING COMPANY:	BL. MYENS	GEOLOG
DDU 1 1110 D10		

BORING No.: 53-479

GEOLOGIST: DRILLER:

10/25/07 CHARLIE WARIND

		NIG.	T	over.		/ATC	RIAL DESCRIPTION	T				
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness			U & C & *	Remarks	Sample	Sampler BZ	
												T
0-	1,5				AGPH	427	/ FILE					
1.5%	7,0				DK BAS	- قىر زىر	MOIST	ar.		ļ		
					<u>Ç</u> (4)	VD	MOIST	50				L
	<i>A</i>	-			-4					├-		_
20	-4.4	()			MO147,	Be	ODD - DRAT, VIFINE	SM		┼		
					SAN		ONN-DRAT, VIFINE GRAINED FINE SOME FINE	2/1	·	\vdash		H
					COR	200	7016 1.00					_
40	- <i>(a</i>	ø'			GAM	G A	S ABOVE , WET .	БM				
		//								ļ		 <u> </u>
		-								<u> </u>		_
ig.0	<u> </u>	200							*			
19.U		<u>~7</u>			S AM	E A	S ABOVE, MOIST	5 pa				
	<i>y</i> , , ,											
7,25	-8	.8					CLAN SILTY CLAY.					<u> </u>
					MED	P145	16.77.	Ci				
	_											
' When	rock co	ring ente	r rock brok	(eness								

** Include monitor reading in 6	foot interva	s @ borehole. Inci	rease reading frequency if elev	rated reponse read.	Drilling Area
Remarks:					Background (ppm):
Converted to Well:	Yes		No	Well I.D. #:	

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l	- 6	7000 1001 1400, IIIc.

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Ľ	<u> </u>	Jiene	i i con i	100 , mc	••	BO	DRING LOG			ge _		OI _	
PRO DRIL	JEC ⁻	F NAM F NUM G COM G RIG:	BER:	B.L.	4000 M 200198 MYEIZ 1085	HRTI	ه BORING N DATE: GEOLOGI DRILLER:	No.: _	513-480 10/25/07 CHARLIE WAR	امادا)		
						/ATF	RIAL DESCRIPTION	ΤĪ		PID/FII	D Rea	dina ((nom
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness			U S C S *	Remarks		Sampler BZ		
0'-	1.5				A	БРН	ILT /FILL						
1.5-	2.0				Mois	r D.	E BROWN GILTY FINE-FINE GRAINED						
					SANO	. V	FINE FINE GRAINED	2/7					<u> </u>
					Mois	- 13	rown-bray siety						
2.0	4.0	_			SANI	P. V	FINE- FINE GRUNES	54			_		_
										-			-
4,0	-10				60	- 1		5m		-			
7,50					THNI	15	S Alsove						
					Maist		rown /TAN SILTY	H		-			
1.0	-8	v	5,3		GAN)2 D. U	I, FINE - FINE	EM					
					GR	41~6	VIFINE - FINE						
	_					11.4							
	\dashv						87				H		
	e monit	-	r rock brok g in 6 foot) borehole. I	ncrease	reading frequency if elevated reponse	read.	Drilli Background				

** Include monitor reading in 6	Drilling Area			
Remarks:				Background (ppm):
Converted to Well:	Yes	No	Well I.D. #:	

TŁ	Tetra Tech NUS, Inc.
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Page	1	of	

PROJECT NAME:	LOURNEED MURTIN MAC	BORING No.:	68-481
PROJECT NUMBER:	112,160998	DATE:	10129107
DRILLING COMPANY:	B.L. MYERS	GEOLOGIST:	CHARLE DARIDO
DRILLING RIG:	1+420-75	DDILLED:	

	7	_											
					٨	/ATE	RIAL DESCRIPTION			PID/FI) Rea	ding (p	ppm)
Sample No. and Type o RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	U S C S *	Remarks	Sample	Sampler BZ	. Borehole⁺*	Driller BZ**
0.0	-1.5				Asp	MAL	1 FILL						
							f de la constant de l	 					
1.5-	2.0				MOST 0	no s	U SILTY, SANDY CLAY						
							T, SANDIS V. FINE	c					
2.0	4.0				MOIST	Redd	ISH-BROWN SILTY						
	ļ				GLAY.	Meil	ISH-BROWN SILTY PL PUSTICITY	CL					
ļ													
		/											
4.0	5.0	<u></u>			MOKET	DKG	ROUP SHIT CLAY						
		/_			med.	PA	sticity,	a					
0.0	0												
5.0-	0.0				WET B	win	SILTY, SANDY, CLAY	cı					
60°	7.0				SAME A	5 A	Bovi	ci					
								<u> </u>			<u> </u>	<u></u>	
7.6-	8.0				MOIST	Bai	INE GRANDED	Sm			_		
		-			ViFNE	- 6	WE GRANGIZ			_			_

* When rock coring, enter rock				
^{tt} Include monitor reading in 6 Remarks:	cy if elevated reponse read.	Drilling Area		
i Ciliains.				Background (ppm):
Converted to Well:	Yes	No	Well I.D. #:	

Tetra Tech NUS, Inc.

	It	Tetra	Tech N	NUS, Inc	; .	R	ORING LOG		Pag	e _	<u>.</u> (of _	
PRO PRO DRII	DJEC.	T NAMI T NUM G COM	E: BER: PANY:	LOUNG 1121C B.L.	MEED 1 00998 MY 593	MR	BORING N	lo.: ST:	58-482 10/29/07 CHARLIE WARD	<u>~</u>			
DRII	LLING	RIG:		650	zeuße		DRILLER:						
Sample No. and Type o RQD	e Depth (Ft.) or r Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness		RIAL DESCRIPTION Material Classification	U S C S *	Remarks			Borehole**	
0,0	1.5				As	PHAL	FIEL						
1.5-	2.0				MOIST	ON B	ROWN/BLACK , SILTY VIFING BRAINED SAND	CL	some wood free				
2.0	4.0				MOIST,	CRAT	BROUN SILTY, LAYET, FINE - FINE GRANGE	Se					
4.0=	5.0				SAND	45 A	BOVE, SOME FINELIANEL	Sı					
5.0-6							BROWN SILTY SAND GRANGA SOME	SM					
*					Casset		O-MOON SOME						
(p.0°	-80				SAMÉ	As	ABOVÉ	ξM					
				-									
			r rock brok g in 6 foot) borehole. I	ncrease	reading frequency if elevated reponse r	ead.	Drillin	g Ar	ea		

* When rock coring, enter rock ** Include monitor reading in 6		rehole. Increase reading frequency	r if elevated reponse read.	Drilling Area
Remarks:		Background (ppm):		
Converted to Well:	Yes	No	Well I.D. #:	

Converted to Well:

Yes

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PROJE	ECT NA	ME:		LOCKHEE	D MARTI		DRING LOG BORING N	0.:	53-483	.ge _		——	
DRILLI DRILLI	NG CC	MP.	ANY:	B.L. Beop	M46RS Robb		DRILLER:	ST:	10/29/07 CHARLIE WARIN	0			
and Type or F	Ft.) 6" or R0	or F QD (6)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval			RIAL DESCRIPTION Material Classification	U S C S *	Remarks	Sample		Borehole** 65	
0.5	1.5				4,9	HALÍ	1 Fill						
1.5-2.0	0'				Moist, SANA	DIE 181 V. F	FOUND GRAIN OD	Sc					
2041	,				cust.	мё	D. PLASTICITE, SANDE	cı					
1.0-5.	O						4130VE	CL					
5.0-6.	0				MOIST V. FINE	CAS -FI	Y SILTY SAND. NE GRANED	SM					
;.o-g	.0						WA SILTY SANK E GRANED.	Sm					
					SOME P	คมช์-	E GRAINED. MED. GRAVEL						
		1											
When roci	-) borehole	ncrease	e reading frequency if elevated reponse r	ead	Drilli	ng Ai	rea		

No ___

Well I.D. #:

TŁ	Tetra Tech NUS, Inc.
	<i>lockheed</i>

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PROJECT NAME: PROJECT NUMBER: 1121CE0598
DRILLING COMPANY: B.L. MYERS

ELECT WART IN MRC BORING No.: 53-484 DATE: 10/29/07
GEOLOGIST: CHARLIE WARNO

DRILLING RIG: COCPROBE

DRILLER: MATERIAL DESCRIPTION PID/FID Reading (ppm Sample Depth Sample Lithology U Blows / No. 6" or (Ft.) Change Recovery S (Depth/Ft.) Soil Density/ Borehole** Oriller BZ** Sampler BZ RQD and or - / Sample С Run Consistency Remarks Type or Sample (%) or Color s or **Material Classification** RQD No. Length Screened Rock Interval Hardness 0.0-1.5 ASPHALT /FILL 1.5- 2.0 MOIST BYE BROWN GRAY SILTY CLATET SAND. V. FINE GRAINES GRAY/ET BRUWN, MOIST SILTY CLAYER, GAND. V. FINE GRAINED, SC 20 40 GAME AS ABOVE 4.0-6.0 WET REDDISH BROWN SILTT 0.0 6.0 V. FWE - FINE GRAINED GAND ANE GRAVEL. Some

· ·		borehole. Increase reading frequence	cy if elevated reponse read.	Drilling Area
Remarks:				Background (ppm):
Converted to Well:	Yes	No	Well I.D. #:	

Tt.	Tetra Tech NUS, Inc.
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PROJECT	NAME:
PROJECT	NUMBER:
DRILLING	COMPANY

LOCKHEED MARTIN MRC 11212 0099 **8**B.L. MYERS

BORING No.: 58 - 455 DATE:

GEOLOGIST: CHARLIE WARNO

DRILLING RIG: 600 78036 DRILLER:

					N	MATE	RIAL DESCRIPTION		1	PID/FII) Rea	ding (ppm)
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	∪	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
00-	1.5					ASP)	AUT/FILL						
1.5%	7 0					ı	SROWN / GRAY, GLAYET,	Sm					
	10				SILTE	54	D. V. FINE GRAND	700	•				
20-	3.6				SAME	45	ABOVE	Sm					
a . C		-											_
3.0-	4,0				MOIST	600	47 SILTT SAND.	5M					
					Vi Pina	-	NE GRAINED.						
4.0'-	5.5"				SAME	AS	4B0VE	5m					
					_		1				<u> </u>	<u> </u>	-
5.5-	6.0						INT, MED PLASTICATE	a			_		
		\angle											
		$\langle \rangle$											
7	00				, ,					-		<u> </u>	-
Q.D-	5,0				SAME	AS	ABOVE	a		-	 		-
								ļ		 	<u> </u>		
										<u> </u>	_	_	_
				ŀ					***************************************	_	_	├	+
										L	1		

* When rock coring, enter rock ** Include monitor reading in 6 th Remarks:	Drilling Area Background (ppm):			
Converted to Well:	Yes	No	Well I.D. #:	

Tt.	Tetra Tech N	IUS, Inc.
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		RIG:		BIL. M GEOPRI	oBE	1 A T C T	DRILLER:		10/29/07 CHARLIE WAREN PAUL FECKES		0.0	din - ·	
umple No. and ype or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	RIAL DESCRIPTION Material Classification	U S C S *	Remarks	Sample	Sampler BZ		(pp
),U ²	1.5					AS	PHALT / FILL						
5-	2.0						BROWN/BRAY, SIRTY,	SL					1
							LAND. Y. FINE GRAINED	54					+
0-	4.0				MOIST SAND,	V. I	ABROWN SILTY FINE TO FINE GRAINED	SM					+
0-	4,5"				SAM	e no	ABOVE						T
													_
s -	6.0				MOIST C	ME ME	PLASTICITY.	Cı					_
<u></u>	3.0				1	1	ROWN GILTY CLAY,	EL					_
_					MOIST	. <u>M</u>	D. BLASTICITY	60					_
													-
**********													_
		٠.	er rock brong in 6 foo		@ borehole.	Increas	e reading frequency if elevated repons	se read.	Drill	ling /	Area	<u> </u>	-
em	arks:								. Backgroun	d (pp	om):		-

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Page ___ of ___

PRO	PROJECT NAME:		LOCKHEED MRL 112 16 00 99 8 B.L. MYERS			-	BORING N	98-487 10/29/87 CHARLE WARINO							
PRO	JECT	NUME	BER:	112 16 00 99 8 31 My 50 5			-	DATE:		10/24/07					
DRIL	LING	RIG:	MINT.	UBOPR	1946163 1205			-	DRILLER:) i :	TANI	~ 0			
	1	1110.	1	UBOY		4 A T.E	D. (A (- 			PAVL				
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color		DESCRIF		U S C S *	Remarks	Sample	Sampler BZ		
0.0-	1.	\$'			Ąs	PHA	T	/FILL							
												-			
1.5-	2.0				Mois	Ba	www	JURRAY &	SILTY, CLAYOY						
					5A~1	. v	Fis	JE 6141.	OUTY, CLAYOY OUTS.	SL					
					/H0151	6	est	/Baus	J SILTY						
2.0-	4.0				SAND	, i	FL	18 - FINE	GRANED	Sm		-			<u> </u>
													-		
4.0-	6.0				GAM	E A	4	ABOVÉ	_	5M		-			\vdash
	0														
6.0	D.D				SAMO	A	5	ABOVE		BM			-		
															Ţ
													-	<u> </u>	-
															_
									····			+		-	+
	ide mon		er rock brong in 6 foc) borehole.	Increas	e readi	ing frequency if	elevated reponse	read.	Dril Backgroun	ling A d (pp			
Conv	/erted	to We	II:	Yes		•	No		Well I.	D. #:					

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1 ago	8	Q1	

		NAME		LOCKH	6ED 1	NRL		BORING N	O.;	515-488				
				11211	0000	2	***************************************	DATE:		10/29/07 CHARLIE WAS				
DRIL	LING DML1	RIG:	PANY:		MPERS	<u> </u>			ST: _		420			
DIVIL	LING	i NG.	1	GEOPI				DRILLER:		PANL				_
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	RIAL DESCRIP Material Clas		U S C S *	Remarks	Sample		Borehole**	Driller BZ**
DID	-1.5	://				ALPH	ULT /FILL	•						
						171.	//			<u> </u>	+			
									\Box		-			一
1.50	2.0						BROWN/BRA		SM					
					MOIST	13	rown SIL	T4						
2.0	-4.0)//			SAND	, v	FINE - FINE	100412	SM					П
					SOM	7 (prsy layer	· 5.						
		<u>_</u>				ļ						_	<u> </u>	\sqcup
		<u> </u>										_		Ш
410	-6.0				GAM	4-	44 ABOV	E						
													1	
														П
	_											1		
0.0-	8.0				SAM	15	AS ABOVE		 			+	T	$\dagger \dagger$
									\vdash			T	†	+ 1
											+	\dagger	T	+
									+		┪	十	\dagger	
											\dashv	+	\dagger	+
									╂			╁	+	+
		-							+-		-	+	+	+-
		-							+-		\dashv	+	+	+
* When	rock co	oring ente	r rock bro	keness				····						
	de moni	itor readin	g in 6 foo			Increas	e reading frequency if	elevated reponse	read.	Dri Backgrou	lling and (p			
Conv	erted	to We	II:	Yes			No	Well I.	D. #:					



Tetra Tech NUS, Inc. SOIL & SEDIMENT SAMPLE LOG SHEET

				····	Page / of /
Project Site Name: Project No.:		lmc m	R	Sample ID No.: Sample Location: Sampled By:	SB-462 Block H
[] Surface S Subsurface Sediment [] Other: [] QA Sampl	e Soil			C.O.C. No.: Type of Sample: [] Low Concentration [] High Concentration	
GRAB SAMPLE DA	+3. 101 3.50 5.50				
Date:	<u>IOI.</u>	Depth Interval	Color	Description (Sand. S	ilt, Clay, Moisture, etc.)
Time:					ne, oraș, moraca, a, alan
Method:					
Monitor Reading (ppi	m):				
COMPOSITE SAMP				1	
Date:	Time	Depth Interval	Color	Description (Sand, S	ilt, Clay, Moisture, etc.)
10/23	OBOY	0102	Ber log	15	
Method:	0806	0203			
	0808	0304			
Monitor Readings	0810	0506		`	
(Range in ppm):	08/5	0708	<u> </u>		
0					
SAMPLE COLLECT	ON INFORMAT	ION:			
	Analysis		Container Requ	irements Col	lected Other
Hatb	Puro (a) PUVEN	2 × 402	Tais Pers	confla
113	- ,	// /	* *		

				19949-1000-1000-1000-1000-1000-1000-1000	
OBSERVATIONS / N				MAP:	
SHO	107 - 51	-462-0102			
	100 00	766-0106			
		~0203			
		-0304			
		-0506			
		-0708			
Circle if Applicable:					
				Signature(s):	
	Duplicate ID) No.:		Signature(s):	
MS/MSD	Duplicate ID) No.:		Signature(s):	



					Page of		
Project Site Name: Project No.: [] Surface Soil Subsurface Soil		Luc n	N	Sample ID No.: Sample Location Sampled By: C.O.C. No.:	SB-463 Block 14 Jesk		
Sediment [] Other: [] QA Sampl	e Type:			Type of Sample: [] Low Concent [] High Concen	tration tration		
GRAB SAMPLE DA	TA:						
Date: Time: Method: Monitor Reading (ppr		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)			
COMPOSITE SAMPI							
Date:	Time	Depth Interval	Color	Description (Sand,	Silt, Clay, Moisture, etc.)		
10/03	0953	000	<u> </u>	<u> </u>			
Method:	0955 0957	0205					
Monitor Readings	0959	0304		<u> </u>			
(Range in ppm):	0901	0300					
(range in ppin).	10100	0700					
Ó							
SAMPLE COLLECTI	ON INFORMAT	TION:					
	Analysis		Container Requ		ollected Other		
Hay t De	nio(a)	Nypere	2 + 4 c	or glas Jars	for sample		
					/ /		
<u></u>							
					*		
OBSERVATIONS / N	ATE & STEEL			MAP:			
OBSERVATIONS / N	O1E9.			WAF			
		•					
Circle if Applicable:				Signature(s):			
MS/MSD	Duplicate II	NO.:					



Tetra Tech NUS, Inc. SOIL & SEDIMENT SAMPLE LOG SHEET

					Page of
Project Site Na Project No.:	ıme:	LMC)	4P	_ Sample ID No. Sample Locati	
[] Surface S		***************************************		Sampled By: C.O.C. No.:	12AM
Subsurfact [] Sediment [] Other:				Type of Sampl	entration
[] QA Samp	le Type:			[] High Conc	entration
GRAB SAMPLE DA	TA:				
Date:	1	Depth Interval	Color	Description (Sar	nd, Silt, Clay, Moisture, etc.)
Method:	J				SECTION AND ADDRESS OF THE PARTY OF THE PART
Monitor Reading (pp					
COMPOSITE SAMP	LE DATA:				
Date: /0/23	Time	Depth Interval	Color	Description (Sar	id, Silt, Clay, Moisture, etc.)
 	0944	0102	See	-08	
Method:	0948	0204			
Monitor Readings	0950	0307			
(Range in ppm):	0952	0708			
				/	
			4		
SAMPLE COLLECT		ION:			
Ho + Ru	Analysis	ytene	Container Requi		Collected Other
3	-0007	grove	W/ 102 (sass Jones	per sample
OBSERVATIONS / N	IOTES:			MAP:	
Circle if Applicable:				Signature(s):	
MS/MSD	Duplicate ID	No.:			
	1		1		



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Project Site Nai Project No.:	me:	enc 1	1R	Sample ID No.: Sample Location:	SB-465 Block H
[] Surface So Subsurface [] Sediment [] Other: [] QA Sample	e Soil e Type:			Sampled By: C.O.C. No.: Type of Sample: [] Low Concent [] High Concent	ration
GRAB SAMPLE DAT	ΓA:				
Date: Time: Method:)/,	Depth Interval	Color	Description (Sand,	Silt, Clay, Moisture, etc.)
Monitor Reading (ppr					
Date:	Time	Depth Interval	Color	T Description (Sand	Silt, Clay, Moisture, etc.)
10/22	10 40	OI OZ	300	1 .	Silt, Clay, Wolsture, etc.,
Method:	1042	07.03	700	1/5	
Wicaroa.	1044	0203	+ 1		*************************************
Monitor Readings	10 46	05 06	T	· · · · · · · · · · · · · · · · · · ·	***************************************
(Range in ppm):	10 42	0768			
Ø					
SAMPLE COLLECTI		ON:	Cartainas Bana		
He+Benz	Analysis O (O) Pym	une	Container Requi	Sample	ollected Other
			-		
			+		
			-		
OBSERVATIONS / N	OTES:			MAP:	
Circle if Applicable:				Signature(s):	
MS/MSD Q X OSTOG	Duplicate ID	No.:			



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Project Site Nar	me:	LMCA	INE	Sample ID N	No :	SB 466	
Project No.:				Sample Loc		Block H	//
		***************************************		Sampled By	/ :	NAM	<u>t </u>
[] Surface So				C.O.C. No.:			L
Subsurface	e Soil				_	***************************************	
[] Sediment				Type of San			
[] Other:				_ [] Low Cor			
[] QA Sample	e Type:	***************************************		[] High Co	ncentrat	ion	
GRAB SAMPLE DAT	ra:						
Date:	<u> </u>	Depth Interval	Color	Description (Sand, Silt	, Clay, Moistur	re. etc.)
Time: 1	$\sqrt{\Lambda}$				7	<u></u>	
Method:	JA			and the second s	/		
Monitor Reading (ppn							
COMPOSITE SAMPL	LE DATA:						
Date:	Time	Depth Interval	Color	Description (Sand, Silt	, Clay, Moistur	re, etc.)
10/23	1120	0102	See				<u></u>
Method:	1/22	0202		, 3			***************************************
	1184	13 OY	+ 4		2		
Monitor Readings	1126	ME OV			***************************************		
(Range in ppm):	1125	00 Ug					
(Range in ppin).	1100	U+ UB		<u> </u>			**************************************
(7)	ļ	-					
7							
/		I					
SAMPLE COLLECTI	ON INFORMAT	ION:					
	Analysis		Container Requi	irements	Collec	cted	Other
HQ + Benzo	(a) pyre	ine	2×402 dassiar	per sample			
	- ''		J 0				
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COCCOVATIONS IN	A+HA:				erennenninger	<u> </u>	
OBSERVATIONS / NI	DIES!			MAP:			
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Circle if Applicable:				Signature(s):			
Circle if Applicable: MS/MSD	Duplicate ID	No.:		Signature(s):			



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Project Site Nan Project No.: [] Surface So		LMC N	hR	Sample ID No.: Sample Location Sampled By: C.O.C. No.:	SB-467 Block 14
Subsurface Sediment Other:				Type of Sample:	ration
[] QA Sample				[] High Concen	
GRAB SAMPLE DAT	A:				
Date: Time: Method: Monitor Reading (ppm		Depth Interval	Color	Description (Sand,	Silt, Clay, Moisture, etc.)
COMPOSITE SAMPL	E DATA:				
Date:	Time	Depth Interval	Color	Description (Sand,	Silt, Clay, Moisture, etc.)
10/23	119/	01-02	S 60	1095	
Method: *	7743	01-03	1		
•	1/1/2	04-05-030	Y		
Monitor Readings	1/47	05-06		` `	
(Range in ppm):	1149	07-08			
(2					
SAMPLE COLLECTION		ION:			
11 10	Analysis		Container Requ		ollected Other
179 78	LFO.		-27 40	2 86.33	Sculle
OBSERVATIONS / NO	TES:			MAP:	
			į		
Circle if Applicable:				Signature(s):	
MS/MSD	Duplicate ID	No.:			



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Project Site Na Project No.:	ıme:	LME M	R	Sample ID No		468 H
[] Surface S				Sampled By: C.O.C. No.:	/UA	М
[] Sediment [] Other:				Type of Sampl	entration	
[] QA Samp	le Type:			[] High Conc	entration	
GRAB SAMPLE DA	TA:					
Date: Time:	1	Depth Interval	Color	Description (Sar	nd, Silt, Clay, Mo	oisture, etc.)
Method:						
Monitor Reading (pp	m):			'		
COMPOSITE SAMP	LE DATA:					
Date:	Time	Depth Interval	Color	Description (Sar	nd, Silt, Clay, Mo	oisture, etc.)
10/23	13:20	01 02	see	609		
Method:	15:22	02 03				
	13:24	03 04				
Monitor Readings	13:26	0506	-	`.		
(Range in ppm):	15:28	07 08				
Ø						
SAMPLE COLLECT	ION INFORMAT	ION:				
	Analysis		Container Requi	rements	Collected	Other
Hg+ Benza	<u>aspyrene</u>		2×402 gloss jos	per sample		
	- v					
OBSERVATIONS / N	IOTES:			MAP:		
Circle if Applicable:	STORAGE TO THE TOTAL OF THE			O' ()		
	debete vi version e el terre co	ordinary open, province and recent an	2, 11 (1, 4) × 10 (1, 5) − 4 − 4 − 4 (1, 4, 2, 5) (10 − − 2 − 4 (4 − 4 0 − 4	Signatureier		
MS/MSD	Duplicate ID) No.:		Signature(s):		



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Project Site Na Project No.:		LMCMI	1	Sample ID Sample Lo Sampled I	O No.: B-() ocation: Bock By: Control	'69 E 14
[] Surface S 3] Subsurfac	ce Soil			C.O.C. No	D.:	
`[] Sediment [] Other: [] QA Samp					ample: Concentration Concentration	
GRAB SAMPLE DA	TA					
Date: Time:	71	Depth Interval	Color	Description	n (Sand, Silt, Clay, Moi	sture, etc.)
Method:	// <u>!</u>			_		
Monitor Reading (pp		1				
COMPOSITE SAMP						
Date: //>/	Time	Depth Interval	Color	Description	n (Sand, Silt, Clay, Moi	sture, etc.)
10/23	1343	0101	See logs	<u> </u>		
Method:	1345	10203				
	121/2	<u>030y</u>				
Monitor Readings	73 49	0506		`		
(Range in ppm):	1351	0,108	\rightarrow			
0		 	1			
		 				
SAMPLE COLLECT	ON INFORMAT	FION:				
	Analysis	Ton-	Container Require	≏ments	Collected	Other
Hat ba	10(4)/	Pupere	2x 402	glass	20-	—
117 -				-J*-		
						
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ADEEDVATIONS / N	Aveas		· · · · · · · · · · · · · · · · · · ·	-c-mannagangan		
OBSERVATIONS / N	OTES:			IAP:		
OBSERVATIONS / N	OTES:			AP:		
OBSERVATIONS / N	OTES:			IAP:		
OBSERVATIONS / N	OTES:			IAP:		
OBSERVATIONS / N	IOTES:		<u>N</u>	IAP:		
OBSERVATIONS / N	OTES:			IAP:		
	IOTES:					
OBSERVATIONS / N	IOTES:			MAP: Signature(s):		



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Drainat Cita Non		LMC MR	>	0	C > 1.==
Project Site Nan	ne.	-5000 7001		Sample ID No.:	SB 470
Project No.:				Sample Location:	Block H
[] Surface So	.;;			Sampled By:	NAM
Subsurface 30 > ★ Subsurface				C.O.C. No.:	***************************************
[] Sediment	3011			Type of Complex	
[] Other:				Type of Sample: [] Low Concentration	ation
[] QA Sample	Tune:			[] Low Concentr	
[] Wrodinpic	iypc.		***************************************	[] Fright Concenti	allon
GRAB SAMPLE DAT	A:				
Date:		Depth Interval	Color	Description (Sand. S	ilt, Clay, Moisture, etc.)
Time:	. ^				,,,,
Method:) /\				
Monitor Reading (ppm	1):				
COMPOSITE SAMPL					
Date:	Time	Depth Interval	Color	Description (Court C	illa Clau Matatura ata
10/23				, Description (Sand, S	ilt, Clay, Moisture, etc.)
10/25	14:35	01 02	See	for	
Method:	14:37	02 03		<u> </u>	
	14:39	03 04	N.		
Monitor Readings	14:41	05 06		` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `	
(Range in ppm):	14:43	07 08			
(reange in point).	17.73	07 08			
I 1/2			ļ		
SAMPLE COLLECTION	ON INFORMAT	ION:			
	Analysis		Container Rec	uirements Col	lected Other
Ha + Benzo	aspyren	e	2×407 Class	gat persample	
2	217		3	3-1-11	
				······································	
	······································				

OBSERVATIONS / NO	OTES:			MAP:	

Circle if Applicable:				Signature(s):	
MS/MSD	Duplicate ID	No.:			
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Project Site Nar Project No.:	-	LMC MK	2	Sample ID No.: Sample Location: Sampled By:	SB 471 Block H NAM
[] Surface So Subsurface [] Sediment [] Other: [] QA Sample	e Soil			C.O.C. No.: Type of Sample: [] Low Concentra [] High Concentr	
GRAB SAMPLE DAT	A:				
Date:		Depth Interval	Color	Description (Sand, S	ilt, Clay, Moisture, etc.)
Time: Method:	4				>
Monitor Reading (ppm COMPOSITE SAMPL					
Date:	Time	Depth Interval	Color	Description (Sand. S	ilt, Clay, Moisture, etc.)
10/23	15:10	01 07	See	Log	ing only, motorato, coo,
Method:	15:12	02 03	1		
	5:14	03 04	A		
Monitor Readings	15:16	05 06		` `	
(Range in ppm):	15:18	<u>07 08</u>			
To p					
SAMPLE COLLECTION	ON INFORMATI Analysis	ON≋	Container Requi	rements Col	lected Other
He+Benzo	(a) Pyre	ne	2×40= 8025	gar per sonny	phe
OBSERVATIONS / NO	OTES:			MAP:	
				,	
Circle if Applicable:				Signature(s):	
MS/MSD	Duplicate ID	No.:		- •,	



					Page of
Project Site Na Project No.:	me:	LMCA	1R	_ Sample ID No.: Sample Location:	SB 472 Block H
[] Surface So Subsurface	oil e Soil			Sampled By: C.O.C. No.:	7020
[] Sediment [] Other: [] QA Sampl	е Туре:			Type of Sample: [] Low Concentr [] High Concentr	
GRAB SAMPLE DA	TA:				
Date:	<u> </u>	Depth Interval	Color	Description (Sand, S	ilt, Clay, Moisture, etc.)
Time: Method:	4			>	
Monitor Reading (ppr					
COMPOSITE SAMP	1				
Date: 16/2Z	Time	Depth Interval	Color		ilt, Clay, Moisture, etc.)
1703	16:20	0/02	See	Log	
Method:	16:22	02 03	-		
	16:24	03 09	+ 4	4	
Monitor Readings	16326	05 06	<u> </u>	` `	
(Range in ppm):	16:28	67 <i>0</i> 8			
$ \phi \rangle$					
1			_		
SAMPLE COLLECTI	ON INCODERAT	ione			
OANI LE GOLLEGIA	Analysis	ION	Container Requ	irements Col	lected Other
	Y. 8.		- Container ricequ		lected Other
Ha Benzola	> Pyrene		2×402 class	at persample	
-7			3		
			<u> </u>		
	······································				
OBSERVATIONS / N	OTE &				
OBSERVATIONS / N	O1E9:			MAP	
Circle if Applicable:				Signature(s):	
MS/MSD	Duplicate ID	No.:			

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Project Site Nar	ma:	LMC 1	1R	Comple ID No :	1-1-1-1-7
Project No.:	ile.	w/- w /-		Sample ID No.:	SB473
FTOJECTIO				Sampled By:	Klack H
[] Surface Sc	sil			Sampled By: C.O.C. No.:	
∬ Suhace Sc				C.O.C. NO	
[] Sediment	; 3011			Type of Comple	
Other:				Type of Sample:	
[] QA Sample	- Tuno			[] Low Concentra	
[] WA Sample	3 Type.			[] High Concentra	ation
GRAB SAMPLE DAT	A:				
Date:	1	Depth Interval	Color	Description (Sand, S	ilt, Clay, Moisture, etc.)
Time: A)A					ill, Olay, motocare, etc.,
Method:					<u>.</u>
Monitor Reading (ppm	n):			Section Section 1	
COMPOSITE SAMPL					
Date: 2	Time	Depth Interval	Color	Description (Sand S	ilt, Clay, Moisture, etc.)
10/24	9230				it, clay, Moisture, etc.,
10/21		0102	See	has	
Method:	932	02 03	<u> </u>		
<u> </u>	934	03 04			
Monitor Readings	936	05-06	V	``	
(Range in ppm):	938	07 09			
(Nange in ppin).	750	0708		 	
φ	ļ				
<i>(</i>					
SAMPLE COLLECTION	ON INFORMAT	ION:			
<u> CEP-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1</u>	Analysis	- A Company of the Co	Container Requi	irements Col	lected Other
	1311-1			-ements	ected 5
HQ+Benzo(-Camera	-	2x 40z glass	- 1 Carrale	
The David	a) pyrene	,	XX 105 Gress	gar per sample	
			ļ		
	-				
OBSERVATIONS / NO	OTES:			MAP:	
170010121211	<u> </u>	<u>elektrosonatsonos</u>	<u> 2010/10/00/00/00/00/00/00/00/00/00/00/00/</u>	1 92-25 -25-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	
			j	1	
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Accorded Amelica Mai				<u> </u>	
Circle if Applicable:	- W. A. ID			Signature(s):	
Circle if Applicable: MS/MSD 2 X 05000	Duplicate ID	No.:		Signature(s):	



1					Pageof
Project Site Nan Project No.:	ne:	Line We		Sample ID No.: Sample Location:	SR 474
[] Surface So				Sampled By: C.O.C. No.:	NAM
[] Sediment [] Other: [] QA Sample	е Туре:			Type of Sample: [] Low Concentre [] High Concentre	
GRAB SAMPLE DAT	A				
Date:		Depth Interval	Color	Description (Sand. S	ilt, Clay, Moisture, etc.)
Time: Method:	A =			>	,,
Monitor Reading (ppm					
COMPOSITE SAMPL	E DATA:		<u>, </u>		
Date: (0/24	Time 1030	Depth Interval	Color	Description (Sand, S	ilt, Clay, Moisture, etc.)
Method:	1032	02 03		7	
	1034	03 04	N	,	
Monitor Readings	1036	05 Oc		`	
(Range in ppm):	10 352	67 08			
9					
SAMPLE COLLECTION	N INFORMAT	ION:			
SAMPLE COLLECTION	N INFORMAT Analysis	ion:	Container Requir	ements Col	lected Other
Hat Benzo	Analysis		Container Requir		lected Other
	Analysis				lected Other
	Analysis				lected Other
	Analysis				lected Other
	Analysis				lected Other
Hg + Benzo	Analysis		2×402 glass jas	Pet sample	lected Other
Hg + Benzo	Analysis		2×402 glass jas		lected Other
Hg + Benzo	Analysis		2×402 glass jas	Pet sample	lected Other
	Analysis		2×402 glass jas	Pet sample	lected Other
Hg + Benzo	Analysis		2×402 glass jas	Pet sample	lected Other
Hg + Benzo	Analysis		2×402 glass jas	Pet sample	lected Other



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Project Site Na Project No.:	ıme:	LMC 1	NR	_ Sample ID No Sample Locat	ion: SK	175 2 H
[] Surface S	oil e Soil			Sampled By: C.O.C. No.:	NAI	<u> </u>
`[] Sediment [] Other: [] QA Sampl			**************************************	Type of Samp [] Low Conc [] High Conc	entration	
GRAB SAMPLE DA	TA:					
Date:		Depth Interval	Color	Description (Sai	nd, Silt, Clay, Mo	isture, etc.)
Time: //	4					
Monitor Reading (ppi	m):					
COMPOSITE SAMP						
Date:	Time	Depth Interval	Color	Description (Sar	nd, Silt, Clay, Mo	isture etc \
10/28	0755	0/02	See	1 · 1	ina, one, oray, mo	isture, etc.)
Method:	0757	02 03	1	7		
	0759	03 04				
Monitor Readings	0801	0500	V	` `	······································	
(Range in ppm):	0803	0708				
Ø						
SAMPLE COLLECTI	ON INFORMATION	ON:				
	Analysis		Container Requi	rements	Collected	Other
11						
HG 4 RENTO	(a) pyreu	<u> </u>	2 × 4 0 = glass	yes persony	le_	
						-
OBSERVATIONS / N	OTES:			MAP:		
	٠					
Circle if Applicable:	Dunitt- 12 :			Signature(s):		
MS/MSD	Duplicate ID N	NO.;				



					<u>Paç</u>	ge of
Project Site Na Project No.:	ıme:	Luc ur		Sample ID No.:		76
[] Surface S	oil			Sampled By:	NI	1
Subsurface				C.O.C. No.:		***************************************
[] Sediment	.e 00ii			Type of Sample	۵.	
[] Other:				[] Low Conce		
[] QA Samp	le Type:			[] High Conce		
	-					
GRAB SAMPLE DA	<u>TA:</u>					
Date:	1	Depth Interval	Color	Description (San	d, Silt, Clay, Mo	isture, etc.)
Method:	/}					
Monitor Reading (pp	m):			7		
COMPOSITE SAMP						
Date:	Time	Depth Interval	Color	Description (San	d Silt Clay Mo	icture etc.)
10/25	0830	0102	See		J, Siit, Glay, Mo	isture, etc.;
Method:			300	100		
Metriou.	0832	6203	+			
	0834	0304	<u> </u>			-
Monitor Readings	0836	0506		`		
(Range in ppm):	6838	0708				
Ø						
"t						
SAMPLE COLLECT	ION INFORMATI	ON:				
	Analysis		Container Requi	rements	Collected	Other
	· · · · · · · · · · · · · · · · · · ·					
Hat Banz	saspyres	re	2×402 dass is	+ personne		
	* f		<u> </u>	, ,		

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OBSERVATIONS / N	IOTES:			MAP:		
		,				
		*				
				Rent .		
Circle if Applicable:				Signature(s):		
MS/MSD	Duplicate ID	No.:		3		
		-				
			1			



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Project Site Nar Project No.: [] Surface So Subsurface [] Sediment [] Other:	oil	Luc 4	R	Sample ID No.: Sample Location: Sampled By: C.O.C. No.: Type of Sample:	<u>ナ</u> 生
[] Other: [] QA Sample	e Type:			[] Low Concentration [] High Concentration	
GRAB SAMPLE DAT					
Date:	<u> </u>	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture	· etc.)
Time:			1		, 610.,
Method:					
Monitor Reading (ppn COMPOSITE SAMPL					
Date: # (3)	Time	Depth Interval	Color	Description (Sand Silt Clay Moisture	
10/12 5	0937	O107	7 - 1	Description (Sand, Silt, Clay, Moisture	, etc.)
Method:	0934	0103	1	143	······································
Wictios.	0936	1220V			
Monitor Readings	0938	0506	and the state of t	`	
(Range in ppm):	0940	01-08	1		
0					
	L	L	I		-
SAMPLE COLLECTION		ION:			
	Analysis		Container Requi		Other
		rion:	49 1 L	irements Collected gluss Das per samp	Other
	Analysis				Other
	Analysis				Other 14
	Analysis				Other U _K
	Analysis				Other 7 ₁
	Analysis				Other
	Analysis				Other
	Analysis				Other 7
	Analysis				Other
	Analysis		2 x 402 .		Other 7x
Hg + be	Analysis		2 x 402 .	gluss Jas per samp	Other
Hg + ber	Analysis		2 x 402 .	gluss Jas per samp	Other 7
Hg + ber	Analysis		2 x 402 .	gluss Jas per samp	Other
Hg + ber	Analysis		2 x 402 .	gluss Jas per samp	Other 7/2
Hg + ber	Analysis		2 x 402 .	gluss Jas per samp	Other 7/2
Hg + ber	Analysis		2 x 402 .	gluss Jas per samp	Other
Hg + be	Analysis		2 x 40 x	gluss Javs per samp	Other 7x
Hg + ber	Analysis	YRR	2 x 40 x	gluss Jas per samp	Other 7/2



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Project Site Na Project No.:	ıme:	LMC MI	2	_ Sample ID No.		78
r rojectivo		***************************************		Sample Locati Sampled By:	on: Block NA/	<u>H</u>
[] Surface S	oil			C.O.C. No.:	NAI	ч
Subsurfac				0.0.0.110		
[] Sediment				Type of Sampl	e:	
[] Other:				_ [] Low Conce	entration	
[] QA Samp	le Type:			[] High Conc	entration	
GRAB SAMPLE DA	ТА					
Date:		Depth Interval	Color	Description (San	d Silt Clay Ma	
Time:	A	- Soptimite var	00101	Description (San	iu, Siit, Clay, Mi	isture, etc.)
Method:	/-					
Monitor Reading (ppi		1				
COMPOSITE SAMP	LE DATA:					
Date:	Time	Depth Interval	Color	Description (San	d. Silt. Clay. Mc	isture etc.)
10/25	10:45	0102	See	1095		
Method:	10:47	0203	1 363	193		
	10:49	0304		*		
Monitor Readings		1				
•	10:51	0506	+	<u> </u>		
(Range in ppps):	10:63	010%	*			
Ø						
6						
SAMPLE COLLECTI	ON INFORMAT	ION:				
	Analysis		Container Requi	irements	Collected	Other
1/ \ 2			1			
Ha & Benzo	(a) pyrev	ve	2×402 glass	jer per samp	•	
			7			
			 			
· · · · · · · · · · · · · · · · · · ·						
OBSERVATIONS / N	OTES:			MAP:		
			j			
Circle if Applicable:				Signature(s):	·	
MS/MSD	Duplicate ID	No.:		- ·		
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Project Site Na	ıma.	LMC W	7.	Comple ID No.	17		
Project No.:	iiiie.	-7-00 700		Sample ID No.: Sample Location	58 4	177	
7 10,000 110				Sampled By:	Block	\mathcal{H}_{-}	
[] Surface S	oil			C.O.C. No.:	_NAV	<u>и</u>	
Subsurfac				0.0.0.110			
[] Sediment				Type of Sample:			
[] Other:				[] Low Concen			
[] QA Samp	le Type:			[] High Concer			
XXXVXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			***************				
GRAB SAMPLE DA Date:	IA						
Time:		Depth Interval	Color	Description (Sand,	Silt, Clay, M	oisture,	etc.)
Method:	//	-					
Monitor Reading (pp	m).						
COMPOSITE SAMP							
Date:		Danah Intarnat					
18/1-	1/2Z	Depth Interval	Color	Description (Sand,	Silt, Clay, Me	oisture,	etc.)
10/25		01 02	See	log			
Method:	11 24	0202	1				
	1126	0304		Y			
Monitor Readings	1128	05 Clo		` `			
(Range in ppm):	1/30	0708					
A					***************************************		
E							
							·····
SAMPLE COLLECTI	ON INCORMAT	1000				100000000000000000000000000000000000000	2-2-242-2-1-2-2-2-
OAMI LE GOLLLOII	Analysis	IUA	Container Beau		<u> </u>		
	Allalysis		Container Requ	irements C	ollected		Other
He+Benzola	500000		2-11				
13 bancara	Syrene		2×40z glass jar	persample			***************************************

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						+-	
×							
\$ 100 miles					***************************************		** ** ***
OBSERVATIONS / N	OTES:			MAP:			
Circle if Applicable:				Signature(s):			
MS/MSD	Duplicate ID	**************************************		Signature(s):			
WG/WGD	Duplicate ID	NO.:					
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Tetra Tech NUS, Inc. SOIL & SEDIMENT SAMPLE LOG SHEET

	·····				Page_	of
Project Site Na	me:	LMC ME	7	Sample ID No.:	CR LICH	<u> </u>
Project No.:		<u></u>		Sample Location	SB 480	<u></u>
	-			Sampled By:	1 Block Y	<u> </u>
[] Surface S				C.O.C. No.:	ZVAM	
★ Subsurface	e Soil					
[] Sediment				Type of Sample:		
[] Other:	la Tuna.			[] Low Concent	tration	
[] QA Sampl	e rype:			[] High Concen	ıtration	
GRAB SAMPLE DA	TA:					
Date:		Depth Interval	Color	Description (Sand,	Silt, Clay, Moistu	re. etc.)
Time:	174					
Method:	$\frac{\nabla}{1}$					
Monitor Reading (ppr						
COMPOSITE SAMP	LE DATA:					
Date:	Time	Depth Interval	Color	Description (Sand,	Silt, Clay, Moistur	re, etc.)
10/25	1350	0162	Sae	100		
Method:	1352	6253		S .		
	1354	63 04		,		
Monitor Readings	B56	0500	-	4 .		
(Range in ppm):	13 58	67 <i>6</i> 8				
B						
1 4						
′	-			 		
SAMPLE COLLECTI	ON INFORMATI	AND REPORT OF THE PROPERTY OF				
	Analysis	<u></u>	Container Requ	iromonte C	ollected	Othor
	j		- Sometime Requi	irements o.	ollected	Other
Ha & Benzo	= (a) pyre	LAC	2×402 classi	ar nor counte		
"5				at persomple		
		M-7	_			
						•
			 			
OBSERVATIONS / N	ATE &			 		
OBSERVATIONS	0160			MAP:		
Circle if Applicable:				Signature(s):		
MS/MSD	Duplicate ID I	No.:				



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Project Site Na Project No.: [] Surface S	Soil	Mc M	?	Sample ID No.: Sample Location: Sampled By: C.O.C. No.:	SB 481 Block M
Subsurfact Sediment [] Other: [] QA Samp				Type of Sample: [] Low Concentra [] High Concentra	
GRAB SAMPLE DA	TA:				
Date:		Depth Interval	Color	Description (Sand, Si	ilt, Clay, Moisture, etc.)
Time: Method: Monitor Reading (pp	om):				
COMPOSITE SAMP	PLE DATA:				
Date:	Time	Depth Interval	Color	Description (Sand, Si	it, Clay, Moisture, etc.)
10/29	0840	OI OL	See	Les	
Method:	0842	0203		3	
	0844	03 04			·
Monitor Readings	0846	05 06	V	`.	
(Range in ppm):	૭૪ પંજ	<i>67 08</i>			
(
SAMPLE COLLECT		ON:	T - 2		
	Analysis		Container Requi	rements Coll	ected Other
Hg a Zone	0 6> byre	ne	2 x 462 day 3	it pet sample	
OBSERVATIONS / N	IOTES:			MAP:	
Circle if Applicable:				Signature(s):	
MS/MSD	Duplicate ID	No.:			
0506					1



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Project Site Na	ame:	anc ur		_ Sample ID No.:	5B 482
Project No.:				Sample Location:	Block H
		***************************************		Sampled By:	ADAM
[] Surface S				C.O.C. No.:	104V
Subsurfac	ce Soil				
[] Sediment				Type of Sample:	
[] QA Samp	le Tyne	***************************************		[] Low Concent	
[] W/ Camp	те туре.			[] High Concent	ration
GRAB SAMPLE DA	TA:				
Date:		Depth Interval	Color	Description (Sand,	Silt, Clay, Moisture, etc.)
Time: VA		_			
Metriou.					
Monitor Reading (pp COMPOSITE SAMP		ESSESSESSESSESSESSESSES			
Date: 10/79	Time	Depth Interval	Color	Description (Sand, S	Silt, Clay, Moisture, etc.)
10/27	9:30	0102	See	Los	
Method:	9:32	0203			
	9:34	03 04			
Monitor Readings	9136	0506	V	`	
(Range in ppm):	9:38	0708			
8					
l 4					
SAMPLE COLLECT	ION INFORMA	TION:			
	Analysis		Container Requi	rements Co	llected Other
Met Rouzda	Dorrene		2×402 glass to	ur per sample	
		***************************************	7 2		
			ļ		
M		· · · · · · · · · · · · · · · · · · ·			
OBSERVATIONS / N	OTES:			MAP:	
Circle if Applicable:				Signature(s):	
MS/MSD	Duplicate II	O No.:			



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Project Site Na Project No.:	ame:	LMC MR		Sample ID No.: Sample Location: Sampled By:	SB 483 Block H
[] Surface S Subsurface [] Sediment [] Other:	ce Soil			C.O.C. No.: Type of Sample: [] Low Concentra	
[] QA Samp	ie Type:	***************************************		[] High Concentr	ation
GRAB SAMPLE DA	TA:				
Date:		Depth Interval	Color	Description (Sand, S	ilt, Clay, Moisture, etc.)
Time: Method:	')A				
Monitor Reading (pp	m):				
COMPOSITE SAMP	LE DATA:				
Date:	Time	Depth Interval	Color	Description (Sand, Si	it, Clay, Moisture, etc.)
10/29	1010	0102	See	log	
Method:	1012	0263			
	1014	63 04			
Monitor Readings	1016	0500	•	` `	
(Range in ppm):	1018	67.08			
Ø					
SAMPLE COLLECT	ION INFORMA	TION:			
	Analysis		Container Requir	rements Coll	ected Other
He + Benzo	10 50,000	Me.	2×407 9/085 jax		
15 Service	Car Ahin	we	24-105 gras gr	bez combis	
······································					
OBSERVATIONS / N	ATE &		 		
ODOLONO A NONO / A	91.E9			IAP:	
			İ		
Circle if Applicable:				Signature(s):	
MS/MSD	Duplicate ID	No.:			



Monitor Readings (Range in ppm): 10:58 07 02 SAMPLE COLLECTION INFORMATION: Analysis Container Requirements Collected Other 1 × 4 0 = 3 lsss far per sample DESERVATIONS / NOTES: MAP:	<u> </u>					Page_	of
Surface Soil Sediment Type of Sample: Low Concentration High C		ame:	Mc MR		Sample Location:	SB 484	
Other: Low Concentration High Concentration	Subsurfac	ce Soil			C.O.C. No.:	NAU	
Date: Depth Interval Color Description (Sand, Silt, Clay, Moisture, etc.) Time: Monitor Reading (ppm): COMPOSITE SAMPLE DATA: Date: ID/29	[] Other:				[] Low Concentr		
Time: Method: Date:	GRAB SAMPLE DA	TA:					
Ime			Depth Interval	Color	Description (Sand, S	Silt, Clay, Moisti	ıre. etc.)
Date: ID/29 Time Depth Interval Color Description (Sand, Silt, Clay, Moisture, etc.)		A			-		
Date: ID/29 Time Depth Interval Color Description (Sand, Silt, Clay, Moisture, etc.) Description (Sand, Silt, Clay, Moisture,	Monitor Reading (pp						
Method: 10157 0203 Method: 10157 0203 Monitor Readings (Range in ppm): 10158 07 02 SAMPLE COLLECTION INFORMATION: Analysis Container Requirements Collected Other Let Bearo (Spyrene 2 × 402 gass gar per sample) OBSERVATIONS / NOTES: MAP:							
Method: D157					,	Silt, Clay, Moistu	ire, etc.)
Monitor Readings (Range in ppm): 10:59				- see	Loq		
Monitor Readings (Range in ppm): 10:59 07 02 SAMPLE COLLECTION INFORMATION: Analysis Container Requirements Collected Other Hg + Benco () pyrene 2 x 4 0 z gless for pet sample OBSERVATIONS / NOTES: MAP: Circle if Applicable: Signature(s):	Method:						
SAMPLE COLLECTION INFORMATION: Analysis Container Requirements Collected Other Lx 40 = gless for per sample OBSERVATIONS / NOTES: MAP: Signature(s):	Maritan Doodings			-		······································	
SAMPLE COLLECTION INFORMATION: Analysis Container Requirements Collected Other Let Benco(e) pyrene 2 × 4 oz eless ex per cample OBSERVATIONS / NOTES: MAP: Circle if Applicable: Signature(s):					*		***************************************
Hg + Benzo & pyrene 2 × 4 0 z sjess jar pet sample OBSERVATIONS / NOTES: MAP: Circle if Applicable: Signature(s):	SAMPLE COLLECTI		TION:	Container Requi	irements Col	llected	Other
OBSERVATIONS / NOTES: MAP: Circle if Applicable: Signature(s):	He & Benco/	el ourer	A B	1) x U == close in			
Circle if Applicable: Signature(s):	72			2. 10.53.2	of per sample		
Circle if Applicable: Signature(s):							
Circle if Applicable: Signature(s):							
Circle if Applicable: Signature(s):	1						
	OBSERVATIONS / N	OTES:			MAP:		
	Circle if Applicable:				Cianatura/e).		
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Tetra Tech NUS, Inc. SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Na Project No.:	Project Site Name: Project No.:			Sample ID No.: Sample Location: Sampled By:	SB 485 Block H	
[] Surface S	Soil			C.O.C. No.:	NAM	
¥ Subsurfa	ce Soil			0.0.0.110		***************************************
[] Sediment	t			Type of Sample:		
[] QA Samp	ole Type:			[] Low Concentra		
				[] High Concentr	ation	
GRAB SAMPLE DA	ATA:					
Date:		Depth Interval	Color	Description (Sand, S	ilt, Clay, Moisti	ıre, etc.)
Time: //	4	4				
Monitor Reading (pr	om).			Control of the Contro		
COMPOSITE SAME						Mariana de Green
Date:	Time	Depth Interval	Color	Description (Sand S	ili Clave Mariae	<u> </u>
10/29	11:30	0107		Description (Sand, S	iit, Clay, Wolstu	ire, etc.)
Method:	11:32	0203	See	-00		
	11:34	0304		-		
Monitor Readings	11:36	0506				***************************************
(Range in øpm):	11:38	6703	- V			
1	10.35	0,00				
\mathcal{Q}					···	

SAMPLE COLLECT	ION INFORMAT	TION:				
	Analysis		Container Requi	rements Coll	ected	Other
	- 2					
He + Benzo	a) pyrema	<u> </u>	2x40x glossiger	per sample.		
			3 3	<u> </u>		
						M
						······································

DBSERVATIONS / N	OTES:			WAP:		
Circle if Applicable:				Signature(s):		
MS/MSD	Duplicate ID	No.:				
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Tetra Tech NUS, Inc. SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Na	ame [,]	LMC M	7	Sample II) No :	7 10	
Project No.:	21110.	2/00/		Sample II Sample L		<u>is 480</u>	<u> </u>
,				Sampled	DCallOH	Block H	
[] Surface S	Soil			C.O.C. No	Dy	NAU	
Subsurfac				0.0.0.140	···		***************************************
[] Sediment				Type of S	amnle [.]		
[] Other:					oncentration	nn .	
[] QA Samp	ole Type:				Concentrati		
9-15-1-22-1-2				_ ug			
GRAB SAMPLE DA	UTA:						
Date:	4	Depth Interval	Color	Description	ı (Sand, Silt,	Clay, Moistu	re, etc.)
Time:	4						
Method:					The state of the s		
Monitor Reading (pp							
COMPOSITE SAME	LE DATA:						
Date:	Time	Depth Interval	Color	Description	(Sand, Silt,	Clav. Moistu	re etc.)
1929	13:20	0102	See	-00			, ,
Method:	13:22	02 03					
	13:24		1		- *		
		02 04	+				····
Monitor Readings	13:26	55 OG		`			
(Range in ppm):	13:28	67 68	~				
(b)							
4							
			† · · · · · · · · · · · · · · · · · · ·			***************************************	
SAMPLE COLLECT	ION INFORMAT	n»					Santara da de la composição
	Analysis	Y A S	Container Descri				
	Analysis		Container Requi	rements	Collect	ed	Other
U. 2. 70 /	65640		2 × 40 = 9 955 19				
Ha + Kenzol	and here		x 108 61022 10	t per san	nte.		
	*			-			

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Circle if Applicable:				Signature(s):			
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Project Site Na Project No.:	Project Site Name: LMC MR Project No.:			Sample ID Sample Lo	cation:	SB 487 Block H	7
[] Surface S Subsurface [] Sediment	ce Soil			Sampled E C.O.C. No	.:	NAM	
/[] Sediment [] Other: [] QA Samp				Type of Sa [] Low Co [] High C	oncentrat		
GRAB SAMPLE DA	TA:						
Date:		Depth Interval	Color	Description	(Sand, Sil	t, Clay, Moist	ure, etc.)
Time: A							
Monitor Reading (pp							
COMPOSITE SAMP	LE DATA:						
Date:	Time	Depth Interval	Color	Description	(Sand, Silf	t, Clay, Moistı	ure, etc.)
10/29	1336	01 02	See	L09			······································
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Project Site Name:		LMC MR		Sample ID No.:	SB 488	
Project No.:				Sample Location	Block H	
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[] Surface S				C.O.C. No.:		
Subsurfact Sediment	ce Soil					
[] Other:	•			Type of Sample:		
[] QA Samp	le Tyne			[] Low Concent		
[] 47.04.115	no Type.			[] High Concen	tration	
GRAB SAMPLE DA	TA:					
Date:		Depth Interval	Color	Description (Sand,	Silt, Clay, Moisture,	etc.)
Time:						
Method:						
Monitor Reading (pp						
COMPOSITE SAME	LE DATA:					
Date: 15/00	Time	Depth Interval	Color	Description (Sand,	Silt, Clay, Moisture, e	etc.)
10/29	1400	01 02	See-	Los		
Method:	1462	02 03		3	***************************************	
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APPENDIX D – DATA VALIDATION REPORTS (Appear on CD Only)



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

M. MARTIN

DATE:

JANUARY 8, 2008

FROM:

ROBERT JUPIN

COPIES:

DV FILE

SUBJECT:

ORGANIC DATA VALIDATION - BENZO(a)PYRENE

LOCKHEED MIDDLE RIVER COMPLEX

SAMPLE DELIVERY GROUP (SDG): 7J24256

SAMPLES:

20/Soil/

SB-466-0102	SB-466-0203	SB-466-0304	SB-466-0506	SB-466-0708
SB-467-0102	SB-467-0203	SB-467-0304	SB-467-0506	SB-467-0708
SB-468-0102	SB-468-0203	SB-468-0304	SB-468-0506	SB-468-0708
SB-469-0102	SB-469-0203	SB-469-0304	SB-469-0506	SB-469-0708

Overview

The sample set for SDG 7J24256, Lockheed MRC, consists of twenty (20) soil environmental samples.

All soil samples were analyzed for benzo(a)pyrene. The samples were collected by TetraTech NUS on October 23, 2007 and analyzed by Test America Laboratories, Inc. Analyses were conducted using SW-846 Method 8270C.

The findings in this report are based upon a general review of all available data including: data completeness, GC/MS tuning, holding times, initial/continuing calibrations, laboratory method/preparation and field quality control blank results, surrogate spike/internal standard recoveries, laboratory control sample (LCS)/blank spike results, matrix spike/matrix spike duplicate results, analyte quantitation, and detection limits,. Areas of concern are listed below.

Major Problems

None.

Minor Problems

Positive results for benzo(a)pyrene below the reporting limit were qualified as estimated "J".

<u>Notes</u>

The matrix spike sample was not spiked for benzo(a)pyrene therefore, no evaluation of the matrix spike could be performed. All surrogate recoveries were acceptable. No action was taken.

All internal standard areas were below 50% for the matrix spike of sample SB-469-0506. No action was required because quality control samples are not quailed.

According to the laboratory case narrative, sample SB-466-0708 was double spiked with surrogates. The laboratory adjusted the recoveries to take the additional spike into consideration. All recoveries were compliant.

Executive Summary

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (9/94) as modified by Region III.

Tetra Tech NUS

Robert J. Jupin

Risk Assessment Specialist/Environmental Scientist

Tetra Tech NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Support Documentation

Data Qualifier Key:

- U Value is a nondetect as reported by the laboratory.
- J Positive result is considered estimated, "J", as a result of technical noncompliances.

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

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 be any number of issues; e.g. poor 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

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: OS

00885

nsample	SB-466-0102	nsample	SB-466-0203	nsample	SB-466-0304
samp_date	10/23/2007	samp_date	10/23/2007	samp_date	10/23/2007
lab_id	A7J240256001	lab_id	A7J240256002	lab_id	A7J240256003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	85.0	Pct Solids	90.0	Pct Solids	89.0
DUP_OF:	·	DUP_OF:		DUP OF:	05.0

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	11	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.4	Ū	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

SB-466-0506 10/23/2007 A7J240256004 nsample samp_date lab_id SB-466-0708 10/23/2007 A7J240256005

nsample samp_date lab_id SB-467-0102 10/23/2007 A7J240256006

lab_id qc_type units Pct_Solids

NM UG/KG

83.0

qc_type units Pct_Solids

DUP_OF:

NM UG/KG 84.0

qc_type
units
Pct_Solids
DUP_OF:

NM UG/KG 89.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

SB-467-0203 10/23/2007

nsample samp_date A7J240256007 lab_id

10/23/2007 A7J240256008

SB-467-0304

nsample samp_date lab_id qc_type

SB-467-0506 10/23/2007 A7J240256009

qc_type units Pct_Solids NM UG/KG 89.0

qc_type units Pct_Solids DUP_OF:

NM UG/KG 89.0

units Pct_Solids DUP_OF:

NM UG/KG 84.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

SB-467-0708 10/23/2007

A7J240256010 NM UG/KG

86.0

Pct_Solids DUP_OF:

qc_type

units

nsample

samp_date lab_id

qc_type units Pct_Solids DUP_OF:

SB-468-0102

10/23/2007 A7J240256011

NM UG/KG 89.0

nsample samp_date lab_id

qc_type units Pct_Solids DUP_OF:

SB-468-0203 10/23/2007 A7J240256012

NM UG/KG 85.0

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-468-0304	nsample	SB-468-0506	nsample	SB-468-0708
samp_date	10/23/2007	samp_date	10/23/2007	samp_date	10/23/2007
lab_id	A7J240256013	lab_id	A7J240256014	lab_id	A7J240256015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	85.0	Pct_Solids	84.0	Pct_Solids	85.0
DUP_OF:	•	DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	Ü	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id SB-469-0102 10/23/2007 A7J240256016 nsample samp_date lab_id SB-469-0203 10/23/2007 A7J240256017 nsample samp_date lab_id SB-469-0304 10/23/2007 A7J240256018

qc_type
units
Pct_Solids

NM UG/KG 89.0 qc_type
units
Pct_Solids
DUP_OF:

NM UG/KG 87.0

qc_type
units
Pct_Solids
DUP_OF:

NM UG/KG 82.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	15	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date SB-469-0506 10/23/2007 nsample samp_date

SB-469-0708 10/23/2007

lab_id A7J240256019
qc_type NM

lab_id

A7J240256020

qc_type units Pct_Solids qc_type units Pct_Solids NM UG/KG 85.0

 Pct_Solids
 84.0
 Pct_Solids

 DUP_OF:
 DUP_OF:

UG/KG

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	Ü	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

APPENDIX B RESULTS AS REPORTED BY THE LABORATORY

Tetra Tech NUS, Inc

Client Sample ID: SB-466-0102

GC/MS Semivolatiles

Lot-Sample #: A7J240256-00 Date Sampled: 10/23/07 11: Prep Date: 10/26/07 Prep Batch #: 7298518 Dilution Factor: 1		: 10/24/07	Mati	rix: SO
% Moisture: 15	Method	: SW846 8270)C	
	•	REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	11 J	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	65	(24 - 112)	-	
2-Fluorobiphenyl	67	(34 - 110)		
Terphenyl-d14	101	(41 - 119)		
Phenol-d5	76 .	(28 - 110)		
2-Fluorophenol	73	(26 - 110)		
2,4,6-Tribromophenol	76	(10 - 118)		
NOTE (S):	·			

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Client Sample ID: SB-466-0203

GC/MS Semivolatiles

Lot-Sample #: A7J240256 Date Sampled: 10/23/07 Prep Date: 10/26/07 Prep Batch #: 7298518		: 10/24/07	Matr	ix: SO
Dilution Factor: 1 % Moisture: 10	Method	.: SW846 8270	ıc	
				,
	•	REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4
		•		
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	61	(24 - 112)		
2-Fluorobiphenyl	62	(34 - 110)		
Terphenyl-d14	91	(41 - 119)		
Phenol-d5	69	(28 - 110)		
2-Fluorophenol	67	(26 - 110)		
2,4,6-Tribromophenol	72	(10 - 118)		
NOTE (S) •				

Client Sample ID: SB-466-0304

GC/MS Semivolatiles

		•			
-		Work Order #: Date Received:		Matri	. x SO
-		Analysis Date			
Prep Batch #:		Milarysis Date	10/31/07		
Dilution Factor:					
		Wathad	CHO 4 C 0070	0	
% Moisture:	11	Method:	SW846 82/0	C	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a) pyrene		ND	370	ug/kg	1.5
		•		5, 5	
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		51	(24 - 112)		
2-Fluorobiphenyl		48	(34 - 110)		
Terphenyl-d14		95	(41 - 119)		
Phenol-d5		63	(28 - 110)		
2-Fluorophenol		61	(26 - 110)		
2,4,6-Tribromophe	enol	66	(10 - 118)	•	
					•
NOTE(S):					

Client Sample ID: SB-466-0506

GC/MS Semivolatiles

Lot-Sample #: A7J240256-0 Date Sampled: 10/23/07 13 Prep Date: 10/26/07 Prep Batch #: 7298518 Dilution Factor: 1		10/24/07	Matr	ix: SO
% Moisture: 17	Method	.: SW846 8270)C	
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	30	(24 - 112)		
2-Fluorobiphenyl	22 *	(34 - 110)		
Terphenyl-d14	81	(41 - 119)		
Phenol-d5	47	(28 - 110)		
2-Fluorophenol	41 '	(26 - 110)		
2,4,6-Tribromophenol	52	(10 - 118)		
NOTE (S):				

^{*} Surrogate recovery is outside stated control limits.

Client Sample ID: SB-466-0708

GC/MS Semivolatiles

Lot-Sample #: A7J240256- Date Sampled: 10/23/07 1 Prep Date: 10/26/07 Prep Batch #: 7298518 Dilution Factor: 1		: 10/24/07	Mati	rix	.: SO
% Moisture: 16	Method	: SW846 8270	C		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	390	ug/kg	1.5	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS	_		
Nitrobenzene-d5	63	(24 - 112)			
2-Fluorobiphenyl	60	(34 - 110)			
Terphenyl-d14	98	(41 - 119)			
Phenol-d5	71	(28 - 110)			
2-Fluorophenol	71	(26 - 110)			
2,4,6-Tribromophenol	68	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-467-0102

GC/MS Semivolatiles

Lot-Sample #: A7J240256-0 Date Sampled: 10/23/07 11 Prep Date: 10/26/07 Prep Batch #: 7298518 Dilution Factor: 1		.: 10/24/07	Matr	ix: SO
% Moisture: 11	Method	.: SW846 8270)C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	59	(24 - 112)		
2-Fluorobiphenyl	55	(34 - 110)		
Terphenyl-d14	89	(41 - 119)		
Phenol-d5	69	(28 - 110)		
2-Fluorophenol	69	(26 - 110)		
2,4,6-Tribromophenol	64	(10 - 118)		
NOTE(S):				

Client Sample ID: SB-467-0203

GC/MS Semivolatiles

Lot-Sample #: A7J240256- Date Sampled: 10/23/07 1 Prep Date: 10/26/07 Prep Batch #: 7298518		10/24/07	Matr	ix: SO
Dilution Factor: 1		077046 0070	~	
% Moisture: 11	Method:	SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	58	(24 - 112)		
2-Fluorobiphenyl	55	(34 - 110)		
Terphenyl-d14	92	(41 - 119)		
Phenol-d5	73	(28 - 110)		
2-Fluorophenol	. 69	(26 - 110)		
2,4,6-Tribromophenol	` 75	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-467-0304

GC/MS Semivolatiles

Lot-Sample #: A7J240256-00 Date Sampled: 10/23/07 11: Prep Date: 10/26/07 Prep Batch #: 7298518 Dilution Factor: 1		: 10/24/07	Matr	rix: SO
% Moisture: 11	Method	: SW846 8270	OC .	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	62	(24 - 112)		
2-Fluorobiphenyl	59	(34 - 110)		
Terphenyl-d14	93	(41 - 119)		
Phenol-d5	76	(28 - 110)		
2-Fluorophenol	72	(26 - 110)		
2,4,6-Tribromophenol	74	(10 - 118)		
NOTE (S):	···			

Client Sample ID: SB-467-0506

GC/MS Semivolatiles

Lot-Sample #: A7J2402 Date Sampled: 10/23/0 Prep Date: 10/26/0 Prep Batch #: 7298518 Dilution Factor: 1	7 11:47 Date Received.	.: 10/24/07	Mati	rix: SO
% Moisture: 16	Method	.: SW846 8270	OC .	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	46	(24 - 112)		
2-Fluorobiphenyl	35	(34 - 110)		
Terphenyl-d14	104	(41 - 119)		•
Phenol-d5	70	(28 - 110)		•
2-Fluorophenol	62	(26 - 110)		
2,4,6-Tribromophenol	70	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-467-0708

GC/MS Semivolatiles

Lot-Sample #: A' Date Sampled: 10 Prep Date: 10 Prep Batch #: 72	0/23/07 11:49 0/26/07		10/24/07	Matrix		SO
Dilution Factor: 1 % Moisture: 14	4 i	Method:	SW846 8270	C		
PARAMETER	•	RESULT	REPORTING LIMIT	UNITS	MDL	
Benzo(a)pyrene		ND	380	ug/kg	1.5	:
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5		68	(24 - 112)			
2-Fluorobiphenyl	!	53	(34 - 110)			
Terphenyl-d14	!	94	(41 - 119)			
Phenol-d5		74	(28 - 110)			
2-Fluorophenol		73	(26 - 110)			
2,4,6-Tribromopheno	ol !	59	(10 - 118)			
NOTE (S):						

Client Sample ID: SB-468-0102

GC/MS Semivolatiles

Lot-Sample #: A7J240256-0 Date Sampled: 10/23/07 13 Prep Date: 10/26/07 Prep Batch #: 7298518		.: 10/24/07	Matr	ix: SO	
Dilution Factor: 1					
% Moisture: 11	Method	.: SW846 8270	С		
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	370	ug/kg	1.5	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	78	(24 - 112)			
2-Fluorobiphenyl	65	(34 - 110)			
Terphenyl-d14	103	(41 - 119)			
Phenol-d5	87	(28 - 110)			
2-Fluorophenol	87	(26 - 110)			
2,4,6-Tribromophenol	76	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-468-0203

GC/MS Semivolatiles

Lot-Sample #: A7J240256-0 Date Sampled: 10/23/07 13 Prep Date: 10/26/07 Prep Batch #: 7298518		.: 10/24/07	Matr	ix SO
Dilution Factor: 1	M-11-1	0110.46 0.070		
% Moisture: 15	Method	.: SW846 8270	i C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	56	(24 - 112)	•	
2-Fluorobiphenyl	49	(34 - 110)		•
Terphenyl-d14	95	(41 - 119)		
Phenol-d5	70	(28 - 110)		
2-Fluorophenol	64	(26 - 110)		
2,4,6-Tribromophenol	64	(10 - 118)		
NOTE(S):				

Client Sample ID: SB-468-0304

GC/MS Semivolatiles

Lot-Sample #: A7J240256-0 Date Sampled: 10/23/07 13 Prep Date: 10/26/07 Prep Batch #: 7298518		.: 10/24/07	Matr	ix: SO
Dilution Factor: 1 % Moisture: 15	Method	.: SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a) pyrene	ND	390	ug/kg	1.5
	DEDGENE	DEGOTEDA		
SURROGATE	PERCENT RECOVERY	RECOVERY		
Nitrobenzene-d5	RECOVERI 81	_ LIMITS		
		(24 - 112)		
2-Fluorobiphenyl	67	(34 - 110)		
Terphenyl-d14	92	(41 - 119)		
Phenol-d5	84	. (28 - 110)		
2-Fluorophenol	88	(26 - 110)		
2,4,6-Tribromophenol	67	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-468-0506

GC/MS Semivolatiles

Lot-Sample #: A7J240256-03 Date Sampled: 10/23/07 13 Prep Date: 10/26/07 Prep Batch #: 7298518		: 10/24/07	Matr	ix so
Dilution Factor: 1 % Moisture: 16	Method	: SW846 8270)C	
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	83	(24 - 112)	•	
2-Fluorobiphenyl	69	(34 - 110)		
Terphenyl-d14	111	(41 - 119)		
Phenol-d5	91	(28 - 110)		
2-Fluorophenol	94	(26 - 110)		,
2,4,6-Tribromophenol	73	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-468-0708

GC/MS Semivolatiles

Lot-Sample #: A7J2402 Date Sampled: 10/23/0 Prep Date: 10/26/0 Prep Batch #: 7298518 Dilution Factor: 1 % Moisture: 15	7 13:28 Date Received 7 Analysis Date	: 10/24/07		ix SC)
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a) pyrene	ND	390	uq/kq	1.5	
, , , , , , , , , , , , , , , , , , , ,			9, 9		
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	61	(24 - 112)			
2-Fluorobiphenyl	51	(34 - 110)			
Terphenyl-d14	96.	(41 - 119)			
Phenol-d5	71	(28 - 110)			
2-Fluorophenol	71	(26 - 110)			
2,4,6-Tribromophenol	59	(10 - 118)			
NOTE (S):				.*	

Client Sample ID: SB-469-0102

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #: Dilution Factor:	10/23/07 13:43 10/26/07 7298518		10/24/07	Matrix	so
% Moisture:		Method:	SW846 8270	С	
PARAMETER		RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a) pyrene		15 J	370	ug/kg	1.5
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5		72	(24 - 112)		
2-Fluorobiphenyl		64	(34 - 110)		•
Terphenyl-d14		93	(41 - 119)		
Phenol-d5		72	(28 - 110)		
2-Fluorophenol		77	(26 - 110)		
2,4,6-Tribromophe	enol	57	(10 - 118)		•
NOTE(S):					

J Estimated result. Result is less than RL.

Client Sample ID: SB-469-0203

GC/MS Semivolatiles

Lot-Sample #: A7J240256-017 Date Sampled: 10/23/07 13:49 Prep Date: 10/26/07 Prep Batch #: 7298518 Dilution Factor: 1		10/24/07	Matrix	so so
% Moisture: 13	Method:	SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	77	(24 - 112)		
2-Fluorobiphenyl	65	(34 - 110)		
Terphenyl-d14	97	(41 - 119)		
Phenol-d5	75	(28 - 110)		
2-Fluorophenol	77	(26 - 110)		
2,4,6-Tribromophenol	58	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-469-0304

GC/MS Semivolatiles

Lot-Sample #: A7J240256-018 Date Sampled: 10/23/07 13:4 Prep Date: 10/26/07 Prep Batch #: 7298518		: 10/24/07					
Dilution Factor: 1							
% Moisture: 18	Method:	SW846 8270)C				
		REPORTING					
PARAMETER	RESULT	LIMIT	UNITS	MDL			
Benzo(a) pyrene	ND ND	400	ug/kg	1.6			
benzo (a) pyrene	ND	400	ug/kg	1.0			
	PERCENT	RECOVERY					
SURROGATE	RECOVERY	LIMITS					
Nitrobenzene-d5	72	(24 - 112)	•				
2-Fluorobiphenyl	60	(34 - 110)					
Terphenyl-d14	94	(41 - 119)					
Phenol-d5	76	(28 - 110)					
2-Fluorophenol	70	(26 - 110)					
2,4,6-Tribromophenol	58	(10 - 118)					
NOTE (S):							

Client Sample ID: SB-469-0506

GC/MS Semivolatiles

Lot-Sample #: A7J240256-0 Date Sampled: 10/23/07 13 Prep Date: 10/26/07 Prep Batch #: 7298518		: 10/24/07	Matr	ix SO
Dilution Factor: 1 % Moisture: 16	Method	: SW846 8270)C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	50	(24 - 112)	-	
2-Fluorobiphenyl	42	(34 - 110)		
Terphenyl-d14	99	(41 - 119)		
Phenol-d5	66 .	(28 - 110)		
2-Fluorophenol	57	(26 - 110)		
2,4,6-Tribromophenol	62	(10 - 118)		
NOTE(S):				

Client Sample ID: SB-469-0708

GC/MS Semivolatiles

Lot-Sample #: A7J240256- Date Sampled: 10/23/07 1 Prep Date: 10/26/07 Prep Batch #: 7298518		.: 10/24/07	Matr	ix SO
Dilution Factor: 1				
% Moisture: 15	Method	.: SW846 8270	C .	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	55	(24 - 112)		
2-Fluorobiphenyl	54	(34 - 110)		
Terphenyl-d14	77	(41 - 119)		
Phenol-d5	57	(28 - 110)		
2-Fluorophenol	55	(26 - 110)		
2,4,6-Tribromophenol	54	(10 - 118)		
NOTE (S):				

APPENDIX C SUPPORT DOCUMENTATION

HOLDHME

SDG 7J24256

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-468-0506	A7J240256014	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3 promision properties
HG	MG/KG	SB-466-0304	A7J240256003	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG .	MG/KG	SB-466-0506	A7J240256004	NM .	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-466-0708	A7J240256005	NM ·	10/23/2007	10/25/2007	10/26/2007	2	1 .	3
HG	MG/KG	SB-467-0203	A7J240256007	NM	10/23/2007	10/25/2007	10/26/2007	2	. 1	3
HG	MG/KG	SB-467-0506	A7J240256009	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-467-0708	A7J240256010	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-468-0102	A7J240256011	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-466-0203	A7J240256002	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3 :
HG	MG/KG	SB-468-0304	A7J240256013	· NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-467-0102	A7J240256006	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-468-0708	A7J240256015	NM .	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-469-0102	A7J240256016	NM	10/23/2007	10/25/2007	10/26/2007	2	. 1	3
HG	MG/KG	SB-469-0203	A7J240256017	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-469-0304	A7J240256018	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3

Friday November 16, 2007

SORT	· UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-469-0506	A7J240256019	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-469-0708	A7J240256020	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-466-0102	A7J240256001	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-468-0203	A7J240256012	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-467-0304	A7J240256008	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3 .
PCS	%	SB-468-0304	A7J240256013	NM	10/23/2007	11/1/2007	11/2/2007	9	-1	10
PCS	%	SB-469-0506	A7J240256019	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	% .	SB-469-0708	A7J240256020	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-469-0304	A7J240256018	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-469-0203	A7J240256017	NM	10/23/2007	11/1/2007	11/2/2007	. 9	1	10 .
PCS	%	SB-469-0102	A7J240256016	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-468-0506	A7J240256014	NM	10/23/2007	11/1/2007	11/2/2007	9	. 1	10
PCS	%	SB-466-0102	A7J240256001	NM	10/23/2007	11/1/2007	1,1/2/2007	9	. 1.	10
PCS	. %	SB-468-0203	A7J240256012	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-468-0102	A7J240256011	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-466-0304	A7J240256003	NM	10/23/2007	11/1/2007	11/2/2007	9	·1	10
PCS	% ·	SB-468-0708	A7J240256015	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS -	%	SB-466-0203	A7J240256002	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10

SORT	UNITS	NSAMPLE	LAB ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-467-0708	A7J240256010	- NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-466-0506	A7J240256004	NM	10/23/2007	11/1/2007	11/2/2007	. 9	1	10
PCS	%	SB-466-0708	A7J240256005	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-467-0102	A7J240256006	NM .	10/23/2007	11/1/2007	11/2/2007	9	1.	10
PCS	%	SB-467-0203	A7J240256007	NM	10/23/2007	11/1/2007	11/2/2007	9	. 1	10
PCS	%	SB-467-0304	A7J240256008	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-467-0506	A7J240256009	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
OS .	%	SB-469-0708	A7J240256020	NM	10/23/2007	10/26/2007	10/29/2007	3	3	6
os	%	SB-467-0506	A7J240256009	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
OS	%	SB-466-0203	A7J240256002	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	%	SB-466-0304	A7J240256003	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	%	SB-466-0506	A7J240256004	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	% .	SB-466-0708	A7J240256005	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
OS	%	SB-467-0102	A7J240256006	NM .	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	%	SB-467-0203	A7J240256007	NM -	10/23/2007	10/26/2007	11/1/2007	3	6	9
os	%	SB-467-0304	A7J240256008	NM	10/23/2007	10/26/2007	11/1/2007	3	. 6	9
os	%	SB-466-0102	A7J240256001	NM	10/23/2007	10/26/2007	10/31/2007	3 .	5	8
os	%	SB-469-0506	A7J240256019	NM	10/23/2007	10/26/2007	10/29/2007	3	3	6

SORT	UNITS	NSAMPLE	LAB ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL	
os	%	SB-468-0102	A7J240256011	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	%	SB-468-0203	A7J240256012	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
OS	%	SB-468-0304	A7J240256013	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	%	SB-468-0506	A7J240256014	NM .	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	%	SB-468-0708	A7J240256015	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
OS	%	SB-469-0102	A7J240256016	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	%	SB-469-0203	A7J240256017	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	%	SB-469-0304	A7J240256018	NM .	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	%	SB-467-0708	A7J240256010	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	UG/KG	SB-468-0304	A7J240256013	ŅM	10/23/2007	10/26/2007	11/2/2007	. 3	7	10	
os	UG/KG	SB-468-0506	A7J240256014	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	UG/KG	SB-468-0708	A7J240256015	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	UG/KG	SB-469-0102	A7J240256016	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	UG/KG	SB-469-0203	A7J240256017	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	UG/KG	SB-469-0304	A7J240256018	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	UG/KG	SB-468-0203	A7J240256012	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10	
os	UG/KG	SB-469-0708	A7J240256020	NM .	10/23/2007	10/26/2007	10/29/2007	- 3	3	6	
os	UĠ/KG	SB-467-0102	A7J240256006	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8	
Not continued in the continued as the con-						•					

Friday, Nevember 16, 2007

SORT	UNITS	NSAMPLE	LAB ID	QC TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	SB-469-0506	A7J240256019	NM ·	10/23/2007	10/26/2007	10/29/2007	3	3	6
OS	UG/KG	SB-468-0102	A7J240256011	NM	10/23/2007	10/26/2007	11/2/2007	3	7 .	10
OS	UG/KG	SB-467-0708	A7J240256010	NM	10/23/2007	10/26/2007	11/2/2007	3	· 7	10
OS.	UG/KG	SB-467-0506	A7J240256009	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	UG/KG	SB-466-0102	A7J240256001	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	UG/KG	SB-467-0203	A7J240256007	NM	10/23/2007	10/26/2007	11/1/2007	3	6	9
os	UG/KG	SB-466-0708	A7J240256005	NM .	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	UG/KG	SB-466-0506	A7J240256004	NM	10/23/2007	10/26/2007	10/31/2007	3	5 .	8
OS	UG/KG	SB-466-0304	A7J240256003	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
OS	UG/KG	SB-466-0203	A7J240256002	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
OS	UG/KG	SB-467-0304	A7J240256008	NM	10/23/2007	10/26/2007	11/1/2007	3	6	9

Chain of Custody Record



STL-4124 (0901) Client		Seve	ern Trent Laboratories, Inc.	
Address Tech	Project Manager		Date	
	Telephone Number (Area Code 301 528 - Site Contact	N 3)/Fax Number	10/23/27	Chain of Custody Number 227047
City Ceahy Blud From City State Zip Code Project Name and Logation (State) Project Name and Logation (State)	301 528 3 Site Contact 1	3022	Lab Number	
Project Name and Location (State)	So Ha May		Analysis (Attach list if	Page of 2
Contract/Purchase Order/Quote No.	Carrier/Waybill Number	k. Ivos	more space is needed)	
Contract/Purchase Order/Quote No.	Course		7311111	
Sample I.D. No. and Description	Matrix	Containers & Preservatives	macut	Special Instructions/ Conditions of Receipt
1)ate T	Aqueous Sed.		27.87	
Sp-466 - 0102		Unpress H2SO4 HNO3 HCI NaOH ZnAc/ NaOH	34	Block H *benzo(a) pyrem
-003 113		2.	44 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	¥60-2 (-2 0) 12-1N
-03×V				IN Der to Calledian
70506	╃╼╌╁┈╁┈╬╸ ┧╻╻	1		
466 -0708	▝▀▀▀▀▍▀▗▍▄▃▍▃▕▗▋ ▁▎▁▕▕			
1 467-0102	▀ ┈┈╆┈┈╁┈┈╁┈┈╁┈┈┼╏┈┈┈┤┈╏			
1 -0103				
70304	~~~~ ~~ 		╿╴║╴╎╶┤╸┤╸┤╸┤╸┤	
107			╎╸┋╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒╒	
4/2 -02-8			┞┞╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏	
4/69 30113			┞┞╏╸┠╶╏╸╏╸╏╸	
54-468 - Maz		T	 	
Possible Hazard Identification 1023 1311		11111	 	O D
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ✔ Unknown	Sample Disposal	_/	H-K-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	Itburgo (a) Pyrent
24 Hours 148 Hours 17		Disposal By Lab Arcl	chive For Months (A fee may be asses	ssed if samples are retained
1. Relinquished By Date Days Date	Other_S//VII	^	,	Jort
2. Relinquished By	123/67 16-20	1. Received By	The All	Date Time
3. Relinquished By		2. Received By	2000M	15/23/0> 1638
Date	Time 3	US S		Date Time
Comments	3	3. Received By		(U-2:() . 57 (COO)
DISTRIBUTION: WHITE CO.				st.
DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stavs with the Sai	polo: PINIC File			T

Chain of Custody Record



Severn Trent Laboratories, Inc.

S1L-4124 (0901) Client	To rott Heik Laboratories, Inc.					
Address Pra lech	Project Mana	NALAN			Date 10/13/07	Chain of Custody Number 227048
20251 Centry Blad #200	Telephone N	umber (Area Code	e)/Fax Number		Lab Number	
State Zip Code	Site Contact	528-30	Lab Contact		·	Page 2 of 2
Project Name and Location (State)	TY S. Ital. Carrier/Wayb	llu	K. Ives	Ar mo	alysis (Attach list if re space is needed)	
/ M (M)	Carrier/Wayb	ill Number	1114463		1 1 1 1	
Contract/Purchase Order/Quote No.	Carrie	<u>'</u>		4		
112 ICO0845		Matrix	Containers & Preservatives	2		Special Instructions/ Conditions of Receipt
Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date Time	Aqueous Sed.	8 4	641		
6 1/1/1/1/1			Unpres H2SO4 HNO3 HCI NaOH ZnAC/ NaOH	77-7		Block "If Henro (3) gymae
		1 1	2	HX		1/204 //
-0506	132				++++	- Benco (3) finance
469-07-08	1328		T	╎╏┤╏┤╶┥┈┤	- - - -	++-+
469-0102	1343	- 	ᠯ┤╶┤╶┤╶┤	 		
0203		╅	H + H + H	┼╂┼╂╌┤╌┧		
0304	1345	++++	V			
	1347		2			
# A 451.0	1349	1 1	4		 	
515-464-0708 101	23 1351	1	2	A A	 	
						* benzo (a) pyren
						-5//
	F c//	10/				
	120	1 1 1	23			5
Possible Hazard Identification						sessed if samples are retained
□ Non-Hazard □ Flammable □ Skin Irritant □ Poiso	on B Unknown	ole Disposal			(A fee may be ass	sessed if samples are retained
Tan Abana Tinje Required			Disposal By Lab	Archive For	Months longer than 1 mon	nth)
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 1. Refinquished By		<u> </u>		. •		Date / / Time
NAMOS =	Date	Time	1. Received By	$\mathcal{O} =$	1	Date / Time
2. Relinquished By	Date 107	z 6:30	2. Received By	4000	7/	10/22/21 11
3. Relinquished By			2. Heceived By	 .		Date Time
	Date	Time	3. Received By	-		10-24-67 1000
Comments				<u> </u>		Date Time CO Date Time
NOTOGOUS						
ISTRIBUTION: WHITE - Returned to Client with Report; CANARY -	Stays with the Sample: PINK	- Field Copy				

CASE NARRATIVE

7J24256

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc from the LMC MR Site, project number 112IC00885. The samples were received October 24, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID: A7J240256.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Dev Murali, John Poremba and Michael Martin on November 12, 2007. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters, which are never reported on a dry weight basis, is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 1.7 and 2.6°C.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for sample(s) SB-469-0506 had RPD's outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

Sample(s) SB-466-0506 had up to one surrogate recovery per fraction outside acceptance limits. However, since the recovery was greater than 10% and all associated QC met criteria, no corrective action was taken.

The internal standard areas were outside acceptance limits for sample(s) SB-469-0506 matrix spike due to matrix effects. "(Refer to IS report following this Case Narrative for additional detail.)"

Double surrogates were added to sample(s) SB-466-0708. Recoveries were adjusted accordingly.

METALS

The analytical results met the requirements of the laboratory's QA/QC program.

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride, Acetone, 2-Butanone	Phthalate Esters	Copper, Iron, Zinc, Lead, Calcium, Magnesium, Potassium, Sodium, Barium, Chromium, Manganese	Copper, Iron, Zinc, Lead

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

<u>TestAmerica North Canton (formerly STL North Canton) Certifications and Approvals:</u>
California (#01144CA), Connecticut (#PH-0590). Florida (#E87225)

Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), OhioVAP (#CL0024), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY, USDA Soil Permit,

 $N: \ |QAQC| Customer\ Service | Narrative - Combined\ RCRA_CWA\ 061807. doc$

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J24256

Lot #: A7J240256

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
		======	======	======	======	======	======	======
01	SB-466-0102	65	67	101	76	73	76	_00
02	SB-466-0203	61	62	91	69	_67	72	_00
03	SB-466-0304	51	48	_95	63	61	_66	_00
04	SB-466-0506	30	22 * /	_81	47	41	52	01.
05	SB-466-0708	63 · (_60	98	71	_71	_68	_00
06	SB-467-0102	59	55	89	69	_69	64	_00
07	SB-467-0203	58	55	92	73	69	75	00
08	SB-467-0304	62	59	93	76	72	74	00
09	SB-467-0506	46	35	104	70	62	70	00
10	SB-467-0708	68	53	94	74	73	59	0.0
11	SB-468-0102	78	65	103	87	87	76	00
12	SB-468-0203	56	49	95	70	64	64	00
13	SB-468-0304	81	67	92	84	88	67	00
14	SB-468-0506	83	69	111	91	94	73	00
15	SB-468-0708	61	51	96	71	71	59	00.
16	SB-469-0102	72	64	93	72	7:7	57	00
17	SB-469-0203	77	65	97	75	77	58	00
18	SB-469-0304	72	60	94	76	70	58	00
19	SB-469-0506	50	42	99	66	57	62	00
20	SB-469-0708	55	54	77	57	55	54	00
21	METHOD BLK. J9VA21AD	63	65	89	69	67	53	00
22	LCS J9VA21AE	79	76	92	80	78	77	00
23	SB-469-0506 D	59	57	77	62	61	64	00 .
24	SB-469-0506 S	51	59	90	57	52	71	00

SURROGATE	<u>ES</u>			QC LIMITS
SRG01	=	Nitrobenzene-d5		(24-112)
SRG02	=	2-Fluorobiphenyl		(34-110)
SRG03	=	Terphenyl-d14		(41-119)
SRG04	=	Phenol-d5		(28-110)
SRG05	=	2-Fluorophenol		(26-110)
SRG06	=	2,4,6-Tribromophenol		(10-118)
		-	•	

FORM II

[#] Column to be used to flag recovery values

^{*} Values outside of required QC Limits

D System monitoring Compound diluted out

SW846 8270C METHOD BLANK SUMMARY

J9VA21AD

BLANK WORKORDER NO.

Lab	Name:	TestAmerica	Laboratories.	Inc

Lab Code: TALCAN

SDG Number: 7J24256

Lab File ID: J9VA21AD.

Lot Number: A7J240256

Date Analyzed: 10/29/07

Time Analyzed: 10:38

Matrix: SOLID

Date Extracted:10/26/07

GC Column: DB-5.625 ID: .18

Extraction Method: 3550B

Instrument ID: AG2

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS, MSD:

	<u> </u> -	SAMPLE	LAB	DATE	TIME
	CLIENT ID.	WORK ORDER #	FILE ID	ANALYZED	ANALYZED
	=======================================	=======================================	= =====================================	========	
01	SB-466-0102	J9P621AD	J9P621AD.	10/31/07	17:08
02	SB-466-0203	J9P7D1AD	J9P7D1AD.	10/31/07	17:26
	SB-466-0304	J9P7K1AD	J9P7K1AD.	10/31/07	17:43
04	SB-466-0506	J9P7Q1AD	J9P7Q1AD.	10/31/07	18:00
	SB-466-0708	J9P7V1AD	J9P7V1AD.	10/31/07	18:17
:	SB-467-0102	J9P701AD	J9P701AD.	10/31/07	18:35
07	SB-467-0203	J9P721AD	J9P721AD.	11/01/07	12:50
	SB-467-0304	J9P731AD	J9P731AD.	11/01/07	13:07
	SB-467-0506	J9P741AD	J9P741AD.	11/02/07	12:55
	SB-467-0708	J9P751AD	J9P751AD.	11/02/07	13:29
	SB-468-0102	J9P781AD	J9P781AD.	11/02/07	13:46
	SB-468-0203	J9P8A1AD	J9P8A1AD.	11/02/07	14:03
	SB-468-0304	J9P8C1AD	J9P8C1AD.	11/02/07	14:21
14	SB-468-0506	J9P8D1AD	J9P8D1AD.	11/02/07	14:38
١.	SB-468-0708	J9P8E1AD	J9P8E1AD.	11/02/07	14:55
	SB-469-0102	J9P8F1AD	J9P8F1AD.	11/02/07	15:12
	SB-469-0203	J9P8G1AD	J9P8GlAD.	11/02/07	15:29
	SB-469-0304	J9P8J1AD	J9P8J1AD.	11/02/07	15': 47
	SB-469-0506	J9P8K1AF	J9P8K1AF.	10/29/07	13:12
20	SB-469-0506	J9P8K1AM S	J9P8KlAM.	10/29/07	13:30
21 5	5B-469-0506	J9P8K1AN D	J9P8K1AN.	10/29/07	13:47
	SB-469-0708	J9P861AD	J9P861AD.	10/29/07	14:04
:-	CHECK SAMPLE	J9VA21AE C	J9VA21AE.	10/29/07	10:55
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COMMENTS:	•		
	•	•	•
			
•		FORM IV	

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.:

Lab File ID: 2DF1029 DFTPP Injection Date: 10/29/07

Instrument ID: A4AG2 DFTPP Injection Time: 0704

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	34.6 0.6 (1.5)1 40.0 0.1 (0.4)1 49.9 0.4 100.0 6.4 25.2 3.4 11.5 82.3 15.3 (18.6)2
	1-Value is % of mass 69 2-Value is % of mass 69	ngg 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	=========	=======================================	=======================================	========	=======
01	SSTD009	L9	2SHHH1029	10/29/07	0715
02	SSTD008	L8	2SHH1029	10/29/07	0739
03	SSTD007	L7	2SH1029	10/29/07	0756
04	SSTD006	L6	2SMH1029	10/29/07	0813
05	SSTD005	L5	2SMM1029	10/29/07	0830
06	SSTD004	L4	2SM1029	10/29/07	0847
07	SSTD003	L3	2SML1029	10/29/07	0904
80	SSTD002	L2	2SL1029	10/29/07	0921
09	SSTD001	Ll	2SLL1029	10/29/07	0938
10.	J9VA2BLK	J9VA21AD	J9VA21AD	10/29/07	1038
11	J9VA2CHK	J9VA21AE	J9VA21AE	10/29/07	1055
12	SB-469-0506	J9P8K1AF	J9P8K1AF	10/29/07	1312 🗸
13	SB-469-0506	J9P8K1AM	J9P8K1AM	10/29/07	1330
14	SB-469-0506	J9P8K1AN .	J9P8K1AN	10/29/07	1347
15	SB-469-0708	J9P861AD	J9P861AD	10/29/07	1404
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page 1 of 1

FORM V SV

1/87 Rev.

SDG No.: 7J24256

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.:

SDG No.: 7J24256

Lab File ID: 2DF1031

DFTPP Injection Date: 10/31/07

Instrument ID: A4AG2

DFTPP Injection Time: 0645

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
=====		35.3
51	30.0 - 60.0% of mass 198	0.2 (0.5)1
68	Less than 2.0% of mass 69	40.6
69	Mass 69 relative abundance	0.2 (0.5)1
70	40.0 - 60.0% of mass 198	49.9
127	Less than 1.0% of mass 198	0.6
197	Base Peak, 100% relative abundance	100.0
198	5.0 - 9.0% of mass 198	6.6
199	10.0 - 30.0% of mass 198	25.0
275	Greater than 1.0% of mass 198	3.1
365 441	Present, but less than mass 443	10.6
442	Greater than 40.0% of mass 198	75.2
443	17.0 - 23.0% of mass 442	14.5 (19.2)2
443	17.0 - 23.00 OI maps 112	, ,
1	1-Value is % of mass 69 2-Value is % of mass	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22	======================================	L6 J9P621AD J9P7D1AD J9P7V1AD J9P7V1AD J9P7O1AD	2SMH1031 J9P621AD J9P7D1AD J9P7K1AD J9P7Q1AD J9P7V1AD J9P701AD	10/31/07 10/31/07 10/31/07 10/31/07 10/31/07 10/31/07 10/31/07	0656 1708 1726 1743 1800 1817 1835

page 1 of 1

FORM V SV

1/87 Rev.

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24256

Lab File ID: 2DF1101 DFTPP Injection Date: 11/01/07

Instrument ID: A4AG2 DFTPP Injection Time: 0618

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	35.9 0.6 (1.6)1 41.0 0.2 (0.5)1 50.5 0.3 100.0 6.5 25.2 3.4 11.2 79.6 14.9 (18.8)2
	1-Value is % of mass 69 2-Value is % of mass	199 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
02	SAMPLE NO. ====================================	I .	1	1	
15 16 17 18	·				
19 20 21 22					

page 1 of 1

FORM V SV

1/87 Rev.

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.:

SAS No.:

SDG No.: 7J24256

Lab File ID: 2DF1102

DFTPP Injection Date: 11/02/07

Instrument ID: A4AG2

DFTPP Injection Time: 0856

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	40.4 0.6 (1.4)1 45.0 0.2 (0.5)1 52.9 0.5 100.0 6.6 24.5 3.2 9.1 65.0 12.5 (19.2)2
	1-Value is % of mass 69 2-Value is % of mass	200 112

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

			T		
	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	_=========	==========	==========	========	========
01	SSTD006	L6	2SMH1102	11/02/07	0907
02	SB-467-0506	J9P741AD	J9P741AD	11/02/07	1255
03	SB-467-0708	J9P751AD	J9P751AD	11/02/07	1329
04	SB-468-0102	J9P781AD	J9P781AD	11/02/07	1346
05	SB-468-0203	J9P8A1AD	J9P8A1AD	11/02/07	1403
06	SB-468-0304	J9P8ClAD	J9P8ClAD	11/02/07	1421
07	SB-468-0506	J9P8D1AD	J9P8D1AD	11/02/07	1438
08	SB-468-0708	J9P8E1AD	J9P8E1AD	11/02/07	1455
09	SB-469-0102	J9P8F1AD	J9P8F1AD	11/02/07	1512
10	SB-469-0203	J9P8G1AD	J9P8G1AD	11/02/07	1529
11	SB-469-0304	J9P8J1AD	J9P8J1AD	11/02/07	1547
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22					
44					

page 1 of 1

FORM V SV

Report Date : 29-Oct-2007 10:35

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 29-OCT-2007 07:15

End Cal Date : 29-OCT-2007 07:13
End Cal Date : 29-OCT-2007 09:38
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14

Integrator : HP RTE

Method file : \\cansvr11\\dd\chem\MSS\a4ag2.i\\71029A.b\\8270p.m

Last Edit : 29-Oct-2007 10:31 a4ag2.i

Curve Type : Average

									_
Compound	0.05000 Level 1	0.25000 Level 2	0.50000 Level 3	1.000 Level 4	2.500 Level 5	5.000 Level 6	 RRF	 % RSD]
	7.500 Level 7	 10.000 Level 8	 12.500 Level 9	 	 	 	 	 	1
144 Hexachlorophene		+++++	+++++	+++++	+++++			======================================	=
145 Hexachlorophene product	+++++	 +++++ +++++	 +++++ +++++	 +++++ 	 +++++ 			 +++++	-
146 Benzo(a)pyrene	1.19388		•	•	 0.99585 	 1.06396 	 1.06425	10.275	· 5
148 3-Methylcholanthrene	++++ +++++	 +++++ +++++	+++++	 +++++ 	 +++++ 	 +++++ 		} +++++	- <u> </u>
149 Indeno(1,2,3-cd)pyrene	1.22899	1.01257		İ	Í	1	 1.17860	 9 ₋ 699	•
150 Dibenz(a,h)anthracene	1.02002				 0.96776 	 1.01881 	 1.00440	10.044	1
151 Benzo(g,h,i)perylene	1.00163	1.04345	1.14812	•	0.95685	 1.00796 	0.99629	 7.576	 •
199 3-Picoline	++++	+++++	 +++++ +++++	 +++++ 	 +++++ 	 +++++ 	 +++++	 +++++	- I
200 N,N-Dimethylacetamide	+++++ +++++	+++++	+++++	++++	 +++++ 	 +++++ 		+++++	ا - ا ا
201 Quinoline	 +++++ +++++	+++++	+++++	 +++++ 	 +++++ 	 	+++++	 +++++	-
202 Diphenyl	 +++++ +++++	+++++ +++++	+++++	 +++++ 	 +++++ 	 +++++ 	+++++	+++++	
		 			 	 	 		ا · ا_

Data File: \\cansvr11\dd\chem\MSS\a4ag2.i\71029A.b\ICVTCL.D

Report Date: 31-Oct-2007 13:40

Page 3

STL North Canton CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4aq2.i

Injection Date: 29-OCT-2007 09:55

Lab File ID: ICVTCL.D

Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007 Init. Cal. Times: 07:15 09:38

Analysis Type:

Lab Sample ID: ICVTCL

Quant Type: ISTD

Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71029A.b\8270p.m

I	I		. 1	CCAL MIN		MAX	
COMPOUND] RRF	/ AMOUNT	RF5 I	RRF5 RRF	%D / %DRIFT %D	/ %DRIFT(CURVE TYPE
======================================							
146 Benzo(a)pyrene	1	1.06425	1.06595	1.06595 0.010	-0.15952	20.000001	Averaged
149 Indeno(1,2,3-cd)pyrene	!	1.17860	1.19840	1.19840 0.010	-1.68001	50.000001	Averaged
150 Dibenz(a,h)anthracene	1	1.004401	1.02613	1.02613 0.010	-2.16310	50.000001	Averaged
151 Benzo(g,h,i)perylene	1	0.996291	1.02560	1.02560 0.010	-2.94146	50.00000	Averaged
\$ 154 Nitrobenzene-d5	J	0.30329	0.31342	0.31342 0.010	-3.340901 .	50.000001	Averaged
\$ 155 2-Fluorobiphenyl .	1	1.19472	1.24940	1.24940 0.010	-4.57642	50.00000	Averaged
\$ 156 Terphenyl-d14	1.	0.820491	0.85940	0.85940 0.010	-4.74153	50.000001	Averaged
\$ 157 Phenol-d5	I	1.50322	1.50799	1.50799 0.010	-0.31754	50.000001	Averaged
\$ 158 2-Fluorophenol	i	1.14183	1.17848	1.17848 0.010	-3.20947	50.000001	Averaged
\$ 159 2,4,6-Tribromophenol	1	0.15946	0.17206	0.17206 0.010	-7.900691	50.000001	Averaged
\$ 186 2-Chlorophenol-d4	ı	1.29469	1.29546	1.29546 0.010	-0.05975	50.000001	Averaged
\$ 187 1,2-Dichlorobenzene-d4	1	0.82582	0.83692	0.83692 0.010	-1.34346	50.000001	Averaged
IM 195 Cresols, total	1	2.47068	2.50499	2.50499 0.010	-1.38839	50.00000	Averaged!
101 Diphenylamine	1	0.51815	0.52590	0.52590 0.010	-1.49725	50.000001	Averaged
1	1	111111	1111111	<u> </u>	· 1	1	1

Data File: \\cansvr11\dd\chem\MSS\a4ag2.i\71031A.b\2SMH1031.D Page 3 Report Date: 31-Oct-2007 08:13

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i

Lab File ID: 2SMH1031.D

Injection Date: 31-OCT-2007 06:56
Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007

09:38

Analysis Type: Init. Cal. Times: 07:15
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\\dd\chem\MSS\a4ag2.i\\71031A.b\\8270p.m

			CCAL	MIN	1	MAX	<u> </u>
COMPOUND	[RRF / AMOUNT]	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
				=====			
146 Benzo(a)pyrene	1.06425	1.08196	1.08196	0.010	-1.66387	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.17860	1.20956	1.20956	0.010	-2.62719	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.00440]	1.03848	1.03848	0.010	-3.39279	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.99629	1.01820	1.01820	0.010	-2.19948	50.00000	Averaged
\$ 154 Nitrobenzene-d5	0.30329	0.31926	0.31926	0.010	-5.26427	50.00000	Averaged
\$ 155 2-Fluorobiphenyl	1.19472	1.23373	1.23373	0.010	-3.26502	50.00000	Averaged
\$ 156 Terphenyl-d14	0.82049	0.85590	0.85590	0.010	-4.31466	50.00000	Averaged
\$ 157 Phenol-d5	1.50322	1.53050	1.53050	0.010	-1.81445	50.00000	Averaged
\$ 158 2-Fluorophenol	1.14183	1.17548	1.17548	0.010	-2.94695	50.00000	Averaged
\$ 159 2,4,6-Tribromophenol	0.15946	0.16777	0.16777	0.010	-5.21554	50.00000	Averaged
\$ 186 2-Chlorophenol-d4	1.29469	1.34374	1.34374	0.010	-3.78917	50.00000	Averaged
\$ 187 1,2-Dichlorobenzene-d4	0.82582	0.83982	0.83982	0.010	-1.69466	50.00000	Averaged
M 195 Cresols, total	2.47068	2.46536	2.46536	0.010	0.21541	50.00000	Averaged
101 Diphenylamine	0.51815	0.52502	0.52502	0.010	-1.32733	50.00000	Averaged
l	[<u> </u>	I		l	

Data File: \\cansvr11\dd\chem\MSS\a4ag2.i\71101A.b\2SMH1101.D

Report Date: 01-Nov-2007 07:43

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i Injection Date: 01-NOV-2007 06:29

Lab File ID: 2SMH1101.D Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007

Init. Cal. Times:
Quant Type: ISTD Analysis Type: 07:15 09:38

Lab Sample ID: L6

Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71101A.b\8270p.m

	I	İ	CCAL	MIN		MAX	1
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
				=====	========		
146 Benzo(a)pyrene	1.06425	1.06822	1.06822	0.010	-0.37280	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.17860	1.20289	1.20289	0.010	-2.06112	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.00440	1.01650	1.01650	0.010	-1.20498	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.99629	1.01545	1.01545	0.010	-1.92338	50.00000	Averaged
\$ 154 Nitrobenzene-d5	0.30329	0.32761	0.32761	0.010	-8.01921	50.00000	Averaged
\$ 155 2-Fluorobiphenyl	1.19472	1.23157	1.23157	0.010	-3.08401	50.00000	Averaged
\$ 156 Terphenyl-d14	0.82049	0.85715	0.85715	0.010	-4.46707	50.00000	Averaged
\$ 157 Phenol-d5] 1.50322[1.45362	1.45362	0.010	3.29964	50.00000	Averaged
\$ 158 2-Fluorophenol	1.14183	1.06093	1.06093	0.010	7.08531	50.00000	Averaged
\$ 159 2,4,6-Tribromophenol	0.15946	0.16631	0.16631	0.010	-4.29608	50.00000	Averaged
\$ 186 2-Chlorophenol-d4	1.29469	1.28163]	1.28163	0.010	1.00803	50.00000	Averaged
\$ 187 1,2-Dichlorobenzene-d4	0.82582	0.84673	0.84673	0.010	-2.53202	50.00000	Averaged
M 195 Cresols, total	2.47068	2.54962	2.54962	0.010	-3.19496	50.00000	Averaged
101 Diphenylamine	0.51815	0.52771	0.52771	0.010	-1.84488	50.00000	Averaged
•	, ,	1	1				ı İ

Data File: \\cansvr11\dd\chem\MSS\a4ag2.i\71102A.b\2SMH1102.D Report Date: 02-Nov-2007 10:24 Page 3

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Injection Date: 02-NOV-2007 09:07

Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007 Init. Cal. Times: 07:15 09:38 Quant Type: ISTD

Instrument ID: a4ag2.i Injection Date: 02-NOV-2007
Lab File ID: 2SMH1102.D Init. Cal. Date(s): 29-OCT-2
Analysis Type: Init. Cal. Times: 07:15
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\\dd\chem\MSS\a4ag2.i\\71102A.b\\8270p.m

]		CCAL	MIN		MAX	
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
	==== ======	=======================================		=====			========
146 Benzo(a)pyrene	1.06425	1.08452	1.08452	0.010	-1.90395	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.17860	1.21101	1.21101	0.010	-2.75011	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.00440	1.02348	1.02348	0.010	-1.89953	50.00000	
151 Benzo(g,h,i)perylene	0.99629	1.01449	1.01449	0.010	-1.82701	50.00000	Averaged
\$ 154 Nitrobenzene-d5	0.30329	0.32398	0.32398	0.010	-6.82222	50.00000	Averaged
\$ 155 2-Fluorobiphenyl	1.19472	1.22031	1.22031	0.010	-2.14154	50.00000	Averaged
\$ 156 Terphenyl-d14	0.82049	0.85095	0.85095	0.010	-3.71203	50.00000	
\$ 157 Phenol-d5	1.50322	1.48870	1.48870	0.010	0.96601	50.00000	_
\$ 158 2-Fluorophenol	1.14183	1.17816	1.17816	0.010	-3.18161	50.00000	_
\$ 159 2,4,6-Tribromophenol	0.15946	0.15784	0.15784	0.010	1.01260	50.00000l	_
186 2-Chlorophenol-d4	1.29469	1.28467	1.28467	0.010	0.77342	50.00000	•
\$ 187 1,2-Dichlorobenzene-d4	0.82582	0.83897	0.83897	0.010	-1.59167		
4 195 Cresols, total	2.47068	2.72373	2.72373	0.010	-10.24192	- 1	Averaged
101 Diphenylamine	0.51815	0.52362	0.52362	0.010	•	,	Averaged
	i i	i	i	í	i		5

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24256

Lab File ID (Standard): 2SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4AG2 Time Analyzed: 0813

		IS1 (DCB)	T	IS2 (NPT)	1	TC2 (73mm)	
		AREA #	RT	AREA #	RT	IS3 (ANT) AREA #	1
	12 HOUR STD	286373	3.64	1176499	4.53	607773	5.81
	UPPER LIMIT	572746	4.14	2352998	5.03	1215546	6.31
	LOWER LIMIT	143187	3.14	588250	4.03	303887	5.31
	EPA SAMPLE NO.					. ======	=====
01 02 03 04 05 06 07 08 09 11 12 13 14 15 16 17 18 19 20 21 22 22 22 22 22 22 22 22 22 22 22 22	J9VA2BLK J9VA2CHK SB-469-0506 SB-469-0506 SB-469-0708	372365 381675 374717 99361* 319451 381790	3.63 3.64 3.63 3.63 3.63 3.63	1612698 1670973 1597249 423049* 1414221 1684070	4.53 4.53 4.53 4.53 4.53 4.53	855824 869117 838669 215367* 744075 874812	5.81 5.81 5.81 5.81 5.81

IS1 (DCB) = 1,4-Dichlorobenzene-d4 U IS2 (NPT) = Naphthalene-d8

UPPER LIMIT = +100%

IS2 (NPT) = Naphthalene-d8 IS3 (ANT) = Acenaphthene-d10

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24256

Lab File ID (Standard): 2SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4AG2 Time Analyzed: 0813

1		IS4 (PHN)	1	IS5 (CRY)	T	TGC (DDIE)	,
		AREA #	RT	AREA #	RT	IS6 (PRY) AREA #	RT
12	HOUR STD	1035448	6.90	962013	8.87	934181	10.38
UP	PER LIMIT	2070896	7.40	1924026	9.37	1868362	10.88
	WER LIMIT	517724	6.40	481007	8.37	467091	9.88
EP	A SAMPLE NO.						=====
01 J9V 02 J9V 03 SB 04 SB 05 SB	A2BLK A2CHK 469-0506 469-0506 469-0506 469-0708	1455284 1486609 1411625 373774* 1316730 1520496	6.90 6.90 6.90 6.90 6.90	1361379 1371008 1301407 340175* 1234599 1396484	8.87 8.88 8.87 8.88 8.88	1324326 1330388 1278766 307419* 1185043 1331579	10.38 10.38 10.38 10.38 10.39 10.38

IS4 (PHN) = Phenanthrene-d10 IS5

UPPER LIMIT = +100%

= Chrysene-d12 (CRY) of internal standard area. IS6 (PRY) = Perylene-d12

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

SDG No.: 7J24256 SAS No.: Lab Code: TALCAN Case No.:

Date Analyzed: 10/31/07 Lab File ID (Standard): 2SMH1031

Time Analyzed: 0656 Instrument ID: A4AG2

		IS1 (DCB) AREA #	RT'	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
		AREA #		AREA #	1/1	ALUA #	=====
1	2 HOUR STD	357582	3.61	1543702	4.51	756387	5.78
UI	PPER LIMIT	715164	4.11	3087404	5.01	1512774	6.28
i	WER LIMIT	178791	3.11	771851	4.01	378194	5.28
E	PA SAMPLE NO.				=====	=======	
02 SB- 03 SB- 04 SB- 05 SB-	-466-0102 -466-0203 -466-0304 -466-0506 -466-0708 -467-0102	324516 365984 373534 369369 352861 390271	3.61 3.61 3.61 3.61 3.61	1465090 1602625 1621494 1593803 1532476 1710178	4.51 4.51 4.51 4.51 4.51	784773 849932 841210 828148 812112 907570	5.78 5.78 5.78 5.78 5.78 5.78
18 19 20 21							
22							

= 1,4-Dichlorobenzene-d4 IS1 (DCB)

(NPT) IS2 (ANT) IS3

= Naphthalene-d8 = Acenaphthene-d10

UPPER LIMIT = +100%

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24256

Lab File ID (Standard): 2SMH1031 Date Analyzed: 10/31/07

Instrument ID: A4AG2 Time Analyzed: 0656

1		IS4 (PHN)	 	IS5 (CRY)		IS6 (PRY)	<u> </u>
		AREA #	RT	AREA #	RT	AREA #	RT
===:	=======	=======	=====	========	=====	========	=====
12	HOUR STD	1273448	6.87	1189792	8.85	1146138	10.34
===:	=======	2546006	7.37	2379584	9.35	2292276	10.84
UP.	PER LIMIT	2546896 =======	1	23/3364	9.33	2232270	======
TiO	WER LIMIT	636724	6.37	594896	8.35	573069	9.84
	=======	========	=====	=======	=====	========	=====
EP	A SAMPLE						
	NO.						=====
01 SB-4	466-0102	1340540	6.87	1061428	8.84	933037	10.34
	466-0203	1465003	6.87	1176594	8.84	1036870	10.34
	466-0304	1451884	6.87	1178097	8.84	1028339	10.33
	466-0506	1439831	6.87	1131360	8.84	9.87504	10.33
	466-0708	1393626	6.87	1101329	8.84 8.84	962887 1102147	10.33
	467-0102	1574515	6.87	1260108	8.84	110214/	10.33
07		-		···			
09							
10	•						
11			.				
12			.				
13			-		·		
15		~			. ————————————————————————————————————		
16							
17							
18			.				
19							
21							
22							

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-dl2

IS6 (PRY) = Perylene-d12

UPPER LIMIT = +100%

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24256

Lab File ID (Standard): 2SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4AG2 Time Analyzed: 0629

1		IS1 (DCB)		IS2 (NPT)		IS3 (ANT)	
		AREA #	RT	AREA #	RT	AREA #	RT
]==	12 HOUR STD	204046	3.60	864274	4.50	441616	5.77
	JPPER LIMIT	408092	4.10	1728548	5.00	883232	6.27
I	LOWER LIMIT	102023	3.10	432137	4.00	220808	5.27
	EPA SAMPLE NO.				======	*****	==== =
,	3-467-0203 3-467-0304	238542 210970	3.60	1113184 981730	4.50	614861 550219	5.77
15							

IS1 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = +100%

IS2 (NPT)

= Naphthalene-d8

of internal standard area.

IS3 (ANT) = Acenaphthene-d10

LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24256

Lab File ID (Standard): 2SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4AG2 Time Analyzed: 0629

		IS4 (PHN)	·	IS5 (CRY)		IS6(PRY)	
		AREA #	RT	AREA #	RT	AREA #	RT
	=========	========	=====	========	=====	========	=====
	12 HOUR SID	754632	6.85	692263	8.82	680042	10.30
	UPPER LIMIT	1509264	7.35	1384526	9.32	1360084	10.80
	LOWER LIMIT	377316	6.35	346132	8.32	340021	9.80
	EPA SAMPLE NO.				=====		=====
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16	SB-467-0203 SB-467-0304	1164464 1006649	6.87	1064617 923364	8.84 8.84	1070507 917342	10.32
18 19							
20 21 22							
44	_ _	i.	I-			.	

IS4 (PHN) = Phenanthrene-d10

= Perylene-d12

IS5 (CRY) = Chrysene-d12

(PRY)

UPPER LIMIT = +100%

of internal standard area.

LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24256

Lab File ID (Standard): 2SMH1102 Date Analyzed: 11/02/07

Instrument ID: A4AG2 Time Analyzed: 0907

		TC1 (DCD)		TGO (210m)			
		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	182072	3.57	759534	4.47	380375	5.74
	UPPER LIMIT	364144	4.07	1519068	4.97	760750	6.24
	LOWER LIMIT	91036	3.07	379767	3.97	190188	5.24
	EPA SAMPLE NO.	========	=====			========	=====
01 02 03 04 05 06 07 08 09 11 12 13 14 15 16 17 18 19 20 21 22	SB-467-0506 SB-467-0708 SB-468-0102 SB-468-0203 SB-468-0304 SB-468-0506 SB-468-0708 SB-469-0102 SB-469-0203 SB-469-0304	241669 180160 150915 213047 248189 193655 251983 137037 197698 213432	3.57 3.57 3.57 3.57 3.57 3.57 3.57 3.57	1040067 738139 649798 924838 1064939 828772 1085799 587564 823273 884533	4.47 4.47 4.47 4.47 4.47 4.47 4.47 4.47	519654 363452 322653 461380 529346 417948 536312 284949 409674 438077	5.74 5.74 5.74 5.74 5.74 5.74 5.74 5.74

TS1 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = +100%

IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24256

Lab File ID (Standard): 2SMH1102 Date Analyzed: 11/02/07

Instrument ID: A4AG2 Time Analyzed: 0907

		IS4 (PHN)		TOP / ODEN	·	TG 5 (7777-1)	
		AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	631202	6.83	581779	8.80	553071	10.26
	UPPER LIMIT	1262404	7.33	1163558	9.30	1106142	10.76
	LOWER LIMIT	315601	6.33	290890	8.30	276536	9.76
	EPA SAMPLE NO.				=====	========	=====
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22	SB-467-0506 SB-467-0708 SB-468-0102 SB-468-0203 SB-468-0304 SB-468-0506 SB-468-0708 SB-469-0102 SB-469-0203 SB-469-0304	879504 614260 551592 777648 904196 696522 887790 478050 686894 737020	6.83 6.83 6.83 6.83 6.83 6.83 6.83 6.83	784621 546548 481698 684898 802934 601752 793752 416657 604823 659307	8.80 8.81 8.80 8.81 8.80 8.80 8.80 8.80	687633 481507 470906 659486 769340 576956 750522 410627 584674 624946	10.27 10.27 10.27 10.27 10.27 10.25 10.26 10.26

(PHN) = Phenanthrene-d10 IS5 (CRY)

UPPER LIMIT = +100% = Chrysene-d12 of internal standard area.

IS6 (PRY) = Perylene-d12 LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

SAMPLE CALC

SAMPLE ID: SB-466-0102

COMPOUND: BAP

IS AREA

933037

DILUTION COMPOUND OF INTEREST AREA IS AMOUNT (NG) | Final Extract Volume (UL) | AVE RRF | 1.0643 | PERCENT SOLIDS | AMOUNT INJECTED (UL) | CONCENTRATION PPB | 1.0643 | 0.85 | 10.96

Sample Amount (g) 30.02

Tetra Tech NUS, Inc

Client Sample ID: SB-466-0102

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #:	10/23/07 11:20 10/26/07	Work Order # Date Received Analysis Date	: 10/24/07	Matrix: SO
Dilution Factor:	1	Initial Wqt/Vol	: 30.02 g	Final Wgt/Vol: 2 mL
% Moisture:	15	Method	: SW846 8270	_
			REPORTING	
PARAMETER		RESULT	LIMIT	UNITS
Benzo(a)pyrene		11 J	390	ug/kg
		PERCENT	RECOVERY	
SURROGATE		RECOVERY	LIMITS	
Nitrobenzene-d5		65	(24 - 112)	
2-Fluorobiphenyl		67	(34 - 110)	
Terphenyl-d14		101	(41 - 119)	
Phenol-d5		76	(28 - 110)	
2-Fluorophenol	•	73	(26 - 110)	
2,4,6-Tribromophe	nol	76	(10 - 118)	
NOTE(S).				

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Data File: \cansvr11\dd\chem\MSS\a4ag2.i\71031A.b\J9P621AD.D Page 1

Report Date: 01-Nov-2007 07:51

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4ag2.i\71031A.b\J9P621AD.D

Lab Smp Id: J9P621AD Client Smp ID: SB-466-0102

Inj Date : 31-OCT-2007 17:08

Operator: 046900 Inst ID: a4ag2.i

Smp Info : J9P621AD, 71031A.b, 8270P, BAP.SUB

Misc Info : Comment :

Cal Date : 29-OCT-2007 07:15 Cal File: 2SHHH1029.D

Als bottle: 37

Dil Factor: 1.00000 Integrator: HP RTE

Integrator: HP RTE Compound Sublist: BAP.SUB

Target Version: 4.14

Processing Host: CANPMSSV04

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws) * CpndVariable

Name	Value	Description
DF Uf Vt Vi Ws Cpnd Variable	1.000	collocion raccor

						CONCENTRA	TIONS
	QUANT SIG					ON-COLUMN	FINAL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(NG)	(ug/kg)
	====		======	======		=======	======
* 1 1,4-Dichlorobenzene-d4	152	3.613	3.613	(1.000)	324516	2.00000	(Q)
* 2 Naphthalene-d8	136	4.513	4.513	(1.000)	1465090	2.00000	
* 3 Acenaphthene-d10	164	5.783	5.783	(1.000)	784773	2.00000	
* 4 Phenanthrene-d10	188	6.871	6.871	(1.000)	1340540	2.00000	
* 5 Chrysene-d12	240	8.842	8.848	(1.000)	1061428	2.00000	
* 6 Perylene-d12	264	10.336	10.336	(1.000)	933037	2.00000	
146 Benzo(a)pyrene	252	10.265	10.271	(0.993)	34706	0.06990	9.3141
\$ 154 Nitrobenzene-d5	82	3.989	3.995	(0.884)	718284	3.23297	430.78
\$ 155 2-Fluorobiphenyl	172	5.266	5.272	(0.911)	1581108	3.37271	449.40
\$ 156 Terphenyl-d14	244	8.018	8.018	(0.907)	2188986	5.02697	669.82
\$ 157 Phenol-d5	99	3.319	3.313	(0.919)	1388266	5.69173	758 39
\$ 158 2-Fluorophenol	112	2.748	2.736	(0.761)	1012843	5.46681	728.42
\$ 159 2,4,6-Tribromophenol	330	6.354	6.354	(1.099)	355207	5.67703	756.43
\$ 186 2-Chlorophenol-d4	132	3.460	3.460	(0.958)	1147008	5.46004	727.52
\$ 187 1,2-Dichlorobenzene-d4	152	3.725	3.725	(1.031)	310898	2.32020	309.15

QC Flag Legend



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

M. MARTIN

DATE:

JANUARY 8, 2008

FROM:

MATTHEW D. KRAUS

COPIES:

DV FILE

SUBJECT:

INORGANIC DATA VALIDATION - MERCURY

LOCKHEED MIDDLE RIVER

SDG - 7J24256

SAMPLES:

20/Solid/

SB-466-0102	SB-466-0203	SB-660-0304
SB-466-0506	SB-466-0708	SB-467-0102
SB-467-0203	SB-467-0304	SB-467-0506
SB-467-0708	SB-468-0102	SB-468-0203
SB-468-0304	SB-468-0506	SB-468-0708
SB-469-0102	SB-469-0203	SB-469-0304
SB-469-0506	SB-469-0708	

Overview

The sample set for Lockheed Middle River, SDG 7J24256, consists of twenty soil environmental samples which were all analyzed for mercury and percent solids.

The samples were collected on October 23, 2007 and analyzed by Test America Laboratories.. All of the samples were analyzed for mercury in accordance with SW 846 method 7471A and cold vapor atomic absorption (CVAA) methodologies.

Summary

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, initial/continuing calibrations, laboratory method blank results, matrix spike/matrix spike duplicate recoveries, compound quantitation and detection limits. Areas of concern are listed below.

Major Problems

• None.

Minor Problems

None.

TO: MARTIN, M. – PAGE 2 DATE: JANUARY 8, 2008

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "Region III Modifications to National Functional Guidelines for Inorganic Data Validation", April 1993.

Terra Tech NOS

Matthew D. Kraus

Environmental Chemist

Tetra Tech NOS 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 Support Documentation

Data Qualifier Key

U - Value is considered non-detected as reported by the laboratory.

APPENDIX A QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

= Lab Blank Contamination

= Field Blank Contamination

= Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

= GC/MS Tuning Noncompliance

= MS/MSD Recovery Noncompliance D

= LCS/LCSD Recovery Noncompliance

= Lab Duplicate Imprecision

= Field Duplicate Imprecision G

= Holding Time Exceedance H

= ICP Serial Dilution Noncompliance

GFAA PDS - GFAA MSA's r < 0.995

ICP Interference - includes ICS % R Noncompliance

= Instrument Calibration Range Exceedance

Sample Preservation Noncompliance M

= Internal Standard Noncompliance

N01 = Internal Standard Recovery Noncompliance Dioxins

No2 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

= Poor Instrument Performance (e.g. base-line drifting)

= 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.) = Surrogates Recovery Noncompliance

S = Pesticide/PCB Resolution

T = % Breakdown Noncompliance for DDT and Endrin

= % Difference between columns/detectors >25% for positive results determined via GC/HPLC V.

= Non-linear calibrations; correlation coefficient r < 0.995

= EMPC result W

= Signal to noise response drop

Percent solids <30%

Uncertainty at 2 sigma deviation is greater than sample activity

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-466-0102 10/23/2007

nsample SB-466-0203 samp_date 10/23/2007 lab_id

nsample samp_date lab_id

qc_type

SB-466-0304 10/23/2007 A7J240256003

lab_id qc_type units Pct_Solids

A7J240256001 NM MG/KG 85.0

qc_type units Pct_Solids

DUP_OF:

A7J240256002 MG/KG 90.0

units Pct_Solids DUP_OF:

MG/KG 89.0

NM

DUP_OF:

Parameter	Result	Val Qual	Quai Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

NM

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: M

nsample samp_date lab_id SB-466-0506 10/23/2007 A7J240256004 nsample samp_date lab_id SB-466-0708 10/23/2007 A7J240256005

nsample samp_date lab_id qc_type SB-467-0102 10/23/2007 A7J240256006

qc_type
units
Pct_Solids

NM MG/KG 83.0

qc_type
units
Pct_Solids
DUP_OF:

NM MG/KG 84.0

units
Pct_Solids
DUP_OF:

NM MG/KG 89.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: M

nsample samp_date lab_id

SB-467-0203 10/23/2007

A7J240256007

qc_type NM units MG/KG Pct_Solids 89.0

nsample samp_date

lab_id

units

qc_type

Pct_Solids

DUP_OF:

SB-467-0304 10/23/2007 A7J240256008

NM MG/KG 89.0

nsample samp_date lab_id

Pct_Solids

DUP_OF:

units

qc_type

A7J240256009 NM MG/KG 84.0

SB-467-0506

10/23/2007

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	. 0.02	U	

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

SB-467-0708

10/23/2007

lab_id

A7J240256010

qc_type units

NM MG/KG

86.0

nsample samp_date lab_id

DUP_OF:

10/23/2007 A7J240256011 qc_type NM

units Pct_Solids nsample

samp_date lab_id

SB-468-0203 10/23/2007 A7J240256012

qc_type units

NM MG/KG 85.0

Pct_Solids DUP_OF:

Pct_Solids DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

SB-468-0102

MG/KG

89.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: M

SB-468-0304 nsample SB-468-0506 nsample samp_date 10/23/2007 samp_date 10/23/2007 lab_id A7J240256013 lab_id A7J240256014 qc_type NM qc_type NM units MG/KG units MG/KG Pct_Solids 85.0 Pct_Solids 84.0 DUP_OF: DUP_OF:

 samp_date
 10/23/2007

 lab_id
 A7J240256015

 qc_type
 NM

 units
 MG/KG

 Pct_Solids
 85.0

 DUP_OF:

nsample

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U .	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

SB-468-0708

00885

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

lab_id

SB-469-0102 10/23/2007

A7J240256016

qc_type NM units MG/KG 89.0 Pct_Solids

Parameter

DUP_OF:

MERCURY

nsample samp_date

qc_type

10/23/2007 lab_id

units Pct_Solids DUP_OF:

SB-469-0203

A7J240256017

NM MG/KG

87.0

nsample

samp_date lab_id

qc_type units Pct_Solids

DUP_OF:

Val Qual Result Qual Code

U

0.019

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

SB-469-0304

A7J240256018

10/23/2007

NM

82.0

MG/KG

SDG: 7J24256 MEDIA: SOIL DATA FRACTION: M

nsample

SB-469-0506

nsample samp_date SB-469-0708

samp_date lab_id

10/23/2007 A7J240256019

10/23/2007 A7J240256020

qc_type units

NM MG/KG

Pct_Solids

lab_id qc_type units

NM

Pct_Solids

MG/KG 85.0

DUP_OF:

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

84.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P62

Client ID: SB-466-0102

Matrix: Soil

Units: mg/kg

Prep Date: 10/25/2007

Prep Batch: 7298023

Weight: 0.60

Volume:

100

Percent Moisture:

15.028

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:43

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID: ____

J9P7D

Client ID:

SB-466-0203

Matrix:

Soil

Units: mg/kg

Prep Date: 10/25/2007

.

Prep Batch: <u>7298023</u>

Weight:

0.60

Volume:

100

Percent Moisture:

10.167

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:53

Comments: <u>Lot #: A7J240256</u> Sample #: 2

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P7K

Client ID:

SB-466-0304

Matrix:

Soil

Units: m

100

mg/kg Prep Da

Prep Date: 10/25/2007

Prep Batch: 7298023

Weight:

0.60

Volume:

Percent Moisture:

11.43

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:54

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P7Q

Client ID:

SB-466-0506

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/25/2007

Prep Batch: 7298023

Weight:

0.60

Volume: 100 **Percent Moisture:** 17.07

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:55

Comments: Lot #: A7J240256 Sample #: 4

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P7V

Client ID:

SB-466-0708

Matrix:

Soil

Units: mg/kg

100

Prep Date: 10/25/2007

Prep Batch:

Weight:

0.60

Volume:

Percent Moisture: 15.633

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:56

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P70

Client ID:

SB-467-0102

Matrix:

Soil

Units: mg/kg

100

Prep Date: 10/25/2007

Prep Batch: 7298023

Weight:

0.60

Volume:

Percent Moisture:

10.535

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:44

E Serial dilution percent difference not within limits

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P72

Client ID:

SB-467-0203

Matrix:

Soil

Units: mg/kg **Prep Date:** __10/25/2007

Prep Batch: <u>7298023</u>

Weight:

0.60

Volume:

100

Percent Moisture: 11.416

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:45

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P73

Client ID:

SB-467-0304

Matrix: Soil

Units: mg/kg

100

Prep Date: 10/25/2007

Prep Batch: 7298023

Weight: 0.60

Volume:

Percent Moisture: 11.483

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:46

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P74

Client ID: SB-467-0506

Matrix:

Soil

Units: mg/kg

100

Prep Date: <u>10/25/2007</u>

Prep Batch:___

Weight:

0.60

Volume:

Percent Moisture: 16.365

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:50

Comments: <u>Lot #: A7J240256 Sample #: 9</u>

5.21.0

E Serial dilution percent difference not within limits

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P75

Client ID:

SB-467-0708

Matrix:

Soil

Units: mg/kg

Prep Date: __10/25/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture:

13.635

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/26/2007	11:51

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P78

Client ID:

SB-468-0102

Matrix:

Soil

Units: mg/kg

100

Prep Date: 10/25/2007

Prep Batch:

Weight:

0.60

Volume:

Percent Moisture: 11.201

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:52

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P8A

Client ID:

SB-468-0203

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/25/2007

Prep Batch: 7298023

Weight:

0.60

Volume:

100

Percent Moisture: 14.543

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:59

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P8C

Client ID:

SB-468-0304

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/25/2007

Prep Batch:

Weight:

0.60

Volume: 100

Percent Moisture:

14.867

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	12:00

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P8D

Client ID:

SB-468-0506

Matrix:

Soil

Units: mg/kg

Prep Date: __10/25/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture:

16.086

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	12:04

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9P8E Client ID:

SB-468-0708

Matrix: Soil

Units: mg/kg **Prep Date:** 10/25/2007

Prep Batch: 7298023

Weight: 0.60

100 Volume:

Percent Moisture: 15.362

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	12:05

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P8F

Client ID:

SB-469-0102

Matrix:

Soil

Units: mg/kg

100

Prep Date: 10/25/2007

Prep Batch:

Weight:

0.60

Volume:

Percent Moisture:

10.933

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	12:06

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P8G

Client ID:

SB-469-0203

Matrix: Soil

Units: mg/kg

100

Prep Date: 10/25/2007

Prep Batch: 7298023

Weight:

0.60

Volume:

Percent Moisture: 12.576

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	12:07

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9P8J Client ID:

SB-469-0304

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/25/2007

Prep Batch: 7298023

Weight: 0.60

100 Volume:

Percent Moisture: 17.768

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	12:08

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9P8K

Client ID:

SB-469-0506

Matrix:

Soil

Units: mg/kg

Prep Date: 10/25/2007

Prep Batch: 7298023

Weight:

0.60

Volume: 100

Percent Moisture:

16.384

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	12:09

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

J9P86 Lab Sample ID:

Client ID:

SB-469-0708

Matrix: Soil

Units: mg/kg

100

Prep Date: 10/25/2007

Prep Batch: 7298023

Weight: 0.60

Volume:

Percent Moisture: 15.384

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:58

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Client Sample ID: SB-466-0102

General Chemistry

Lot-Sample #...: A7J240256-001 Work Order #...: J9P62 Matrix.....: S0

Date Sampled...: 10/23/07 11:20 Date Received..: 10/24/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 85.0
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-466-0203

General Chemistry

Lot-Sample #...: A7J240256-002 Work Order #...: J9P7D Matrix...... S0

Date Sampled...: 10/23/07 11:22 Date Received..: 10/24/07

% Moisture....: 10

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 89.8
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-466-0304

General Chemistry

Lot-Sample #...: A7J240256-003 Work Order #...: J9P7K Matrix.....: S0

Date Sampled...: 10/23/07 11:24 Date Received..: 10/24/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 88.6
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-466-0506

General Chemistry

Lot-Sample #...: A7J240256-004 Work Order #...: J9P7Q Matrix.....: S0

Date Sampled...: 10/23/07 11:26 Date Received..: 10/24/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 82.9
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-466-0708

General Chemistry

Lot-Sample #...: A7J240256-005 Work Order #...: J9P7V Matrix.....: S0

Date Sampled...: 10/23/07 11:28 Date Received..: 10/24/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 84.4
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-467-0102

General Chemistry

Lot-Sample #...: A7J240256-006 Work Order #...: J9P70 Matrix.....: S0

Date Sampled...: 10/23/07 11:41 Date Received..: 10/24/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 89.5
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-467-0203

General Chemistry

Lot-Sample #...: A7J240256-007 Work Order #...: J9P72 Matrix.....: S0

Date Sampled...: 10/23/07 11:43 Date Received..: 10/24/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 88.6
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-467-0304

General Chemistry

Lot-Sample #...: A7J240256-008 Work Order #...: J9P73 Matrix.....: S0

Date Sampled...: 10/23/07 11:45 Date Received..: 10/24/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 88.5
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-467-0506

General Chemistry

Lot-Sample #...: A7J240256-009 Work Order #...: J9P74 Matrix.....: SO

Date Sampled...: 10/23/07 11:47 Date Received..: 10/24/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 83.6
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-467-0708

General Chemistry

Lot-Sample #...: A7J240256-010 Work Order #...: J9P75 Matrix.....: SO

Date Sampled...: 10/23/07 11:49 Date Received..: 10/24/07

% Moisture....: 14

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 86.4
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-468-0102

General Chemistry

Lot-Sample #...: A7J240256-011 Work Order #...: J9P78 Matrix...... SO

Date Sampled...: 10/23/07 13:20 Date Received..: 10/24/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 88.8
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-468-0203

General Chemistry

Lot-Sample #...: A7J240256-012 Work Order #...: J9P8A Matrix.....: SO

Date Sampled...: 10/23/07 13:22 Date Received..: 10/24/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 85.5
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-468-0304

General Chemistry

Lot-Sample #...: A7J240256-013 Work Order #...: J9P8C Matrix.....: S0

Date Sampled...: 10/23/07 13:24 Date Received..: 10/24/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 85.1
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-468-0506

General Chemistry

Lot-Sample #...: A7J240256-014 Work Order #...: J9P8D Matrix...... S0

Date Sampled...: 10/23/07 13:26 Date Received..: 10/24/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL UNITS
 METHOD
 ANALYSIS DATE ANALYSIS DATE
 BATCH # 7305443

 Percent Solids
 83.9
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-468-0708

General Chemistry

Lot-Sample #...: A7J240256-015 Work Order #...: J9P8E Matrix...... S0

Date Sampled...: 10/23/07 13:28 Date Received..: 10/24/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 84.6
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-469-0102

General Chemistry

Lot-Sample #...: A7J240256-016 Work Order #...: J9P8F Matrix...... S0

Date Sampled...: 10/23/07 13:43 Date Received..: 10/24/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 89.1
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-469-0203

General Chemistry

Lot-Sample #...: A7J240256-017 Work Order #...: J9P8G Matrix...... S0

Date Sampled...: 10/23/07 13:45 Date Received..: 10/24/07

% Moisture....: 13

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 87.4
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-469-0304

General Chemistry

Lot-Sample #...: A7J240256-018 Work Order #...: J9P8J Matrix.....: S0

Date Sampled...: 10/23/07 13:47 Date Received..: 10/24/07

% Moisture....: 18

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 82.2
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-469-0506

General Chemistry

Lot-Sample #...: A7J240256-019 Work Order #...: J9P8K Matrix...... S0

Date Sampled...: 10/23/07 13:49 Date Received..: 10/24/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 83.6
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

Client Sample ID: SB-469-0708

General Chemistry

Lot-Sample #...: A7J240256-020 Work Order #...: J9P86 Matrix...... S0

Date Sampled...: 10/23/07 13:51 Date Received..: 10/24/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 84.6
 10.0
 %
 MCAWW 160.3 MOD
 11/01-11/02/07
 7305443

APPENDIX C SUPPORT DOCUMENTATION

Botoma

SDG 7J24256

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	CAMP DATE			Mark the resulting	n silventa	
LIC					SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-468-0506	A7J240256014	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-466-0304	A7J240256003	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-466-0506	A7J240256004	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG .	MG/KG	SB-466-0708	A7J240256005	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-467-0203	A7J240256007	NM	10/23/2007	10/25/2007	10/26/2007	2	1 .	3
HG	MG/KG	SB-467-0506	A7J240256009	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-467-0708	A7J240256010	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-468-0102	A7J240256011	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-466-0203	A7J240256002	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-468-0304	A7J240256013	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-467-0102	A7J240256006	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-468-0708	A7J240256015	NM	10/23/2007	10/25/2007	10/26/2007	2	. 1	3
HG	MG/KG	SB-469-0102	A7J240256016	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-469-0203	A7J240256017	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-469-0304	A7J240256018	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3

Friday, November 16, 2007

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-469-0506	A7J240256019	NM	10/23/2007	10/25/2007	10/26/2007	. 2	1	3
HG	MG/KG	SB-469-0708	A7J240256020	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-466-0102	A7J240256001	NM	10/23/2007	10/25/2007	10/26/2007	. 2	1	3
HG	MG/KG	SB-468-0203	A7J240256012	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-467-0304	A7J240256008	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
PCS	%	SB-468-0304	A7J240256013	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-469-0506	A7J240256019	NM	10/23/2007	11/1/2007	11/2/2007	9	. 1	10
PCS	%	SB-469-0708	A7J240256020	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-469-0304	A7J240256018	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-469-0203	A7J240256017	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-469-0102	A7J240256016	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-468-0506	A7J240256014	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-466-0102	A7J240256001	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-468-0203	A7J240256012	NM	10/23/2007	11/1/2007	11/2/2007	9	<u>†</u>	10
PCS	%	SB-468-0102	A7J240256011	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-466-0304	A7J240256003	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-468-0708	A7J240256015	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-466-0203	A7J240256002	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10

Friday, November 16, 2007

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-467-0708	A7J240256010	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	% .	SB-466-0506	A7J240256004	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-466-0708	A7J240256005	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-467-0102	A7J240256006	NM	10/23/2007	11/1/2007	11/2/2007	. 9	1 ·	10
PCS	%	SB-467-0203	A7J240256007	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-467-0304	A7J240256008	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-467-0506	A7J240256009	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
os	%	SB-469-0708	A7J240256020	NM	10/23/2007	10/26/2007	10/29/2007	3	3	6
os	%	SB-467-0506	A7J240256009	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
OS	%	SB-466-0203	A7J240256002	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	%	SB-466-0304	A7J240256003	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	%	SB-466-0506	A7J240256004	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
OS	%	SB-466-0708	A7J240256005	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	%	SB-467-0102	A7J240256006	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	%	SB-467-0203	A7J240256007	NM	10/23/2007	10/26/2007	11/1/2007	3	6	9
os	%	SB-467-0304	A7J240256008	NM	10/23/2007	10/26/2007	11/1/2007	3	6	9
OS	%	SB-466-0102	A7J240256001	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	%	SB-469-0506	A7J240256019	NM	10/23/2007	10/26/2007	10/29/2007	3	3	6

Friday, November 16, 2007

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP ANL
OS	%	SB-468-0102	A7J240256011	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	%	SB-468-0203	A7J240256012	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	%	SB-468-0304	A7J240256013	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	%	SB-468-0506	A7J240256014	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	%	SB-468-0708	A7J240256015	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
OS	%	SB-469-0102	A7J240256016	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
OS	%	SB-469-0203	A7J240256017	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
OS	%	SB-469-0304	A7J240256018	NM	10/23/2007	10/26/2007	11/2/2007	3	. 7	10
os	%	SB-467-0708	A7J240256010	NM	10/23/2007	10/26/2007	11/2/2007	· 3	7	10
os	UG/KG	SB-468-0304	A7J240256013	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	UG/KG	SB-468-0506	A7J240256014	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	UG/KG	SB-468-0708	A7J240256015	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	UG/KG	SB-469-0102	A7J240256016	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	UG/KG	SB-469-0203	A7J240256017	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	UG/KG	SB-469-0304	A7J240256018	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	UG/KG	SB-468-0203	A7J240256012	NM	10/23/2007	10/26/2007	11/2/2007	3 .	7	10
os	UG/KG	SB-469-0708	A7J240256020	NM	10/23/2007	10/26/2007	10/29/2007	3	3	6
os	UG/KG	SB-467-0102	A7J240256006	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
		E.C. To marrow in many responses to the second seco						O	J	0

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
os	UG/KG	SB-469-0506	A7J240256019	NM	10/23/2007	10/26/2007	10/29/2007	3	3	6
os	UG/KG	SB-468-0102	A7J240256011	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
os	UG/KG	SB-467-0708	A7J240256010	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
OS	UG/KG	SB-467-0506	A7J240256009	NM	10/23/2007	10/26/2007	11/2/2007	3	7	10
OS	UG/KG	SB-466-0102	A7J240256001	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
OS	UG/KG	SB-467-0203	A7J240256007	NM	10/23/2007	10/26/2007	11/1/2007	3	6	9
OS	UG/KG	SB-466-0708	A7J240256005	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
OS	UG/KG	SB-466-0506	A7J240256004	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
OS	UG/KG	SB-466-0304	A7J240256003	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
os	UG/KG	SB-466-0203	A7J240256002	NM	10/23/2007	10/26/2007	10/31/2007	3	5	8
OS	UG/KG	SB-467-0304	A7J240256008	NM	10/23/2007	10/26/2007	11/1/2007	3	6	9

Chain of Custody Record



STL 4124 (0901) Client		Sev	ern Trent Laboratories, Inc.	
Address Tech	Project Manager		Date	Chain of Custody Number
20251 Couper Blied the	Telephone Number (Area Co 301 528 - Site Contact In	Y/V de)/Fax Number	10/23/07	227047
City State Zip Code	301 528 Site Contact In	3022	Lab Number \$	- 1 7
Project Name and Location (State) 40 20874	S. Hadle	Lab Contact K. Ivos	Analysis (Attach list if	Page of Z
Contract/Purchase Order/Quote No.	Carrier/Waybill Number	7005	more space is needed)	
112 DC 00888	Courter		* 3	Chariel Instructions/
Samola LD At	Matrix	Containers & Preservatives	128 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Special Instructions/ Conditions of Receipt
Sh-UL/	Time Air Auecous	Unpress HRSO4 HNO3 HCI NaOH ZnAC/ NaOH	187	alack H
	1/20	2 2 2 2 2 2 2		11
-0203 -0304	1/22			*benzo(a) pyrem
70506	1/21		╎╎╫╍╌╌╏╌╏╸╏╸╏╸	
466 -0708	1126		╎╎╫┈┩┈╏┈╏╒	
467-0102	1/28			
1 -0203	11/4/			
-030Y	1143		 	
-0.506	1145			
467 -0709	1147		 	
468 -0102	1149			
56-468 - 0203	1320			1
Possible Hazard Identification		U	XV	V / 200 5
furn Around Time Required	Unknown Return To Client	Disposal By Lab A	(A fee may be as	sessed if samples are retained
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Day:		OC Requirements (Specify)	rchive For Months (A fee may be ass longer than 1 mor	nth)
DAllaco	Date Time	1. Received By	11	NON
Relinquished By	10/03/67 16-30	The Cul	Henry	15/23/5> Time 1638
Relinquished By		2. Received By		15/23/65 1636 Date Time 17
omments	Date Time	3. Received By		10-211-57 (0000
		1		Date Time A
TRIBUTION: WHITE - Returned to Client with Report: CANARY - Stavs will	th the Sample Black State			E-I

Chain of Custody Record



STL-4124 (0901) Client				001	orn none E	aboratories, inc.	
Address Pera lech		Project Man	MALAN	·		10/23/07	Chain of Custody Number 227048
2025/ Centry B	lvd #200	1301-	Jumber (Area Cod	de)/Fax Number 22		Lab Number	
OR/MANTOWN IN	State Zip Code	Site Contact	11	Lab Contact	A	nalysis (Attach list if	Page 2 of 2
Project Name and Location (State)		Carrier/Wayb	ill Nµmber	15. Ives	- 1	pre space is needed)	
Contract/Purchase Order/Quote No.		Corrie	·		4		Special Instruction of
112 TC00885			Matrix	Containers & Preservatives	2		Special Instructions/ Conditions of Receipt
Sample I.D. No. and Description (Containers for each sample may be combined or	one line) Date	Time \{	Aqueous Sed. Soil	Unpres. HZSO4 HNO3 HCI NaOH ZnAC/ NaOH	641		0/ 1/11/4
515-468-0304	10/23	132y	X	2	18		Block It
1-0506		1326	1		19 -	- 	Block "If" *benw (3) pyre
469-07-08		1328			┼╂┼┞┼┈┼┈┤	- 	
469-0102		1343			┾╂┾╂┼╌┼╌┤		
0203		1345			├╏ ┼┼┼┼		
0304		1347		2	 		
0506 + ms,	SDV	1349	1	4		++++	
B-464-0708	10/23	1351	1	2	7 7		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
							+ benzo (a) pyre
				, + + + + + + + + + + + + + + + + + + +	-+++		
		F-81	10/	23			
ossible Hazard Identification		l				$+++\mp$	
Non-Hazard Flammable Skip Im	itant 🗌 Poison B 🔰	_ /	ole Disposal				
Irn Around Time Required			Return To Client	Disposal By Lab	Archive For	Months longer than 1 mon	essed if samples are retained th)
Relinquished By	14 Days 21 Days	Other \$77		1	, h		
Pelinquished By		10/22/07	Time Z	1. Received By	FIF	#	Date / Time
•		Date	Time	2. Received By	- TOV	00	1 c/23/87 (630)
Relinquished By		Date	Time	3. Received By			10-24.07 COEX
·		1	1	1			Date Time

TestAmerica Cooler Receipt Form/Narrative	e Lot Number 1
North Canton Facility Client: Takra Tack Project: Opened on 1972-1987	- Los Maniper IV 1000 IV
Client: TetraTech Project:	Quote#: +7083
Cooler Received on: 10-24(-0-7) Opened on: 10-24	Quole#: 108
FedEx Client Drop Off UPS DHI FAS T	ect America Courier
Stetson US Cargo Other:	(Signature)
TestAmerica Cooler No# Rock-2 Foam Box	Client Cooler Other
1. Were custody seals on the outside of the cooler? Yes	Client Cooler Other No NA Intact? Yes No No NA
II II YES. Quantity	
Were custody seals on the outside of cooler signed and date Were custody seals on the bottles?	d? Yes 🗌 No 🗍 NA 🖟
If YES, are there any exceptions	Yes 🗌 No 🔀
2. Shipper's packing slip attached to this form?	
3. Did custody papers accompany the samples? Yes Alo I	Yes No D
4. Did you sign the custody papers in the appropriate place?	700 E 100 E 100 E
5. Packing material used: Bubble Wrap Foam N	one Other:
o. Cooler temperature upon receipt °C((see back of fo	rm for multiple coolers/temp)
Other U	
	Water None
 7. Did all bottles arrive in good condition (Unbroken)? 8. Could all bottle labels and/or tags be reconciled with the COO 	Yes ☑ No □
9. Were samples at the correct pH upon receipt? 9. Were samples at the correct pH upon receipt?	
10. Were correct bottles used for the tests indicated?	Yes No NA A
11. Were air bubbles >6 mm in any VOA vials?	Yes No 🗆
12. Sufficient quantity received to perform indicated analysis a	Yes ☐ No ☐ NA ☐ Yes ☐ No ☐
13. Was a Ind Blank present in the cooler? Yes I No I was	(Ann.) (O.)
	via Voice Mail Verbal Other
Concerning: 14. CHAIN OF CUSTODY	
The following discrepancies occurred:	
The following discrepancies occurred:	
15. SAMPLE CONDITION	
Sample(e)	d after the recommended holding time had expired.
16. SAMPLE PRESERVATION were recei	ved in a broken container.
Sample(s)	
recommended pH level(s) Nitric Acid Lat #042607 UNION DUE	ere further preserved in sample receiving to meet
	xide and Zinc Acetate Let # 055005 Culooc Care
	. я
Sample(s) were received	with bubble > 6 mm in diameter (Notify PM)
Client ID pH	Date Initials
	<u> </u>
	,
	·· ···································

Cooler Temp °C Method Coolant (itente got 2 to 1.7 1 1 1		TestAmerica Cooler Receipt Form/Narrative North Canton Facility								
Cooler Temp °C Method Coolant (Next Cooler 1.7 I.7 Love 6 1.7 I.7	Client ID		На	Date	Initials					
Cooler Temp °C Method Coolant (lichicoler 2 to IV (C.T. Lette 1.7) 1.1	<u> </u>									
Cooler Temp °C Method Coolant (literate golden 1.7) II II II II II II II II II II II II II										
Cooler Temp °C Method Coolant (licht coler 2 to IT (CX LCUC 1.7 I I		-								
Cooler Temp °C Method Coolant (licht coler 2 to IT (CX LCUC 1.7 I I	·									
Cooler Temp °C Method Coolant (itent cooley 2 to IV (c.<			·							
Cooler Temp °C Method Coolant (וונאלנסילצי 2 ט אלי וכל נילי 6 ו. ז ב ב ב ב ב ב ב ב ב ב ב ב ב ב ב ב ב ב	<u> </u>									
Cooler Temp °C Method Coolant (licent cooler 2 to 17 to 1 Lock 6 1.7 1 Screpancies Cont'd										
Cooler Temp °C Method Coolant (licent cooler 2 to 17 to 1 Lock 6 1.7 1 Screpancies Cont'd										
Cooler Temp °C Method Coolant (licrif goler 2.6 IV (C.C) LCLO 1.7 1										
Cooler Temp °C Method Coolant (licrif goler 2.6 IV (C.C) LCLO 1.7 1										
Cooler Temp °C Method Coolant (licrif goler 2.6 IV (C.C) LCLO 1.7 1										
Cooler Temp °C Method Coolant (licnic gales 1.7 1.1 Love 1.7 1.1 Screpancies Cont'd	· · · · · · · · · · · · · · · · · · ·				<u> </u>					
Cooler Temp °C Method Coolant (lichtigaler 2.6 I. 7	·									
Cooler Temp °C Method Coolant Clicat cooler 2 to 17 total Love 1.7 1										
(Nentracter 2.6 IP ICC 1.7 II III	On all a			Mathad	Coolant					
LCUG 1.7 1		7 10								
iscrepancies Cont'd	Lote 6									
iscrepancies Cont'd										
iscrepancies Cont'd					:					
screpancies Cont'd										
iscrepancies Cont'd										
iscrepancies Cont'd	<u> </u>									
iscrepancies Cont'd										
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	iscrepancies Cont'd									
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CASE NARRATIVE

7J24256

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc from the LMC MR Site, project number 112IC00885. The samples were received October 24, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID: A7J240256.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Dev Murali, John Poremba and Michael Martin on November 12, 2007. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters, which are never reported on a dry weight basis, is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 1.7 and 2.6°C.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for sample(s) SB-469-0506 had RPD's outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

Sample(s) SB-466-0506 had up to one surrogate recovery per fraction outside acceptance limits. However, since the recovery was greater than 10% and all associated QC met criteria, no corrective action was taken.

The internal standard areas were outside acceptance limits for sample(s) SB-469-0506 matrix spike due to matrix effects. "(Refer to IS report following this Case Narrative for additional detail.)"

Double surrogates were added to sample(s) SB-466-0708. Recoveries were adjusted accordingly.

METALS

The analytical results met the requirements of the laboratory's QA/QC program.

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

OC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC/MS methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	
		Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica North Canton (formerly STL North Canton) Certifications and Approvals:

California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), OhioVAP (#CL0024), West Virginia (#210), Wisconsin (#999518190),NAVY, ARMY, USDA Soil Permit,

N:\QAQC\Customer Service\Narrative - Combined RCRA _CWA 061807.doc

ANALYTICAL METHODS SUMMARY

7J24256

PARAMETER	₹	ANALYTICAL METHOD
Mercury i	n Solid Waste (Manual Cold-Vapor)	SW846 7471A
_	tile Organic Compounds by GC/MS	SW846 8270C
Total Res	sidue as Percent Solids	MCAWW 160.3 MOD
Reference	es:	
MCAWW	"Methods for Chemical Analysis of Wat EPA-600/4-79-020, March 1983 and subs	•
SW846	"Test Methods for Evaluating Solid Wa Methods", Third Edition, November 198	• • •

SAMPLE SUMMARY

7J24256 : A7J240256

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
J9P62	001	SB-466-0102	10/23/07	11:20
J9P7D	002	SB-466-0203	10/23/07	11:22
J9P7K	003	SB-466-0304	10/23/07	11:24
J9P7Q	004	SB-466-0506	10/23/07	11:26
J9P7V	005	SB-466-0708	10/23/07	11:28
J9P70	006	SB-467-0102	10/23/07	11:41
J9P72	007	SB-467-0203	10/23/07	11:43
J9P73	800	SB-467-0304	10/23/07	11:45
J9P74	009	SB-467-0506	10/23/07	11:47
J9P75	010	SB-467-0708	10/23/07	11:49
J9P78	011	SB-468-0102	10/23/07	13:20
J9P8A	012	SB-468-0203	10/23/07	13:22
J9P8C	013	SB-468-0304	10/23/07	13:24
J9P8Þ	014	SB-468-0506	10/23/07	13:26
J9P8E	015	SB-468-0708	10/23/07	13:28
J9P8F	016	SB-469-0102	10/23/07	13:43
J9P8G	017	SB-469-0203	10/23/07	13:45
J9P8J	018	SB-469-0304	10/23/07	13:47
J9P8K	019	SB-469-0506	10/23/07	13:49
J9P86	020	\$B-469-0708	10/23/07	13:51

NOTE(S):

⁻ The analytical results of the samples listed above are presented on the following pages.

⁻ All calculations are performed before rounding to avoid round-off errors in calculated results.

⁻ Results noted as "ND" were not detected at or above the stated limit.

⁻ This report must not be reproduced, except in full, without the written approval of the laboratory.

⁻ Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Metals Data Reporting Form

Initial Calibration Verification Standard **Instrument:** CVAA Units: ug/L Chart Number: hg11026a.pm Acceptable Range: 90% - 110% Standard Source: _____ Ultra Standard ID: Ck5ICV 10/26/2007 10:59 AM WL/ True % % % % % Mass Conc Found Rec Found Element Rec Found Rec Found Rec Found Rec

253.7

Mercury

2.5

2.53 101.2

Metals Data Reporting Form

Continuing Calibration Verification Units: ug/L **CVAA** Instrument: Acceptable Range: 80% - 120% Chart Number: hg11026a.prn Standard Source: Ultra Standard ID: Ck2CCV Ck2CCV Ck2CCV Ck2CCV Ck2CCV 10/26/2007 10/26/2007 10/26/2007 10/26/2007 10/26/2007 11:04 AM 11:18 AM 11:33 AM 11:48 AM 12:01 PM WL/ % % % % True

Rec

5.11 102.2

Found

Rec

5.15 103.0

Found

Found

Rec

5.21 104.2

Found

Rec

5.19 **103.8**

Element

Mercury

Mass

253.7

Conc

5.0

Found:

Rec

5.24 104.9

Continuing	Calibra	tion Ve	rification	<u>l</u>								
Instrument:	<u>C\</u>	/AA	_			Units: ug/L						
Chart Numb	er: hg	11026а.р	orn				Accepta	ble Ra	inge: 8	0% - 1	20%	
Standard So	urce:		Ultra				Standar	d ID:				
	****			Ck2CCV 10/26/2007 12:15 PM								
Element	WL/ Mass	True Conc	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7			103.5								

Metals Data Reporting Form

Contract Required Detection Limit Standard Instrument: __ CVAA Units: ug/L Chart Number: hg11026a.prn Acceptable Range: 50% - 150% Ultra Standard ID: ___ Standard Source: Ck3CRA\MRL 10/26/2007 11:03 AM WL/ % True % % % Rec Conc Found Rec Found Rec Found Rec Found Element Mass Found Rec 0.17 253.7 0.2 84.1 Mercury

Initial Calib	ration B	lank R	esults									
Instrument:	CV.	AA					Units:		ug/L	_		
Chart Number	er: <u>hg</u> l	1026a.r	orn_								٠	
Standard Sou	rce:						Standar	d ID:				
			Ck4ICB 10/26/2007 11:00 AM									
Element	WL/ Mass	Report Limit	Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

Continuing	ontinuing Calibration Blank Results												
Instrument:	C\	/AA					Units:		ug/L				
Chart Numb	Chart Number: hg11026a.prn												
Standard Source: Standard ID:													
			Ck1CC 10/26/20		Ck1CC 10/26/20	_	Ck1CCl	_	Ck1CC	_	Ck1CC 10/26/20		
			11:05 A	M	11:20 A	M	11:34 A	M	11:49 A	M ·	12:02 P	M	
Element	WL/ Mass	Report Limit	Found	Q	Found	Q	Found	Q	Found	Q	Found	Q	
Mercury	253.7	. 0.6	0.1	U	0.1	U	0.1	U	0.1	U	-0.1	В	

Continuin	g Calibra	ation B	lank Res	ults								
Instrument	t:	VAA					Units:		ug/L			
Chart Num	nber: <u>h</u> g	g11026a	.prn									
Standard S	Source: _					_	Standa	ard II):			
			Ck1C0 10/26/20 12:16 F	007					·		_	
Element	WL/ Mass	Report Limit	Found	O	Found	Q	Found	Q	Found	Q	Found	0
Mercury	253.7	0.6	0.1	IJ			·					

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: J9RJGB

Matrix: Soil Units: mg/kg Prep Date: 10/25/2007 Prep Batch: 7298023

Weight: 0.60 Volume: 100 Percent Moisture: NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.017	0.10	0.017	U	1	CVAA	0/26/2007	11:41

Comments: Lot #: A7J240256

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: J9P8KS

Original Sample ID: J9P8K

Client ID: SB-469-0506S

Matrix: Soil Units: mg/kg Prep Date: 10/25/2007 Prep Batch:

Weight: 0.60 Volume: 100 Percent Moisture: 16.384

Element	WL/ Mass	OS Conc	Q	MS Conc	0	Spike Level	% Rec	OS DF	MS DF	Instr	OS Anal Date	OS Anal Time	MS Anal Date	MS Anal Time
Mercury	253.7	0.020	U	0.19		0.1993	94.6	1	1	CVAA	10/26/2007	12:09	10/26/2007	12:11

Comments: Lot #: A7J240256 Sample #: 19

5.21.0

N Spike recovery failed ·

Form 5A Equivalent

7298023

NC Percent recovery was not calculated

- * Duplicate analysis RPD was not within limits
- E Serial dilution percent difference not within limits
- J Result is less than the IDL

Metals Data Reporting Form

Duplicate Sample Results

Lab Sample ID: J9P8KX Client ID: SB-469-0506X

Matrix: Soil Units: mg/kg Prep Date: 10/25/2007 Prep Batch: 7298023

Weight: _______ Volume: ______ 100 ____ Percent Moisture: 16.384

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	0/26/2007	12:10

Comments: Lot #: A7J240256 Sample #: 19

Metals Data Reporting Form

Sample Duplicate RPD Report

Duplicate Sample ID: J9P8KX

Original Sample ID: J9P8K Client ID: SB-469-0506X

Matrix: Soil Units: mg/kg Prep Date: 10/25/2007 Prep Batch: 7298023

 Weight:
 0.60
 Volume:
 100
 Percent Moisture:
 16.384

Element	WL/ Mass	OS Conc	Q	Dupe Conc	Q	% RPD	OS DF	Dupe DF	Instr	OS Anal Date	OS Anal Time	Dupe Anal Date	Dupe Anal Time
Mercury	253.7	0.020	U	0.020	U		1	1	CVAA	0/26/200	12:09	10/26/2007	12:10

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID: J9RJGC

Matrix: Soil Units: mg/kg Prep Date: 10/25/2007 Prep Batch: 7298023

Weight: 0.60 Volume: 100 Percent Moisture: NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.83	0.83	99.6		81-116	1	CVAA	0/26/2001	11:42

Comments: Lot #: A7J240256

Metals Data Reporting Form

Instrument Detection Limits

Instrument: CVAA Units: ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Mercury	253.700	0.6	0.10	2/1/2007

Batch Number: 7298023

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:

Lisa McGall (e-Signature)

Prep Date:

10/25/07

	Lot	Work Orde	er.	Due Date:	11/07/07	ICP Weight	ICPMS Weight	Hg Weight
		•		•		Ter weight	TCI WS Weight	
	A7J250000 Solid	J9RJG	В	Due Date: SDG:				<u>0.60 g</u>
	A7J250000 Solid	J9RJG	C	Due Date: SDG:				<u>0.60 g</u>
	A7J240256 Solid	J9P62 Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P7D Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P7K Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P7Q Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P7V Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P70 Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P72 Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P73 Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P74 Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P75 Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P78 Total		Due Date: 11/07/07 SDG: 7J24256			÷	<u>0.60 g</u>
	A7J240256 Solid	J9P8A Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P8C Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
	A7J240256 Solid	J9P8D Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
1	A7J240256 Solid	J9P8E Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
1	A7J240256 Solid	J9P8F Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
1	A7J240256 Solid	J9P8G Total	. *	Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
1	A7J240256 Solid	J9P8J Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60</u> g
1	A7J240256 Solid	J9P8K Total		Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>
I	A7J240256 Solid	J9P8K Total	S	Due Date: 11/07/07 SDG: 7J24256				<u>0.60 g</u>

Batch Number:

7298023

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:

Lisa McGall

Prep Date:

10/25/07

Due Date: 11/07/07

ICP Weight

ICPMS Weight

Hg Weight

<u>0.60 g</u>

A7J240256 Solid

Lot

Work Order J9P8K Total

Due Date: 11/07/07 SDG: 7J24256

A7J240256 Solid

J9P86 Total

Due Date: 11/07/07

SDG: 7J24256

<u>0.60 g</u>

LEVEL 2

BLANK AND CHECK STANDARD ON BATCH MS/MSD AND PDS ON BATCH

CORRECT SPIKES ADDED

SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

Matrix Spike Information:

J9P8K

Hg

Check Sample Information:

J9RJG

Hg

Prep Method(s): SW846 7471A

METHOD BLANK REPORT

General Chemistry

Client Lot #...: 7J24256

Matrix..... SOLID

PARAMETER Percent Solids	RESULT ND	REPORTING LIMIT Work Order 10.0	UNITS	METHOD MB Lot-Sample #: MCAWW 160.3 MOD		PREP BATCH # 7305443
		Dilution Fact	or: 1	MCAWW 100.3 MOD	11/01-11/02/07	7305443

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J240256 Work Order #...: J9P8K-SMP Matrix.....: SO

J9P8K-DUP

Date Sampled...: 10/23/07 13:49 Date Received..: 10/24/07

% Moisture....: 16

DUPLICATE RPD PREPARATION-PREP PARAM RESULT LIMIT RESULT UNITS RPD METHOD ANALYSIS DATE BATCH # Percent Solids SD Lot-Sample #: A7J240256-019 83.9 83.6 0.39 (0-20) MCAWW 160.3 MOD 11/01-11/02/07 7305443

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J240256 Work Order #...: J9P86-SMP Matrix.....: S0

J9P86-DUP

Date Sampled...: 10/23/07 13:51 Date Received..: 10/24/07

% Moisture....: 15

DUPLICATE RPD PREPARATION-PREP PARAM RESULT RESULT UNITS RPD LIMIT METHOD ANALYSIS DATE BATCH # Percent Solids SD Lot-Sample #: A7J240256-020 84.6 84.7 0.12 (0-20) MCAWW 160.3 MOD 11/01-11/02/07 7305443

Dilution Factor: 1

SPV: JARIGU= LCS [19]= 0.83 mg/kg as reported by the lab

11:	28:43 26 0	et 2007		older: rotocol:					Page	55
Lin	e Conc.	Units	SD/RSD	1	2	3	4	5		
*** Hg	Sample ID	•	SOLID		: 30	11:28:4:	3 26 0	et 2007	HG	
*** Hg	Sample ID (.2785)	-	SOLID .0000 %		•	11:30:00	J 26 O	ct 2007	HG	
*** Hg	Sample ID		SOLID .0000 %			11:31:17	7 26 00	et 2007	HG	
*** Hg	Sample 1D (.0554)	•	SOLID .0000 %		33	11:32:26	26 00	et 2007	HG	
Lin	e Flag %	Rcv. H	Ck2CCV Cound True 5.148 5.00	e Units	5	SD/RSD	26 Oc	et 2007	HG	
*** Lin Hg	Check Star e Flag Fo	ndard: 1 ound Ran U674	Ck1CCB ge(+/-) Unit .2000 pph	Seg: ts S	35 D/RSD .0000	11:34:48	3 26 Oc	et 2007	HG	
*** Hg	Sample ID	•	SOLID .0000 %	•		11:35:54	- 26 Oc	et 2007	HG	
*** Hg	Sample ID:	•	SOLID .0000 %		37	11:37:00	26 Oc	et 2007	HG	
*** Hg	Sample 1D: (9684)	: J9QEES ppb	SOLID .0000 %	Seq:	38	11:38:25	26 Oc	t 2007	HG	
ńżż Hg	Sample 1D:	J9QEF ppb	SOL1D .0000 %		39	11:39:49	26 Oc	t 2007	HG	
### Hg	Sample ID:	J9RJGB ppb	729802 0000 %	:3	40	11:41:06	26 Oc	t 2007	HG	
### Hg	Sample 1D: (4.982)	J9RJGC ppb	SOLID .0000 %	Seq:	41	11:42:15	26 Oc	t 2007	HG	
182 i	ng 0.100	0 /10	100g / m	4 = C	283	mg/kg				



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

M. MARTIN

DATE:

JANUARY 8, 2008

FROM:

ROBERT JUPIN

COPIES:

DV FILE

SUBJECT:

ORGANIC DATA VALIDATION - BENZO(a)PYRENE

LOCKHEED MIDDLE RIVER COMPLEX

SAMPLE DELIVERY GROUP (SDG): 7J24271

SAMPLES:

20/Soil/

SB-462-0102	SB-462-0203	SB-462-0304	SB-462-0506	SB-462-0708
SB-463-0102	SB-463-0203	SB-463-0304	SB-463-0506	SB-463-0708
SB-464-0102	SB-464-0203	SB-464-0304	SB-464-0506	SB-464-0708
SB-465-0102	SB-465-0203	SB-465-0304	SB-465-0506	SB-465-0708

Overview

The sample set for SDG 7J24271, Lockheed MRC, consists of twenty (20) soil environmental samples.

All soil samples were analyzed for benzo(a)pyrene. The samples were collected by TetraTech NUS on October 23, 2007 and analyzed by Test America Laboratories, Inc. Analyses were conducted using SW-846 Method 8270C.

The findings in this report are based upon a general review of all available data including: data completeness, GC/MS tuning, holding times, initial/continuing calibrations, laboratory method/preparation and field quality control blank results, surrogate spike/internal standard recoveries, laboratory control sample (LCS)/blank spike results, matrix spike/matrix spike duplicate results, analyte quantitation, and detection limits,. Areas of concern are listed below.

Major Problems

None.

Minor Problems

• The internal standard area for perylene-d12 was below the 50% acceptance limit for sample SB-465-0506. The nondetected result for benzo(a)pyrene was qualified as estimated "UJ".

Notes

The matrix spike sample was not spiked for benzo(a)pyrene therefore, no evaluation of the matrix spike could be performed. All surrogate recoveries were acceptable. No action was taken.

Executive Summary

Laboratory Performance Issues: The internal standard area for perylene-d12 was below the 50% acceptance limit for sample SB-465-0506.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (9/94) as modified by Region III.

Tetra Tech MUS Robert J. Jubin

Risk Assessment Specialist/Environmental Scientist

Tetra Tech/NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A - Qualified Analytical Results
- 2. Appendix B - Results as Reported by the Laboratory
- 3. Appendix C - Support Documentation

Data Qualifier Key:

- U Value is a nondetect as reported by the laboratory.
- J Positive result is considered estimated, "J", as a result of technical noncompliances.

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

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 be any number of issues; e.g. poor 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

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: OS

00885

nsample samp_date lab_id qc_type units Pct_Solids	SB-462-0102 10/23/2007 A7J240271001 NM UG/KG 89.0	nsample samp_date lab_id qc_type units Pct_Solids	SB-462-0203 10/23/2007 A7J240271002 NM UG/KG 87.0	nsample samp_date lab_id qc_type units Pct_Solids	SB-462-0304 10/23/2007 A7J240271003 NM UG/KG 87.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	26	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: OS

		•		·	
nsample	SB-462-0506	nsample.	SB-462-0708	nsample	SB-463-0102
samp_date	10/23/2007	samp_date	10/23/2007	samp_date	10/23/2007
lab_id	A7J240271004	lab_id	A7J240271005	lab_id	A7J240271006
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	79.0	Pct_Solids	82.0	Pct_Solids	86.0
DUP OF:		DUP OF:		DUP OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	69	J	Р

00885

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id SB-463-0203 10/23/2007 A7J240271007 nsample samp_date lab_id SB-463-0304 10/23/2007 A7J240271008 nsample samp_date lab_id SB-463-0506 10/23/2007 A7J240271009

qc_type units

NM UG/KG 74.0 qc_type
units
Pct_Solids
DUP_OF:

NM UG/KG 79.0 qc_type
units
Pct_Solids
DUP_OF:

NM UG/KG 81.0

Pct_Solids DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.8	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	•

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

00885

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-463-0708	nsample	SB-464-0102	nsample	
samp_date	10/23/2007	samp_date	10/23/2007	samp_date	
lab_id	A7J240271010	lab_id	A7J240271011	lab_id	
qc_type	NM	qc_type	. NM	qc_type	
units	UG/KG	units	UG/KG	units	
Pct_Solids	80.0	Pct_Solids	90.0	Pct_Solids	
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.4	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

SB-464-0203 10/23/2007 A7J240271012

NM UG/KG 89.0

00885

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

lab_id

10/23/2007

A7J240271013

qc_type NM units UG/KG Pct_Solids 81.0

DUP_OF:

SB-464-0304

nsample samp_date

lab_id qc_type

units Pct_Solids DUP_OF:

SB-464-0506

10/23/2007 A7J240271014

ΝM UG/KG

79.0

nsample

samp_date lab_id

qc_type units

Pct_Solids DUP_OF:

SB-464-0708

10/23/2007 A7J240271015

NM UG/KG

85.0

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	Ū	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

lab_id

units

qc_type

SB-465-0102 10/23/2007

1.5

U

NM

88.0

UG/KG

10/23/2007 samp_date A7J240271016 lab_id

lab_id qc_type units

Pct_Solids

DUP_OF:

nsample

10/23/2007 A7J240271017

SB-465-0203

NM UG/KG 90.0 nsample samp_date

lab_id

units

qc_type

Pct_Solids

DUP_OF:

SB-465-0304 10/23/2007 A7J240271018

NM UG/KG 85.0

Pct_Solids DUP_OF:

BENZO(A)PYRENE

Parameter Result Qual Code

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.4	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: OS

nsample

SB-465-0506

nsample

SB-465-0708

samp_date

10/23/2007

samp_date

10/23/2007

qc_type

A7J240271019 NM lab_id qc_type A7J240271020

units Pct_Solids UG/KG 84.0

units Pct_Solids NM UG/KG 84.0

DUP_OF:

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	UJ	N

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

APPENDIX B RESULTS AS REPORTED BY THE LABORATORY

Client Sample ID: SB-462-0102

GC/MS Semivolatiles

Lot-Sample #: A7J240271-0 Date Sampled: 10/23/07 08 Prep Date: 10/27/07 Prep Batch #: 7299474 Dilution Factor: 1		: 10/24/07	Matr	ix SO
% Moisture: 11	Method	: SW846 8270	C	
		REPORTING		·
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	26 J	370	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	52	(24 - 112)		
2-Fluorobiphenyl	61	(34 - 110)		
Terphenyl-d14	80	(41 - 119)		
Phenol-d5	. 60	(28 - 110)		
2-Fluorophenol	54	(26 - 110)		
2,4,6-Tribromophenol	58	(10 - 118)		
NOTE (S):				

J Estimated result. Result is less than RL.

Client Sample ID: SB-462-0203

GC/MS Semivolatiles

Lot-Sample #: A7J240271-002 Date Sampled: 10/23/07 08:06 Prep Date: 10/27/07 Prep Batch #: 7299474		10/24/07	Matrix	k SO
Dilution Factor: 1		~0.4.6 0.0.0.0	_	
% Moisture: 13	Method:	SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	55	(24 - 112)		
2-Fluorobiphenyl	57	(34 - 110)		
Terphenyl-d14	82	(41 - 119)		
Phenol-d5	61	(28 - 110)		
2-Fluorophenol	59	(26 - 110)		
2,4,6-Tribromophenol	5.9	(10 - 118)	•	
NOTE (S):				

Client Sample ID: SB-462-0304

GC/MS Semivolatiles

Lot-Sample #: A7J240271-003 Date Sampled: 10/23/07 08:08 Prep Date: 10/27/07 Prep Batch #: 7299474		10/24/07	Matrix		SO
Dilution Factor: 1 % Moisture: 13	Method:	SW846 8270	С		
		REPORTING			
PARAMETER	RESULT	<u>LIMIT</u>	UNITS	MDL	
Benzo(a)pyrene	ND .	380	ug/kg	1.5	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	62	(24 - 112)			
2-Fluorobiphenyl	64	(34 - 110)			
Terphenyl-d14	87	(41 - 119)			
Phenol-d5	66	(28 - 110)			
2-Fluorophenol	61	(26 - 110)			
2,4,6-Tribromophenol	56	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-462-0506

GC/MS Semivolatiles

-	10/23/07 08:10 10/27/07	Work Order #: Date Received: Analysis Date:	10/24/07	Matrix	: so
Dilution Factor:	1	•			
% Moisture:	21	Method:	SW846 8270	C	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	420	ug/kg	1.6
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		48	(24 - 112)	•	
2-Fluorobiphenyl		60	(34 - 110)		
Terphenyl-d14		77	(41 - 119)		
Phenol-d5		67	(28 - 110)		
2-Fluorophenol		65	(26 - 110)		
2,4,6-Tribromophe	enol	52	(10 - 118)		
NOTE (S):					

Client Sample ID: SB-462-0708

GC/MS Semivolatiles

Lot-Sample #: A7J240271-00 Date Sampled: 10/23/07 08: Prep Date: 10/27/07 Prep Batch #: 7299474 Dilution Factor: 1		10/24/07	Matr	ix SO
% Moisture: 18	Method:	SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	47	(24 - 112)		
2-Fluorobiphenyl	50	(34 - 110)		
Terphenyl-d14	62	(41 - 119)		
Phenol-d5	52	(28 - 110)		
2-Fluorophenol	49	(26 - 110)		
2,4,6-Tribromophenol	29	(10 - 118)		.
NOTE (S):		·		

Client Sample ID: SB-463-0102

GC/MS Semivolatiles

Lot-Sample #: A7J240271 Date Sampled: 10/23/07 Prep Date: 10/27/07 Prep Batch #: 7299474 Dilution Factor: 1		.: 10/24/07	Matr	ix: SO
% Moisture: 14	Method	.: SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	6 9 J	380	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	56	(24 - 112)		
2-Fluorobiphenyl	62	(34 - 110)		
Terphenyl-d14	74	(41 - 119)		
Phenol-d5	61	(28 - 110)		
2-Fluorophenol	57	(26 - 110)		
2,4,6-Tribromophenol	65	(10 - 118)		
NOTE(S):				

Results and reporting limits have been adjusted for dry weight.

 $[\]ensuremath{\mathsf{J}}$ $\ensuremath{\mathsf{Estimated}}$ result. Result is less than RL.

Client Sample ID: SB-463-0203

GC/MS Semivolatiles

Date Sampled: Prep Date: Prep Batch #:	10/23/07 08:55 10/27/07 7299474	Work Order #: Date Received: Analysis Date:	10/24/07	Matrix	: SO
Dilution Factor: % Moisture:		Method:	SW846 8270	С	
			REPORTING		
PARAMETER	•	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	450	ug/kg	1.8
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS	•	
Nitrobenzene-d5		39	(24 - 112)		
2-Fluorobiphenyl		42	(34 - 110)		
Terphenyl-d14		50	(41 - 119)		
Phenol-d5		45	(28 - 110)		
2-Fluorophenol		40	(26 - 110)		
2,4,6-Tribromophe	enol	45	(10 - 118)		
NOTE (S) ·					

Client Sample ID: SB-463-0304

GC/MS Semivolatiles

Lot-Sample #: A7J240271-00 Date Sampled: 10/23/07 08: Prep Date: 10/27/07 Prep Batch #: 7299474 Dilution Factor: 1		: 10/24/07	Matr	rix: SO
% Moisture: 21	Method	: SW846 8270)C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.6
	PERCENT	RECOVERY	-	
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	33	(24 - 112)	_	
2-Fluorobiphenyl	34	(34 - 110)		
Terphenyl-d14	43	(41 - 119)		
Phenol-d5	34	(28 - 110)		
2-Fluorophenol	33	(26 - 110)		
2,4,6-Tribromophenol	33	(10 - 118)		
NOTE (S):		<u></u>		

Client Sample ID: SB-463-0506

GC/MS Semivolatiles

Date Sampled: Prep Date: Prep Batch #:	10/23/07 08:59 10/27/07 7299474	Work Order #: Date Received: Analysis Date:	10/24/07	Matrix	: SO
Dilution Factor: % Moisture:		Method:	SW846 8270	С	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS .	MDL
Benzo(a)pyrene		ND	410	ug/kg	1.6
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	····	62	$\frac{24}{(24 - 112)}$		
2-Fluorobiphenyl	•	66	(34 - 110)		
Terphenyl-d14		71	(41 - 119)		
Phenol-d5		64	(28 - 110)		
2-Fluorophenol		62	(26 - 110)		
2,4,6-Tribromophe	enol	38	(10 - 118)		
NOTE (S):					

Client Sample ID: SB-463-0708

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #:	10/23/07 09:01 10/27/07		10/24/07	Matrix	s: so
Dilution Factor:	=	Marilla al	ana 46 0070	a	
% Moisture:	20	Method:	SW846 8270	C	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	410	ug/kg	1.6
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		61	(24 - 112)		
2-Fluorobiphenyl		62	(34 - 110)		
Terphenyl-d14		71 .	(41 - 119)		
Phenol-d5		62	(28 - 110)		
2-Fluorophenol		63	(26 - 110)		
2,4,6-Tribromopher	nol	59	(10 - 118)		
NOTE(S):					

Client Sample ID: SB-464-0102

GC/MS Semivolatiles

Lot-Sample #: A7J240271-011 Date Sampled: 10/23/07 09:44 Prep Date: 10/27/07 Prep Batch #: 7299474 Dilution Factor: 1		10/24/07	Matrix	: SO
% Moisture: 10	Method:	SW846 8270	С	
•		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4
2422.22.22	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	65	(24 - 112)		
2-Fluorobiphenyl	65	(34 - 110)		
Terphenyl-d14	76	(41 - 119)		•
Phenol-d5	68	(28 - 110)		
2-Fluorophenol	66	(26 - 110)		
2,4,6-Tribromophenol	56	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-464-0203

GC/MS Semivolatiles

Lot-Sample #: A7J2402 Date Sampled: 10/23/0 Prep Date: 10/27/0 Prep Batch #: 7299474	7 09:46 Date Received 7 Analysis Date	.: 10/24/07	Matrix	: śo
Dilution Factor: 1				
% Moisture: 11	Method	.: SW846 8270C		
		REPORTING		
PARAMETER	RESULT	LIMIT UNI	TS MDL	
Benzo(a)pyrene	ND	370 ug/	kg 1.5	
	PERCENT	RECOVERY		•
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	63	(24 - 112)		
2-Fluorobiphenyl	62	(34 - 110)		
Terphenyl-d14	75	(41 - 119)		
Phenol-d5	65	(28 - 110)		
2-Fluorophenol	62	(26 - 110)		
2,4,6-Tribromophenol	36	(10 - 118)		
NOTE (C)				

Client Sample ID: SB-464-0304

GC/MS Semivolatiles

Lot-Sample #: A7J240271-07 Date Sampled: 10/23/07 099 Prep Date: 10/27/07 Prep Batch #: 7299474 Dilution Factor: 1		: 10/24/07	Matr	ix: SO
% Moisture: 19	Method	: SW846 8270	C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6
	•			
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	55	(24 - 112)		
2-Fluorobiphenyl	56	(34 - 110)		
Terphenyl-d14	67	(41 - 119)		
Phenol-d5	58	(28 - 110)		
2-Fluorophenol	55	(26 - 110)		
2,4,6-Tribromophenol	38	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-464-0506

GC/MS Semivolatiles

Lot-Sample #: A7J240271-014 Date Sampled: 10/23/07 09:50 Prep Date: 10/27/07 Prep Batch #: 7299475 Dilution Factor: 1		10/24/07	Matri	k SO
% Moisture: 21	Method:	SW846 8270	C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.6
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	63	(24 - 112)		
2-Fluorobiphenyl	59	(34 - 110)		
Terphenyl-d14	88	(41 - 119)		
Phenol-d5	68	(28 - 110)		
2-Fluorophenol	67	(26 - 110)		
2,4,6-Tribromophenol	44	(10 - 118)		
NOTE (S):	•			

Client Sample ID: SB-464-0708

GC/MS Semivolatiles

Lot-Sample #: A7J240271-0 Date Sampled: 10/23/07 09 Prep Date: 10/27/07 Prep Batch #: 7299475 Dilution Factor: 1		: 10/24/07	Matri	x: SO
% Moisture: 15	Method	: SW846 8270)C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	66	(24 - 112)	_	
2-Fluorobiphenyl	65	(34 - 110)		
Terphenyl-d14	86	(41 - 119)	•	
Phenol-d5	. 66	(28 - 110)		
2-Fluorophenol	64	(26 - 110)		
2,4,6-Tribromophenol	41	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-465-0102

GC/MS Semivolatiles

Lot-Sample #: A7J240271-010 Date Sampled: 10/23/07 10:4 Prep Date: 10/27/07 Prep Batch #: 7299475 Dilution Factor: 1		10/24/07	Matri	ix: SO
% Moisture: 12	Method:	SW846 8270	C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	58	(24 - 112)		
2-Fluorobiphenyl	56	(34 - 110)		
Terphenyl-d14	79	(41 - 119)		
Phenol-d5	58	(28 - 110)		
2-Fluorophenol	54	(26 - 110)		
2,4,6-Tribromophenol	41	(10 - 118)		•
NOTE (S):				

Client Sample ID: SB-465-0203

GC/MS Semivolatiles

Lot-Sample #: A7J2 Date Sampled: 10/2 Prep Date: 7299 Dilution Factor: 1	23/07 10:42 Date Ro 27/07 Analys .		24/07	Matrix.	: SO
% Moisture: 10	Method	SW8	46 8270C		
		REP	ORTING		
PARAMETER	RESULT	LIM	IT UNI	TSl	MDL
Benzo(a)pyrene	ND	370	ug/1	kg	1.4
SURROGATE	PERCEN' RECOVEI		OVERY		
Nitrobenzene-d5	70		- 112)		
2-Fluorobiphenyl	66	•	- 110)	•	
Terphenyl-d14	84	•	- 119)		
Phenol-d5	67	(28	- 110)		
2-Fluorophenol	70	(26	- 110)		
2,4,6-Tribromophenol	47	(10	- 118)		
NOTE (S):					

Client Sample ID: SB-465-0304

GC/MS Semivolatiles

Lot-Sample #: A7J240271 Date Sampled: 10/23/07 Prep Date: 10/27/07 Prep Batch #: 7299475 Dilution Factor: 1		.: 10/24/07	Matr	ix: SO
% Moisture: 15	Method	.: SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	. 64	(24 - 112)		
2-Fluorobiphenyl	60	(34 - 110)		•
Terphenyl-d14	90	(41 - 119)		
Phenol-d5	72	(28 - 110)		
2-Fluorophenol	73	(26 - 110)		
2,4,6-Tribromophenol	57	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-465-0506

GC/MS Semivolatiles

Lot-Sample #: A7J240271-0 Date Sampled: 10/23/07 10 Prep Date: 10/27/07 Prep Batch #: 7299475		: 10/24/07	Matı	ix: SO
Dilution Factor: 1 % Moisture: 16	Method	: SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	58	(24 - 112)		
2-Fluorobiphenyl	54	(34 - 110)		
Terphenyl-d14	96	(41 - 119)		
Phenol-d5	56	(28 - 110)		
2-Fluorophenol	56	(26 - 110)		
2,4,6-Tribromophenol	31	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-465-0708

GC/MS Semivolatiles

Lot-Sample #: A7J24 Date Sampled: 10/23 Prep Date: 10/23 Prep Batch #: 72994 Dilution Factor: 1	3/07 10:48 Date Rece 7/07 Analysis	• •	Matr	ix: SO
% Moisture: 16	Method	: SW846 82	70C	
	·	REPORTING	3	
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	63	(24 - 112	?)	
2-Fluorobiphenyl	58	(34 - 110))	
Terphenyl-d14	87	(41 - 119	9)	
Phenol-d5	68	(28 - 110))	
2-Fluorophenol	64	(26 - 110))	
2,4,6-Tribromophenol	38	(10 - 118	3)	
NOTE (S):				

APPENDIX C SUPPORT DOCUMENTATION

FOLDTIME SDG 7J24271

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR DATE	ANAL DATE	SMP_EXTR	EXTR ANL	SMP_ANL
HG	MG/KG	SB-464-0506	A7J240271014	NM	10/23/2007	10/25/2007	10/26/2007	2		3
HG	MG/KG	SB-462-0304	A7J240271003	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-462-0506	A7J240271004	NM ·	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-462-0708	A7J240271005	NM	10/23/2007	10/25/2007	10/26/2007	2	1 -	3
HG	MG/KG	SB-463-0203	A7J240271007	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-463-0506	A7J240271009	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-463-0708	A7J240271010	NM .	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-464-0102	A7J240271011	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-462-0203	A7J240271002	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-464-0304	A7J240271013	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-463-0102	A7J240271006	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-464-0708	A7J240271015	NM ·	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-465-0102	A7J240271016	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-465-0203	A7J240271017	NM	10/23/2007	10/25/2007	10/26/2007	. 2	. 1	3
HG	MG/KG	SB-465-0304	A7J240271018	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
			FOYFILM TO SEPPLICE SOME IN THE SEPPLICE SOME THE OWNER OF THE SEPPLICE SOME THE SEP						•	•

SORT	UNITS	NSAMPLE	LAB ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP ANL
HG	MG/KG	SB-465-0506	A7J240271019	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-465-0708	A7J240271020	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-462-0102	A7J240271001	NM	10/23/2007	10/25/2007	10/26/2007	2	1 .	3
HG	MG/KG	SB-464-0203	A7J240271012	NM	10/23/2007	10/25/2007	10/26/2007	2	. 1	3
HG	MG/KG	SB-463-0304	A7J240271008	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
PCS	%	SB-464-0304	A7J240271013	NM .	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0506	A7J240271019	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0708	A7J240271020	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0304	A7J240271018	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0203	A7J240271017	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0102	A7J240271016	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-464-0506	A7J240271014	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PÇS	%	SB-462-0102	A7J240271001	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-464-0203	A7J240271012	NM	10/23/2007	11/1/2007	11/2/2007	9	1	. 10
PCS	%	SB-464-0102	A7J240271011	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-462-0304	A7J240271003	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-464-0708	A7J240271015	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-462-0203	A7J240271002	NM	10/23/2007	11/1/2007	11/2/2007	9	. 1	10
Friday.1	Vovember	16, 2007								Page 2 of 5

SORT	UNITS	NSAMPLE	LAB ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP ANL
PCS	%	SB-463-0708	A7J240271010	NM	10/23/2007	11/1/2007	11/2/2007	9		10
PCS.	%	SB-462-0506	A7J240271004	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-462-0708	A7J240271005	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-463-0102	A7J240271006	NM	10/23/2007	11/1/2007	11/2/2007	9	i	10
PCS	%	SB-463-0203	A7J240271007	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	. %	SB-463-0304	A7J240271008	NM	10/23/2007	11/1/2007	11/2/2007	9	1	. 10
PCS	%	SB-463-0506	A7J240271009	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
os	%	SB-465-0708	A7J240271020	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
OS	%	SB-463-0506	A7J240271009	NM.	10/23/2007	10/27/2007	10/29/2007	. 4	2	6
OS	%	SB-462-0203	A7J240271002	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	%	SB-462-0304	A7J240271003	ŇM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	. %	SB-462-0506	A7J240271004	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	%	SB-462-0708	A7J240271005	NM .	10/23/2007	10/27/2007	10/29/2007	4	. 2	6
os	%	SB-463-0102	A7J240271006	NM	10/23/2007	10/27/2007	10/30/2007	4	3	7
os	%	SB-463-0203	A7J240271007	NM	10/23/2007	10/27/2007	10/30/2007	4	.3`	7 .
os	%	SB-463-0304	A7J240271008	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	%	SB-462-0102	A7J240271001	NM	10/23/2007	10/27/2007	10/29/2007	4	2.	6
OS	%	SB-465-0506	A7J240271019	NM	10/23/2007	10/27/2007	10/30/2007	4	3	7

SORT	UNITS	NSAMPLE	LAB ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EVTD AND	OND AND
OS	%	SB-464-0102	A7J240271011	NM	10/23/2007	10/27/2007	10/29/2007	4	EXTR_ANL 2	SWP_ANL 6
OS	%.	SB-464-0203	A7J240271012	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS .	%	SB-464-0304	A7J240271013	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	%	SB-464-0506	A7J240271014	NM ·	10/23/2007	10/27/2007	10/31/2007	4	4	8
OS	%	SB-464-0708	A7J240271015	NM	10/23/2007	10/27/2007	10/31/2007 -	4	. 4	8
os	% .	SB-465-0102	A7J240271016	NM	10/23/2007	10/27/2007	10/31/2007	4 ·	4	8
os	%	SB-465-0203	A7J240271017	NM	10/23/2007	10/27/2007	10/31/2007	4	т	8
OS	%	SB-465-0304	A7J240271018	NM	10/23/2007	10/27/2007	10/31/2007	4	4	
os	%	SB-463-0708	A7J240271010	NM	10/23/2007	10/27/2007	10/29/2007	4	2	8
os	UG/KG	SB-464-0304	A7J240271013	NM	10/23/2007	10/27/2007	10/29/2007	. 4		6
OS	UG/KG	SB-464-0506	A7J240271014	NM	10/23/2007	10/27/2007	10/31/2007	4	2 .	6
os	UG/KG	SB-464-0708	A7J240271015	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	UG/KG	SB-465-0102	A7J240271016	NM	10/23/2007	10/27/2007	10/31/2007	•	4	8 .
os	UG/KG	SB-465-0203	A7J240271017	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	UG/KG	SB-465-0304	A7J240271018	NM	10/23/2007	10/27/2007		4	4	8
OS	UG/KG	SB-464-0203	A7J240271012	NM	10/23/2007		10/31/2007	4	4	. 8
os	UG/KG	SB-465-0708	A7J240271020	NM		10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-463-0102	A7J240271006		10/23/2007	10/27/2007	10/31/2007	4	4	8
i Fateley, in			A73240271006	NM	10/23/2007	10/27/2007	10/30/2007	4	3	7

SORT	UNITS	NSAMPLE	LAB_ID	QC TYPE	SAMP_DATE	EXTR DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
os	UG/KG	SB-465-0506	A7J240271019	NM	10/23/2007	10/27/2007	10/30/2007	4	3	7
os	UG/KG	SB-464-0102	A7J240271011	NM	10/23/2007	10/27/2007	10/29/2007	4	2	. 6
os	UG/KG	SB-463-0708	A7J240271010	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-463-0506	A7J240271009	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-462-0102	A7J240271001	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	UG/KG	SB-463-0203	A7J240271007	NM	10/23/2007	10/27/2007	10/30/2007	4	3	. 7
OS	UG/KG	SB-462-0708	A7J240271005	NM	10/23/2007	10/27/2007	10/29/2007	4	. 2	6
os ·	UG/KG	SB-462-0506	A7J240271004	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	UG/KG	SB-462-0304	A7J240271003	NM	10/23/2007	10/27/2007	10/29/2007	4	2	. 6
OS	UG/KG	SB-462-0203	A7J240271002	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	UG/KG	SB-463-0304	A7J240271008	NM	10/23/2007	10/27/2007	10/29/2007	4	. 2	6

Filiday, November 16/2007

Chain of Custody Record



STL-4124 (0901) M May h W
Telephone Number (Area Code)/Fax Number Chain of Custody Number 301528 3022 Site Contact

Site Contact

Carrier/Waybill Number Analysis (Attach list if more space is needed) 20874 LMC
Contract/Purchase Order/Quote No. Courser Special Instructions/ 112 BC 00885 8270, Containers & Matrix Conditions of Receipt Preservatives Sample I.D. No. and Description (Containers for each sample may be combined on one line) Date Ş SB-462-0102 Ord 0808 0210 9817 1853 2855 0857 0859 0901 0944 Sample Disposal ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B Unknown | Return To Client (A fee may be assessed if samples are retained Turn Around Time Required Disposal By Lab Archive For _ Months longer than 1 month) 24 Hours 48 Hours 7 Days 14 Days 21 Days OC Requirements (Specify) 2. Relinquished By 3. Relinquished By 10-24-07 3. Received By Comments DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record



STL-4124 (0901) Severn Trent Laboratories, Inc. Client Project Manager MI Mahn
Telephone Number (Area Code)/Fax Number
301 528 3022 Chain of Custody Number 227046 Site Contact | Lab Contact Analysis (Attach list if Contract/Purchase Order/Quote No. more space is needed) Carrier/Waybill Number airiles 112th 00885 Special Instructions/ 182701 Containers & Matrix Sample I.D. No. and Description Conditions of Receipt Preservatives (Containers for each sample may be combined on one line) Date Time 0949 0950 0952 062 0203 0304 -0506 + ms/sb 0506 Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Sample Disposal Turn Around Time Required Unknown | Return To Client Disposal By Lab 24 Hours 48 Hours 7 Days 14 Days 21 Days Archive For _ (A fee may be assessed if samples are retained Months longer than 1 month) QC Requirements (Specify) 1. Received By 2. Relinquished By 2. Received By 3. Relinquished By Time 3. Received By Comments DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stave

CASE NARRATIVE

7J24271

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc from the LMC MR Site, project number 112IC00885. The samples were received October 24, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID: A7J240271.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Dev Murali, John Poremba and Michael Martin on November 12, 2007. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters, which are never reported on a dry weight basis, is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 1.7 and 2.6°C.

See TestAmerica's Cooler Receipt Form for additional information.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for sample(s) SB-465-0506 had RPD's outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The matrix spike/matrix spike duplicate(s) for batch(es) 7299474 had RPD's outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

Sample(s) SB-463-0304 had up to one surrogate recovery per fraction outside acceptance limits. However, since the recovery was greater than 10% and all associated QC met criteria, no corrective action was taken.

The internal standard areas were outside acceptance limits for sample(s) SB-465-0506 due to matrix effects. "(Refer to IS report following this Case Narrative for additional detail.)"

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

OC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	
		Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica North Canton (formerly STL North Canton) Certifications and Approvals

California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),

Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), OhioVAP (#CL0024), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY, USDA Soil Permit,

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SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J24271

Lot #: A7J240271

Extraction: XXA11QL01

-	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
		======	======	======	=====	======	======	=====
01	INTRA-LAB QC	64	63	81 .	64	60	51_	00
02	SB-462-0102	52	61	_80	60	54	58	00
.03	SB-462-0203	55	_57	82	61	59	59	00
04	SB-462-0304	62	64	87	66	61	56	00
05	SB-462-0506	48	60	77	67	65	52	00
.06	SB-462-0708	47	50	62	52 .	49	29	00
07	SB-463-0102	56	62	74	61	57	65	00
80	SB-463-0203	39	42	50	45	40	45	00
09	SB-463-0304	33	34	43	34	33	33	00
10	SB-463-0506	62	_66	71	64	62	38	00
11	SB-463-0708	61	62	71	62	63	59	00
12	SB-464-0102	65	65	_76	68	66	56	00
13	SB-464-0203	63	62	_75	65	62	_36	00
14	SB-464-0304	55	56	_67	_58	_55	38	00
15	SB-464-0506	63	5 9	88	68	67	44	0.0
16	SB-464-0708	66	65	86	_66	64	41	00
17	SB-465-0102	58	56	79	_58 .	54	41	00
18	SB-465-0203	70	66	84	67	70	47	00
19	SB-465-0304	64	60	90	72	73	57	00
20	SB-465-0506	58	_54	96	56.	56	31	00
21	SB-465-0708	63	58	87	68	64	_38	00
22	METHOD BLK. J90FK1AA	59	59	78	60	_58	30	00
23	METHOD BLK. J90GA1AA	64	66	84	66	66	30	00
24	LCS J90FK1AC	62	59	78 .	60	60	29	00 .
25	LCS J90GA1AC	62	64	87	62	59	49	00
26	LAB MS/MSD D	76	75	83	75	73	42	00
27	SB-465-0506 D	68	64	90	65	66	52	00

FORM II

[#] Column to be used to flag recovery values

^{*} Values outside of required QC Limits

D System monitoring Compound diluted out

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J24271

Lot #: A7J240271

Extraction: XXA11QL01

CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
=======================================	======	======	======	======	======	=======	======
01 LAB MS/MSD S	53	_53	71	67	54	36	00
02 SB-465-0506 S	70	_63	91	62	52	44.	00

		QC LIMITS
Nitrobenzene-d5	•	(24-112)
2-Fluorobiphenyl		(34-110)
Terphenyl-d14		(41-119)
Phenol-d5		(28-110.)
2-Fluorophenol		(26-110)
2,4,6-Tribromophenol		(10-118)
	2-Fluorobiphenyl Terphenyl-d14 Phenol-d5 2-Fluorophenol	2-Fluorobiphenyl Terphenyl-d14 Phenol-d5 2-Fluorophenol

FORM II

[#] Column to be used to flag recovery values

^{*} Values outside of required QC Limits

D System monitoring Compound diluted out

SW846 8270C METHOD BLANK SUMMARY

J90FK1AA

BLANK WORKORDER NO.

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J24271

Lab File ID: J90FK1AA.

Lot Number: A7J240271

Date Analyzed: 10/29/07

Time Analyzed: 16:08

Matrix: SOLID

Date Extracted:10/27/07

GC Column: DB-5.625 ID: .32

Extraction Method: 3540C

Instrument ID: HP7

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS, MSD:

		SAMPLE	7.3.7		
	CLIENT ID.	WORK ORDER #	LAB	DATE	TIME
	=======================================		FILE ID	ANALYZED	ANALYZED
01	•	J9MPA1AD	!	========	========
02			J9MPA1AD.	10/31/07	16:41
03		J9MPA1AR S	J9MPA1AR.	10/31/07	17:00
04		J9MPA1AT D	J9MPA1AT.	10/31/07	17:20
	SB-462-0203	J9QDG1AD	J9QDG1AD.	10/29/07	23:14
06		J9QDH1AD	J9QDH1AD.	10/29/07	23:33
	SB-462-0506	_J9QDK1AD	J9QDK1AD.	10/29/07	_23:52
	SB-462-0708	_J9QDL1AD	J9QDL1AD.	10/29/07	22:16
	SB-463-0102	J9QDM1AD	J9QDM1AD.	10/29/07	20:59
		J9QDR1AD	J9QDR1AD.	10/30/07	00:31
11	SB-463-0203 ·	J9QDW1AD	J9QDW1AD.	10/30/07	00:12
12	SB-463-0304	J9QD01AD	J9QD01AD.	10/29/07	21:57
•	SB-463-0506	J9QD11AD	J9QD11AD.	10/29/07	21:18
13	SB-463-0708	J9QD21AD	J9QD21AD.	10/29/07	21:38
14	SB-464-0102	J9QD31AD	J9QD31AD.	10/29/07	22:35
15	SB-464-0203	J9QD41AD	J9QD41AD.	10/29/07	22:55
16	SB-464-0304	J9QD51AD	J9QD51AD.	10/29/07	20:40
17	CHECK SAMPLE	J90FK1AC C	J90FK1AC.	10/29/07	16:28
18]		10.20
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COMMENTS:			
	FORM TV		

SW846 8270C METHOD BLANK SUMMARY

J90GA1AA

BLANK WORKORDER NO.

Lab	Name:	TestAmerica	Laboratories,	Tnc
	Maine.	TCBCMIICTTCa	Habbracorres,	Inc.

Lab Code: TALCAN

SDG Number: 7J24271

Lab File ID: J90GA1AA.

Lot Number: A7J240271

Date Analyzed: 10/29/07

Time Analyzed: 10:40

Matrix: SOLID

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Date Extracted:10/27/07

GC Column: DB 5.625

Extraction Method: 3540C

Instrument ID: HP8

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS , MSD:

	1	 		···	
•	OI TENES TO	SAMPLE	LAB	DATE	TIME
	CLIENT ID.	WORK ORDER #	FILE ID	ANALYZED	ANALYZED.
0.7		==========	i .	========	=======
	SB-464-0506	J9QD61AD	J9QD61AD.	10/31/07	20:49
	SB-464-0708	J9QD71AD	J9QD71AD.	10/31/07	19:51
	SB-465-0102	J9QD81AD	J9QD81AD.	10/31/07	23:43
	SB-465-0203	_J9QEA1AD	J9QEA1AD.	10/31/07	22:45
	SB-465-0304	J9QED1AD	J9QED1AD.	10/31/07	21:08
96	SB-465-0506	J9QEE1AF	J9QEE1AF.	10/30/07	18:08
١.	SB-465-0506	J9QEE1AN S	J9QEELAN.	10/30/07	18:27
	SB-465-0506	J9QEE1AP D	J9QEE1AP.	10/30/07	18:45
09	SB-465-0708	J9QEF1AD	J9QEF1AD.	10/31/07	20:30
10	CHECK SAMPLE	J90GA1AC C	J90GA1AC.	10/29/07	10:59
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COMMENTS:	•		•	*

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.:

SAS No.:

SDG No.: 7J24271

Lab File ID: 7DF1029

DFTPP Injection Date: 10/29/07

Instrument ID: A4HP7

DFTPP Injection Time: 1336

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 40.0 - 100.0% of mass 198 17.0 - 23.0% of mass 442	52.0 0.9 (1.4)1 66.3 0.3 (0.4)1 54.5 0.9 100.0 7.0 23.1 2.4 9.9 66.9 12.3 (18.4)2
	1-Value is % of mass 69 2-Value is % of mass 69	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	1-170 th	T			
	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	=========	=======================================	=========	========	=======
01	SSTD006	L6	7SMH1029	10/29/07	1356
02	J90FKBLK	J90FKLAA	J90FK1AA	10/29/07	1608
03	J90FKCHK	J90FKLAC	J90FKlAC	10/29/07	1628
04	SB-464-0304	J9QD51AD	J9QD51AD	10/29/07	2040
05	SB-462-0708	J9QDM1AD	J9QDMLAD	10/29/07	2059
06	SB-463-0506	J9QD11AD	J9QD11AD	10/29/07	2118
07	SB-463-0708	J9QD21AD	J9OD21AD	10/29/07	2138
80		J9QD01AD	J9OD01AD	10/29/07	2157
09	SB-462-0506	J9QDL1AD	J9QDL1AD	10/29/07	2216
10	SB-464-0102	J9QD31AD	J9QD31AD	10/29/07	2235
11	SB-464-0203	J9QD41AD	J9QD41AD	10/29/07	2255
12	SB-462-0102	J9QDG1AD	J9QDG1AD	10/29/07	2314
13	SB-462-0203	J9QDH1AD	J9QDH1AD	10/29/07	2333
14	SB-462-0304	J9QDK1AD	J9QDK1AD	10/29/07	2352
15	SB-463-0203	J9QDW1AD	J9QDW1AD	10/30/07	0012
16	SB-463-0102	J9QDR1AD	J9QDR1AD	10/30/07	0012
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page 1 of 1

FORM V SV

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.:

SAS No.:

SDG No.: 7J24271

Lab File ID: 8DF1029

DFTPP Injection Date: 10/29/07

Instrument ID: A4HP8

DFTPP Injection Time: 1001

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	41.9 0.0 (0.0)1 51.1 0.3 (0.6)1 49.5 0.0 100.0 6.5 25.5 3.2 8.6 55.3 10.6 (19.2)2
	1-Value is % of mass 69 2-Value is % of mass	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	T 25			
		LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	=========	==========	===========	========	=========
01	SSTD006	L6	8SMH1029	10/29/07	1020
02	J90GABLK	J90GA1AA	J90GA1AA	10/20/07	
03	J90GACHK	J90GA1AC	J90GA1AC	10/29/07	1040
04	o o di loi inc	0 JUGALAC	USUGALAC	10/29/07	1059
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page 1 of 1

FORM V SV

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24271

Lab File ID: 8DF1030 DFTPP Injection Date: 10/30/07

Instrument ID: A4HP8 DFTPP Injection Time: 1235

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	46.0 0.0 (0.0)1 57.0 0.3 (0.6)1 51.2 0.0 100.0 6.6 25.9 4.1 10.0 63.0 12.0 (19.0)2
	1-Value is % of mass 69 2-Value is % of mass 69	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	SAMPLE NO. ====================================	SAMPLE ID ===================================	FILE ID ====================================	ANALYZED 10/30/07 10/30/07 10/30/07 10/30/07	ANALYZED ======== 1253 1808 1827 1845
18 19 20 21 22					

page 1 of 1

FORM V SV

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24271

Lab File ID: 8DF1031 DFTPP Injection Date: 10/31/07

Instrument ID: A4HP8 DFTPP Injection Time: 1539

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
=====	20 0 0 00 05 05 05 07 07	20.7
51	30.0 - 60.0% of mass 198	38.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	47.5
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	48.4
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	6.8
275	10.0 - 30.0% of mass 198	26.7
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	9.4
442	Greater than 40.0% of mass 198	61.4
443	17.0 - 23.0% of mass 442	11.6 (18.9)2

1-Value is % of mass 69 2-Value is % of mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	DEMILIE NO.			AMADI ZED	ANALIZED
01	SSTD005	L5	8SMM1031	10/31/07	1558
02	SSTD004	L4	8SM1031	10/31/07	1618
03	SSTD003	L3 .	8SML:1031	10/31/07	1637
04	SSTD002	L2	8SL1031	10/31/07	1656
05	SSTD001	Li	8SLL1031	10/31/07	1716
06	SSTD009	L9	8HHH1031	10/31/07	1735
07	SSTD008	L8	8SHH1031	10/31/07	1754
08	SSTD007	L7	8SH1031	10/31/07	1814
09	SSTD006	L6	8SMH1031	10/31/07	1833
10	SB-464-0708	J9QD71AD	J9QD71AD	10/31/07	1951
11	SB-465-0708	J9QEF1AD	J9QEF1AD	10/31/07	2030
12	SB-464-0506	J9QD61AD	J9QD61AD	10/31/07	2049
13	SB-465-0304	J9QED1AD	J9QED1AD	10/31/07	2108
14	SB-465-0203	J9QEA1AD	J9QEA1AD	10/31/07	2245
15	SB-465-0102	J9QD81AD	J9QD81AD	10/31/07	2343
16					
17					
18					
19					
20				<u> </u>	
21		· · · · · · · · · · · · · · · · · · ·			
22					<u></u>

page 1 of 1

FORM V SV

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 26-OCT-2007 16:09 End Cal Date : 26-OCT-2007 18:50
Quant Method : ISTD

Origin : Disabled Target Version : 4.14

Integrator : HP RTE

Method file : \\cansvr11\\dd\chem\MSS\a4hp7.i\71026a.b\8270P.m

Last Edit : 27-Oct-2007 08:58 ulmanm

Curve Type : Average

Compound	0.05000 Level 1	0.25000 Level 2	0.50000 Level 3	1.000 Level 4	2.500 Level 5	5.000 Level 6	RRF	 % RSD
	7.500 Level 7	10.000 Level 8	12.500 Level 9	 	 	 	 	
144 Hexachlorophene	+++++	+++++	+++++	===== 	======== +++++ 		=========	
145 Hexachlorophene product	+++++]	+++++ +++++	+++++	+++++	 +++++ 	++++	++++	+++++
146 Benzo(a)pyrene	1.17968	0.97166 1.16596	1.01188		1.09953	 1.12316 	1.11108	7.898
148 3~Methylcholanthrene	 +++++ +++++	+++++	+++++	++++	 +++++ 	 ++++ 		 ++++
149 Indeno (1,2,3-cd) pyrene	1.23781	1.06242	1.37576		1.20599		1.20254	8.349
150 Dibenz(a,h)anthracene	1.02771	1.01704	0.86017 1.10090		 0.95752 	0.97952	0.96494	8.618
151 Benzo(g,h,i)perylene	1.07704	0.89128 1.05027	0.93016		1.02707	1.01343	1.01365	7.332
230 2-Chloroacetophenone	+++++	+++++	+++++	+++++	++++	 +++++ 	 . ++++	****
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++	 +++++	++++
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++	 	+++++

Data File: \\cansvr11\dd\chem\MSS\a4hp7.i\71026a.b\ICVTCL.D

Report Date: 27-Oct-2007 09:23

Page 3

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i

Injection Date: 26-OCT-2007 19:10

Lab File ID: ICVTCL.D Analysis Type:

Init. Cal. Date(s): 26-OCT-2007 26-OCT-2007

Init. Cal. Times: 16:09 18:50

Lab Sample ID: icvtcl Quant Type: ISTD

Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71026a.b\8270p.m

1	11		1	CCAL	MIN	1	MAX	١
COMPOUND	RRF	/ AMOUNT	RF5	RRF5	RRF	%D / %DRIFT %I) / %DRIFT	CURVE TYPE
	==== ===					=======================================		.=======
142 Benzo(k)fluoranthene	1	1.23514	1.24352	1.243	52 0.010	-0.67844	50.000001	Averaged
146 Benzo(a)pyrene	1	1.11108	1.09988	1.099	88 0.010	1.00818	20.000001	Averaged
149 Indeno(1,2,3-cd)pyrene	1	1.20254	1.20684	1.206	84 0.010	-0.35780	50.000001	Averaged
150 Dibenz(a,h)anthracene	1	0.964941	0.96783	0.967	83 0.010	-0.29970	1000001	Averaged
151 Benzo(g,h,i)perylene	1	1.01365	1.00657	1.006	57 0.010	0.69806	50.000001	Averaged
198 1,4-Dioxane	1	0.61560	0.569171	0.569	17 0.010	7.54182	50.00000	Averaged
\$ 154 Nitrobenzene-d5	1	0.494221	0.47455	0.474	1010.018	3.97951	50.00000	Averaged
\$ 155 2-Fluorobiphenyl	1	1.18482	1.15622	1.156	22 0.010	2.41377	50.000001	Averaged
\$ 156 Terphenyl-d14	i	0.83872	0.82434	0.824	34 0.010	1.71412	50.000001	Averaged
\$ 157 Phenol-d5	ŧ	2.11606	2.10526	2,105	26 0.010	0.51082	50.000001	Averaged
\$ 158 2-Fluorophenol	1	1.40529	1.45395	1.453	95 0.010	-3.462691	50.000001	Averaged
\$ 159 2,4,6-Tribromophenol	1	0.12914	0.12743	0.127	43 0.010	1.32220	50.000001	Averagedi
\$ 186 2-Chlorophenol-d4	1	1.29270	1.25441	1.254	41 0.010	2.96186	50.00000	Averaged
\$ 187 1,2-Dichlorobenzene-d4	1	0.798721	0.82063	0.820	63 0.010	-2.74298	50.000001	Averaged
M 195 Cresols, total	1	3.14307	3.150471	3.150	47 0.010	-0.235581	50.000001	Averaged
101 Diphenylamine	1	0.484691	0.48104	0.481	04 0.010	0.753021	50.000001	Averaged
	1	1	1		1 1	. 1	1	1

Data File: \\cansvr11\dd\chem\MSS\a4hp7.i\71029a.b\7SMH1029.D Report Date: 29-Oct-2007 14:26 Page 3

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Injection Date: 29-OCT-2007 13:56

Init. Cal. Date(s): 26-OCT-2007 26-OCT-2007 Init. Cal. Times: 16:09 18:50

18:50

Instrument ID: a4hp7.i Injection Date: 29-OCT-2007
Lab File ID: 7SMH1029.D Init. Cal. Date(s): 26-OCT-2
Analysis Type: Init. Cal. Times: 16:09
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\\dd\chem\MSS\a4hp7.i\\71029a.b\\8270p.m

COMPONE	!	1	CCAL	MIM]	MAX	1
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
		=======			========	========	
142 Benzo(k) fluoranthene	1.23514	1.28164	1.28164	0.010	-3.76456	50.00000	Averaged
146 Benzo(a)pyrene	1.11108	1.18651	1.18651	0.010	-6.78888	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20254	1.27651	1.27651	0.010	-6.15130		-
150 Dibenz(a,h)anthracene	0.96494	1.04434	1.04434	0.010			
151 Benzo(g,h,i)perylene	1.01365	1.06676	1.06676	0.010			
198 1,4-Dioxane	0.61560	0.68945	0.68945				
\$ 154 Nitrobenzene-d5	0.49422	0.50730	0.50730		,		Averaged
155 2-Fluorobiphenyl	1.18482	1.27589	1.27589		1		Averaged
156 Terphenyl-d14	0.83872	0.88559	0.88559				Averaged
\$ 157 Phenol-d5	2.11606	2.26398		٠,			Averaged
3 158 2-Fluorophenol	1.40529	1.46514	2.26398			,	Averaged
159 2,4,6-Tribromophenol		•	1.46514	•	-4.25925	50.00000	Averaged
3 186 2-Chlorophenol-d4	0.12914	0.14740	0.14740	,	-14.14062	50.00000	Averaged
187 1,2-Dichlorobenzene-d4	1.29270	1.36074	1.36074	0.010	-5.26339	50.00000	Averaged
	0.79872	0.85425	0.85425	0.010	~6.95237	50.00000	Averaged
1 195 Cresols, total	3.14307	3.29988	3.29988	0.010	-4.98906	50.00000	Averaged
.01 Diphenylamine	0.48469	0.51722	0.51722	0.010	-6.71121	50.00000	Averaged
			1	ŀ	i		5

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 24-OCT-2007 15:22 End Cal Date : 24-OCT-2007 17:53

Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE

Method file : \\cansvr11\\dd\chem\MSS\a4hp8.i\\71024a.b\\8270P.m

Last Edit : 24-Oct-2007 17:15 gruberj

Curve Type : Average

	0.05000	0.25000	0.50000	1.000	2.500	5.000			_
Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	RRF	% RSD	
	7.500	10.000	12.500		- 		·] - [i I	
	Level 7	Level 8	Level 9	1	İ	į	i	1	
144 Hexachlorophene	+++++	======== +++++	======== +++++	+++++		++++	====== 		-
	+++++	+++++	+++++	į			++++	+++++	
145 Hexachlorophene product	+++++	 +++++	 +++++		 +++++	 +++++			-
	+++++	+++++	+++++	į	i	1	+++++	+++++	
146 Benzo(a)pyrene	1.16862	0.94500	0.99660	1.06264	1.04702	1.14009			-
	1.17535	1.24000	•		1		1 1.13115	l 12.29	8
148 3-Methylcholanthrene		++++	 +++++	 +++++	 +++++	[] +++++	I		-
	+++++	+++++	+++++	l		+++++	++++	++++	
149 Indeno(1,2,3-cd)pyrene	1.15525	1.02036	1.08130	1.16366	1.14381	1.23994			-
	1.26288	1.32864		•	1.14381	1.23994	 1.20757	 11.28!	5
150 Dibenz(a,h)anthracene	 0.98770	0.87713	0.89316	0.96975	0.95807	1.05400]	-
	1.09661	1.15927	1.28968		0.33007	1.03400	1.03171	12.90	5
51 Benzo(g,h,i)perylene	 1.12101	0.90918	0.87601	 0.98078	0.94801	1.00857			_
	1.02246	1.07093	1.17786	0.38078	0.94801	1.00857	1.01275	9.694	ا 1 4
232 Bis(2-hydroxyphenyl)methane	 +++++	+++++	+++++	+++++		!			- <u>j</u>
	+++++	+++++	+++++	1	+++++	+++++	++++	` +++++	}
33 Bis(4-hydroxyphenyl)methane	+++++	 +++++	+++++	+++++					٠į
<u> </u>	+++++	+++++	+++++		+++++	+++++	+++++	+++++	1
34 4-Chlorophenol	+++++	+++++	 +++++						·
-	+++++	+++++	+++++	+++++ [+++++	+++++	+++++	++++	
35 2,3-Dichlorophenol	+++++	+++++							ĺ
	+++++	+++++	+++++	+++++	*++++ }	+++++	+++++	++++	1
			i	i					1

Data File: \\cansvr11\dd\chem\MSS\a4hp8.i\71024a.b\ICVTCL.D

Page 3

Report Date: 24-Oct-2007 17:35

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i

Injection Date: 24-OCT-2007 18:12

Lab File ID: ICVTCL.D

Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007 Init. Cal. Times: 15:22 17:53

Analysis Type:

Lab Sample ID: icvtcl Quant Type: ISTD

Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71024a.b\8270p.m

-1	1	1	i	CCAL	MIN		MAX I	 .
COMPOUND	RRF	/ AMOUNT	RF5	RRF5			,	CURVE TYPE!
	== ===	======= =	=====================================			======================================	/ aDKIFI]	CORVE TYPE!
1142 Benzo(k)fluoranthene	ì	1.27628	1.28668		 810.010!		50.000001	Averaged
146 Benzo(a)pyrene	1	1.13115	1.11216	1.1121	610.0101		20.000001	=
1149 Indeno(1,2,3-cd)pyrene	F	1.20757	1.20643		310.0101		50.000001	Averaged
150 Dibenz(a,h)anthracene	1	1.03171	1.02848		B 0.010	,	50.000001	Averaged Averaged
151 Benzo(g,h,i)perylene	I	1.01275	0.96293		3 0.010		50.000001	Averaged
198 1,4-Dioxane	1	0.616531	0.56331		110.0101	•	50.000001	Averaged
\$ 154 Nitrobenzene-d5	1	0.497251	0.485041		10.0101		50.000001	Averaged
\$ 155 2-Fluorobiphenyl	1	1.28432	1.25695		510.0101		50.000001	-
\$ 156 Terphenyl-d14	1	0.79730	0.79942		210.0101		50.000001	Averaged
\$ 157 Phenol-d5	1	1.85917	1.81077		710.0101	2.603371	50.000001	Averaged!
\$ 158 2-Fluorophenol	1	1.28007	1.22639		010.0101	4.19358	50.000001	Averaged
\$ 159 2,4,6-Tribromophenol	ı	0.14264	0.140931		310.0101	1.19563	50.000001	Averaged
\$ 186 2-Chlorophenol-d4	1	1.233321	1.206971		10.0101	2.13638	•	Averaged
\$ 187 1,2-Dichlorobenzene-d4	1	0.825881	0.822611		10.0101	0.395861	50.000001	Averagedi
IM 195 Cresols, total	1	2.850061	2.886001	2.88600		-1.260941	50.000001	Averaged
101 Diphenylamine	1	0.501531	0.49164	0.49164			50.000001	Averaged
I	1	!	0.151041	0.49164	10.0101	1.97267	50.000001	Averaged!

Data File: \\cansvr11\dd\chem\MSS\a4hp8.i\71029a.b\8SMH1029.D Page 3 Report Date: 29-Oct-2007 09:45

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i

Lab File ID: 8SMH1029.D Analysis Type:

Injection Date: 29-OCT-2007 10:20
Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Init. Cal. Times: 15:22 17:53
Quant Type: ISTD

Lab Sample ID: L6 Quant Type: ISTD Method: \\cansvr11\\dd\chem\MSS\a4hp8.i\\71029a.b\\8270p.m

COMPOUND	!		CCAL	MIN	1	MAX	I
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
	=======	========	==============	=====	=========	========	 -========
142 Benzo(k)fluoranthene	1.27628	1.38094	1.38094	0.010	-8.20028	•	•
l46 Benzo(a)pyrene	1.13115	1.21421	1.21421	0.010	•		
149 Indeno(1,2,3-cd)pyrene	1.20757	1.31849	1.31849				
50 Dibenz(a,h)anthracene	1.03171	1.11948	1.11948	,			
.51 Benzo(g,h,i)perylene	1.01275	1.08001					
.98 1,4-Dioxane	0.61653	•	1.08001				Averaged
154 Nitrobenzene-d5		0.49897	0.49897			50.00000	Averaged
155 2-Fluorobiphenyl	0.49725	0.50747	0.50747	0.010]	~2.05536	50.00000	Averaged
	1.28432	1.39391	1.39391	0.010	-8.53257	50.00000	Averaged
156 Terphenyl-d14	0.79730	0.86509	0.86509	0.010	-8.50150	50.00000	_
157 Phenol-d5	1.85917	1.93240	1.93240	0.010	-3.93874		Averaged
158 2-Fluorophenol	1.28007	1.28357	1.28357	0.010		,	_
159 2,4,6-Tribromophenol	0.14264	0.14936	0.14936	,			Averaged
186 2-Chlorophenol-d4	1.23332	1.30061	1.30061	•			Averaged
187 1,2-Dichlorobenzene-d4	0.82588			•	~5.45612	50.00000	Averaged
195 Cresols, total		0.87349	0.87349	•		50.00000	Averaged
01 Diphenylamine	2.85006	3.11050	3.11050	0.010	-9.13792	50.00000	Averaged
or promyramine	0.50153	0.56377	0.56377	0.010	-12.40883	50.00000	Averaged

Data File: \\cansvr11\dd\chem\MSS\a4hp8.i\71030a.b\8SMH1030.D Report Date: 30-Oct-2007 12:33 Page 3

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Lab File ID: 8SMH1030.D

Injection Date: 30-OCT-2007 12:53 Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007

Analysis Type: Lab Sample ID: L6 Init. Cal. Times:

15:22 17:53

Quant Type: ISTD

Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71030a.b\8270p.m

1					·		
COMPORTED	<u> </u>	1	CCAL	MIN	1	MAX	
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
	= ========	=======	=======	=====	=========	========	
142 Benzo(k) fluoranthene	1.27628	1.54331	1.54331	0.010	-20.92199	50.000001	Averaged
146 Benzo(a)pyrene	1.13115	1.32237	1.32237	0.010	-16.90488	20.00000	_
149 Indeno(1,2,3-cd)pyrene	1.20757	1.41719	1.41719	0.010	•		Averaged
150 Dibenz(a,h)anthracene	1.03171	1.25451	1.25451	0.010			Averaged
151 Benzo(g,h,i)perylene	1.01275	1.12170	1.12170	0.010	•		Averaged
198 1,4-Dioxane	0.61653	0.59338	0.59338				_
\$ 154 Nitrobenzene-d5	0.49725	0.55672	0.55672				Averaged
\$ 155 2-Fluorobiphenyl	1.28432	1.44671	1.44671				Averaged
\$ 156 Terphenyl-d14	0.79730	0.87588	0.87588				Averaged
\$ 157 Phenol-d5	1.85917	2.00280	2.00280				Averaged
\$ 158 2-Fluorophenol	1.28007	1.25462	1.25462				Averaged
\$ 159 2,4,6-Tribromophenol	0.14264	0.14849	•	,			Averaged
\$ 186 2-Chlorophenol-d4	1.23332	'	0.14849				Averaged
\$ 187 1,2-Dichlorobenzene-d4	•	1.30017	1.30017	,		50.00000	Averaged
M 195 Cresols, total	0.82588	0.89032	0.89032			50.00000	Averaged
101 Diphenylamine	2.85006	3.09760	3.09760	•	1	50.00000	Averaged
TAT DIDICITY TOWNTHE	0.50153	0.56898	0.56898	0.010	-13.44825	50.00000	Averaged
	-		l_				i

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 31-OCT-2007 15:58
End Cal Date : 31-OCT-2007 18:33
Quant Method : ISTD
Origin : Disabled

Target Version : 4.14
Integrator : HP RTE

: \\cansvr11\dd\chem\MSS\a4hp8.i\71031a.b\8270P.m : 01-Nov-2007 08:44 gruberj : Average Method file

Last Edit

Curve Type

		<u> </u>							
Compound	0.05000 Level 1	0.25000 Level 2	0.50000 Level 3	1	2.500 Level 5	5.000 Level 6	RRF	 % RSD	
	7.500	10.000	12.500	- 	- 	 	.		
======================================	Level 7 	Level 8	Level 9	 = ========			!	Ī	
144 Hexachlorophene	+++++	+++++	+++++ +++++	* ======== +++++ 	= ======= +++++ 	======== +++++ 	====================================		•
145 Hexachlorophene product	- +++++ +++++			- +++++ 	 +++++	 +++++	 	 	
146 Benzo(a)pyrene	1.00609	0.85680	 0.92839	1.01385	1.07984	 1.14780	+++++ 	+++++ 	•
	1.21126	1.27667 	+++++ 	 		 	1.06509	13.34	:
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++	 +++++	 +++++	•
49 Indeno (1,2,3-cd) pyrene	1.05215	0.94193 1.35821			 1.16710 	 1.23713 	1.18659	14.80	
.50 Dibenz(a,h)anthracene	 0.91651 1.12563	0.79502 1.18816	0.83997 1.32919		 0.97157	1.06074	1.01942	 16.918	-
51 Benzo(g,h,i)perylene	1.06388	0.84710	0.86775 1.18240		 0.96347	0.98910	0.99679		
32 Bis(2-hydroxyphenyl)methane		+++++	+++++	 +++++	 +++++	+++++	0.99679	10.714	-
	+++++ 	+++++ 	+++++	 	 	 	+++++	+++++	
33 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++] +++++	++++	
34 4-Chlorophenol	 +++++	 +++++ +++++	 +++++ +++++	+++++	+++++	+++++			
35 2,3-Dichlorophenol	· +++++	+++++	+++++	 +++++	 +++++	 +++++	+++++ 	+++++	
	+++++	+++++	+++++		 		+++++ 	+++++	
	l.,					i	i		ı

Data File: \\cansvrl1\dd\chem\MSS\a4hp8.i\71031a.b\ICVTCL.D

Report Date: 01-Nov-2007 08:52

Page 3

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i

Injection Date: 31-OCT-2007 18:53

Lab File ID: ICVTCL.D Analysis Type:

Init. Cal. Date(s): 31-OCT-2007 31-OCT-2007

nalysis Type: Init. Cal. Times: 15:58

18:33

Lab Sample ID: icvtcl Quant Type: ISTD

Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71031a.b\8270P.m

	I	1	1	CCAL MIN	I	MAX	
COMPOUND	RRF	/ AMOUNT	RF5	RRF5 RRF	D / %DRIFT!%	D / %DRIFT	CURVE TYPE
=======================================	==== ===			=======================================	======= =		=======================================
142 Benzo(k)fluoranthene	Ι.	1.31598	1.31479	1.31479 0.010	0.09048	50.000001	Averaged
146 Benzo(a)pyrene	1	1.06509	1.14284	1.14284 0.010	-7.300451	20.000001	Averaged
149 Indeno(1,2,3-cd)pyrene	1	1.18659	1.23697	1.23697[0.010]	-4.24562	50.000001	Averaged
150 Dibenz(a,h)anthracene	1	5.000001	5.032161	1.05822 0.010	-0.64321	0.000e+000	Quadratic
151 Benzo(g,h,i)perylene	1	0.996791	0.99112	0.99112 0.010	0.56931	50.000001	Averaged
198 1,4-Dioxane	1	0.59367	0.58021	0.58021 0.010	2.266321	50.000001	Averaged
\$ 154 Nitrobenzene-d5	1	0.44581	0.46280	0.46280 0.010	-3.81005	50.000001	Averaged
\$ 155 2-Fluorobiphenyl	1	1.31614	1.32545	1.32545 0.010	-0.706941	50.000001	Averaged
\$ 156 Terphenyl-d14	1	0.77529	0.80908	0.80908[0.010]	-4.357321	50.000001	Averaged
\$ 157 Phenol-d5	1	1.75954	1.73764	1.73764 0.010	1.24445	50.000001	Averaged
\$ 158 2-Fluorophenol	1	1.21919	1.21403	1.21403 0.010	0.42366	50.00000	Averagedi
\$ 159 2,4,6-Tribromophenol	ı	5.000001	5.06941	0.15059 0.010	-1.38825	0.000e+000	Quadratic
\$ 186 2-Chlorophenol-d4	1	1.22310	1.18894	1.18894 0.010	2.793461	50.000001	Averaged
\$ 187 1,2-Dichlorobenzene-d4	1	0.82744	0.827461	0.82746[0.010]	-0.002691	50.000001	Averagedi
M 195 Cresols, total	1	2.80785	2.76041!	2.76041 0.010	1.68951	50.000001	Averaged
101 Diphenylamine	1	5.000001	5.20967	0.50019[0.010]	-4.19348	0.000e+0001	•
	1	1	1	1 1	1		

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24271

Lab File ID (Standard): 7SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP7 Time Analyzed: 1356

		IS1 (DCB)	····	IS2 (NPT)		IS3 (ANT)	r
		AREA #	RT	AREA #	RT	AREA #	RT
		=========	======	731CH21 17			
	12 HOUR STD	109618	3.49	488130	4.38	237985	5.64
	=======================================	========	J.47		=====	257705	J.01
	UPPER LIMIT	219236	3.99	976260	4.88	475970	6.14
		========	======		=====	175570	=====
	LOWER LIMIT	54809	2.99	244065	3.88	118993	5.14
		========	=====	=========	======	========	======
	EPA SAMPLE						
	NO.						
	==========	========	=====	===== = ==	=====		=====
01	J90FKBLK	136773	3.48	603250	4.38	302403	5.64
02	J90FKCHK	135545	3.49	587008	4.38	301805	5.64
03	SB-464-0304	134003	3.49	584115	4.38	298629	5.65
04	SB-462-0708	123027	3.49	561270	4.38	286311	5.65
05	SB-463-0506	107331	3.49	479932	4.38	237243	5.65
06	SB-463-0708	141054	3.49	620701	4.38	314392	5.65
07	SB-463-0304	134913	3.49	583407	4.39	292191	5.65
80	SB-462-0506	150187	3.49	654767	4.39	338259	5.65
09	SB-464-0102	118320	3.49	519743	4.39	265293	5.65
10	SB-464-0203	141222	3.49	626701	4.39	323363	5.65
11	SB-462-0102	146087	3.49	643077	4.39	319792	5.65
12	SB-462-0203	137560	3.49	627803	4.39	321870	5.65
13	SB-462-0304	119202	3.49	522190	4.39	277036	5.65
14		123533	3.50	568476	4.39	298026	5.65
15	SB-463-0102	91236	3.51	392952	4.40	202134	5.66
16							
17							
18							}
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = +100%

IS2 (NPT) = Naphthalene-d8 IS3 (ANT) = Acenaphthene-d10 of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24271

Lab File ID (Standard): 7SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP7 Time Analyzed: 1356

1-		IS4 (PHN)		IS5 (CRY)		TOC (DDXA)	r
		AREA #	RT	` '	RT	IS6 (PRY)	D
		AREA #	K.T.	,AREA #	KI	AREA #	RT
1	12 HOUR STD	433552	6.73	262000	======	224050	=====
	12 HOUR SID	433552	0.73	363098	8.70	334250	10.11
[:	TTOTAL T TMTM	867104	=====	706106	======		=====
	UPPER LIMIT	867104	7.23	726196	9.20	668500	10.61
-	TOWER TRACE	01.6886	======	- 201540	======		=====
	LOWER LIMIT	216776	6.23	181549	8.20	167125	9.61
1:		=======	=====	=======	=====	========	=====,
Ī	EPA SAMPLE						
	NO.						
1		========	======	========	=====	========	=====
	J90FKBLK	536687	6.72	463914	8.69	430036	10.11
1	J90FKCHK	549297	6.73	463784	8.69	440284	10.10
	SB-464-0304	506501	6.73	438120	8.68	396068	10.10
,	SB-462-0708	499724	6.73	444966	8.68	396260	10.10
	SB-463-0506	409513	6.73	368108	8.68	330213	10.10
	SB-463-0708	548628	6.73	472875	8.69	430023	10.11
	SB-463-0304	498478	6.73	441155	8.69	401300	10.11
08	SB-462-0506	588509	6.73	512281	8.68	458480	10.10
09 3	SB-464-0102	458832	6.73	420413	8.69	369281	10.11
10 8	SB-464-0203	553498	6.73	476745	8.69	436266	10.11
11 8	SB-462-0102	549914	6.73	454901	8.68	398507	10.10
12 3	SB-462-0203	570662	6.73	443054	8.68	387622	10.11
13	SB-462-0304	475621	6.73	372143	8.68	335906	10.11
	SB-463-0203	474432	6.74	391873	8.70	335731	10.13
15	SB-463-0102	322568	6.75	257086	8.70	229341	10.14
16		322300	0.75	257000	0.70	227541	10.14
17							
18							[
19							
20						~	
21							
22 -							
22					i		}

IS4 (PHN) = Phenanthrene-d10 IS5 (CRY) = Chrysene-d12

(PRY)

= Perylene-d12

UPPER LIMIT = +100%

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

IS6

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24271

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Time Analyzed: 1020 Instrument ID: A4HP8

		Tar (pap)		TG0 (3TDIII)		TGO (73771)	
		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	112026	3.53	467439	4.43	254744	5.70
	UPPER LIMIT	224052	4.03	934878	4.93	509488	6.20
	LOWER LIMIT	56013	3.03	233720	3.93	127372	5.20
-	EPA SAMPLE NO.		=====		=====	======= ·	
01 02 03 04 05	J90GABLK J90GACHK	111943 97620	3.54	470010 400397	4.43 4.43	255363 216778	5.70 5.70
06 07 08 09							
10 11 12							
13 14 15 16							
17 18 19							
20 21 22							

IS2

of internal standard area.

(NPT) = Naphthalene-d8 (ANT) = Acenaphthene-d10 IS3

LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24271

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP8 Time Analyzed: 1020

		IS4 (PHN)	ı	TOE (CETT)		F	
		AREA #	RT =====	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	475947 ========	6.78	478295	8.79	383129	10.27
	UPPER LIMIT	951894	7.28	956590	9.29	766258	10.77
	LOWER LIMIT	237974	6.28	239148	8.29	191565	9.77
	EPA SAMPLE NO.						=====
01 02 03 04 05 06	J90GABLK J90GACHK	483711 412630	6.79 6.79	475644 398873	8.80 8.79	411030 332856	10.28
07 08 09 10 11 12							
13 14 15 16 17 18							
19 20 21 22							

(PHN) = Phenanthrene-d10 = Chrysene-d12

IS5 (CRY) IS6 (PRY)

= Perylene-d12

UPPER LIMIT = +100% of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN SAS No.: Case No.: SDG No.: 7J24271

Lab File ID (Standard): 8SMH1030 Date Analyzed: 10/30/07

Instrument ID: A4HP8 Time Analyzed: 1253

-		IS1 (DCB)	77.00	IS2 (NPT)		IS3 (ANT)	
=	========	AREA #	RT	AREA #	RT	AREA #	RT
	12 HOUR STD	167290	3.54	690169	4.44	384600	5.71
	UPPER LIMIT	334580	4.04	1380338	4.94	769200	6.21
	LOWER LIMIT	83645	3.04	345085	3.94	192300	5.21
	EPA SAMPLE NO.			=======	=====	========	
01 S 02 S 03 S 04 - 05 - 06 - 07 - 08 09 10	BB-465-0506 BB-465-0506 BB-465-0506	85539 77472* 87256	3.54 3.54 3.54 3.54	342606* 318132* 374603	4.44 4.44 4.44	193599 191966* 220377	5.71 5.71 5.71
11 - 12 - 13 - 14 -		· · · · · · · · · · · · · · · · · · ·					
15 16 17							
18 _ 19 _							
20 - 21 - 22 -							

IS1 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = +100%

= Naphthalene-d8 = Acenaphthene-d10 IS2 IS3 (ANT)

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24271

Lab File ID (Standard): 8SMH1030 Date Analyzed: 10/30/07

Instrument ID: A4HP8 Time Analyzed: 1253

							_
		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT (IS6 (PRY) AREA #	RT
	12 HOUR STD	734419	6.79	784977	8.79	576317	10.28
	UPPER LIMIT	1468838	7.29	1569954	9.29	1152634	10.78
	LOWER LIMIT	367210	6.29	392489	8.29	288159	9.78
	EPA SAMPLE						
02 02 03 04 05 06 07 08 09 11 12	SB-465-0506 SB-465-0506 SB-465-0506	379259 366270* 423362	6.79 6.80 6.80	337903* 376527* 424551	8.79 8.78 8.78	281522* 295676 344585	10.28 10.27 10.27
13 14 15 16 17							
19 20 21 22							

IS4 (PHN) = Phenanthrene-d10 IS5 (CRY) = Chrysene-d12 IS6 (PRY) = Perylene-d12 UPPER LIMIT = +100%
of internal standard

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN SAS No.: Case No.: SDG No.: 7J24271

Lab File ID (Standard): 8SMH1031 Date Analyzed: 10/31/07

Instrument ID: A4HP8 Time Analyzed: 1833

1-		TO1 (DOD)		750 (377m)			
=		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR S'ID	285499	3.56	1160062	4.46	660271	5.73
	UPPER LIMIT	570998	4.06	2320124	4.96	1320542	6.23
-	LOWER LIMIT	142750	3.06	580031	3.96	330136	5.23
	EPA SAMPLE NO.				=====	======	·
01 S 02 S 03 S 04 S 05 S	BB-464-0708 BB-465-0708 BB-464-0506 BB-465-0304 BB-465-0203 BB-465-0102	221940 203302 202415 196979 166810 156638	3.56 3.56 3.56 3.56 3.56 3.56	895494 844166 844111 835745 688324 662883	4.45 4.46 4.45 4.45 4.45 4.45	482365 461339 458218 470585 383024 375922	5.73 5.73 5.73 5.73 5.72 5.72

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10 UPPER LIMIT = +100%

of internal standard area.

LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J24271

Lab File ID (Standard): 8SMH1031 Date Analyzed: 10/31/07

Instrument ID: A4HP8 Time Analyzed: 1833

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
		=========	======	=========	======		=====
	12 HOUR STD	1283416	6.82	1390290	8.81	1092312	10.31
	UPPER LIMIT	2566832	7.32	2780580	9.31	2184624	10.81
	LOWER LIMIT	641708	6.32	695145	8.31	546156	9.81
	EPA SAMPLE NO.				======	=======	=====
	=========	========	=====	========	=====	========	======
01	SB-464-0708	960295	6.81	959753	8.79	827198	10.29
02	SB-465-0708	918011	6.81	959641	8.82	809816	10.32
03	SB-464-0506	902057	6.81	898135	8.80	773292	10.30
04	SB-465-0304	924419	6.81	946832	8.79	812134	10.29
05	SB-465-0203	751392	6.81	789249	8.80	666266	10.30
06	SB-465-0102	751757	6.81	745582	8.80	627850	10.30
07 08				<u>.</u>			
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10 IS5 (CRY) = Chrysene-d12

= Perylene-d12

UPPER LIMIT = +100%

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

IS6

(PRY)

FORM VIII SV-2

SAMPLE CALC

COMPOUND: BAP

IS AREA

398507

DILUTION COMPOUND OF INTEREST AREA IS AMOUNT (NG)

1 38418 2 2000 AVE RRF PERCENT SOLIDS AMOUNT INJECTED (UL) CONCENTRATION PPB
1.11111 0.89 0.5 25.97

Sample Amount (g) 30.03

Tetra Tech NUS, Inc

Client Sample ID: SB-462-0102

GC/MS Semivolatiles

Lot-Sample #: A7J240271- Date Sampled: 10/23/07 0 Prep Date: 10/27/07 Prep Batch #: 7299474		: 10/24/07	Matrix SO
Dilution Factor: 1	Initial Wgt/Vol	: 30.03 q	Final Wgt/Vol: 2 mL
% Moisture: 11	Method	-	<u> </u>
		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
Benzo (a) pyrene	26 Ј	370	ug/kg
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
Nitrobenzene-d5	52	(24 - 112)	•
2-Fluorobiphenyl	61	(34 - 110)	
Terphenyl-d14	80	(41 - 119)	
Phenol-d5	60	(28 - 110)	•
2-Fluorophenol	54	(26 - 110)	
2,4,6-Tribromophenol	58 .	(10 - 118)	
NOTE (S):			

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Data File: $\c MSS\a4hp7.i\71029a.b\J9QDG1AD.D$ Page 1 Report Date: 30-Oct-2007 14:14

STL North Canton

Semivolatile REPORT SW-846 Method 8270 Data file : \\cansvrl1\dd\chem\MSS\a4hp7.i\71029a.b\J9QDG1AD.D Lab Smp Id: j9qdglad Client Smp ID: SB-462-0102 Inj Date : 29-0CT-2007 23:14 Operator : 001710 Inst ID: a4hp7.i Smp Info : j9qdg1ad,71029a.b,8270p,bap.sub Misc Info: Comment : \\cansvr11\dd\chem\MSS\a4hp7.i\71029a.b\8270P.m Method Meth Date: 30-Oct-2007 14:12 gruberj Quant Type: ISTD Cal Date : 26-OCT-2007 18:10 Cal File: 7SHH1026.D Als bottle: 30 Dil Factor: 1.00000 Integrator: HP RTE Compound Sublist: bap.sub Target Version: 4.14 Processing Host: CANPMSSV01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws *) * CpndVariable

Name	Value	Description
DF Uf Vt Vi Ws Cpnd Variable	1.000	Dilution Factor ng unit correction factor Volume of final extract (uL) (1000 low, 2 Volume injected (uL) Weight of sample extracted (g) Local Compound Variable

	QUANT SIG	•			CONCENTRA	ATIONS
Compounds	MASS	RT	EXP RT REL RT	RESPONSE	ON-COLUMN (NG)	FINAL (ug/kg)
	====	====	=======================================	=======	======	======
* 1 1,4-Dichlorobenzene-d4	152	3.492	3.487 (1.000)	146087	2.00000	
* 2 Naphthalene-d8	136	4.386	4.380 (1.000)	643077	2.00000	(Q)
* 3 Acenaphthene-d10	164	5.648		319792	2.00000	
* 4 Phenanthrene-d10	. 188	6.734	6.728 (1.000)	549914	2.00000	
* 5 Chrysene-d12	240	8.681	8.697 (1.000)	454901	2.00000	
* 6 Perylene-d12	264	10.103	10.114 (1.000)	398507		
146 Benzo(a)pyrene	252	10.034	10.055 (0.993)	38418	2.00000	
\$ 154 Nitrobenzene-d5	82	3.867	3.861 (0.882)		0.17353	23.115
\$ 155 2-Fluorobiphenyl	172	5.140	5.134 (0.910)	416933	2.62372	349.48
\$ 156 Terphenyl-d14	244	7.868	7.868 (0.906)	579505	3.05891	407.45
\$ 157 Phenol-d5	99	3.209		763191	4.00065	532.89
\$ 158 2-Fluorophenol	112		3.193 (0.919)	699013	4.52246	602.39
\$ 159 2,4,6-Tribromophenol	330	2.637	2.615 (0.755)	413628	4.02961	536.74
\$ 186 2-Chlorophenol-d4	-	6.220	6.215 (1.101)	89799	4.34885	579.27
\$ 187 1,2-Dichlorobenzene-d4	132	3.343	3.332 (0.957)	398621	4.22165	562.32
/- bichiotobenzene-d4	152	3.599	3.594 (1.031)	102902	1.76379	234.94(Q)

QC Flag Legend



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

MIKE MARTIN

DATE:

JANUARY 8, 2008

FROM:

THOMAS JACKMAN

COPIES:

DV FILE

SUBJECT:

INORGANIC DATA VALIDATION - MERCURY

LOCKHEED MIDDLE RIVER FACILITY

SAMPLE DELIVERY GROUP (SDG) - 7J24271

SAMPLES:

20/Solid

SB-462-0102	SB-462-0203	SB-462-0304	SB-462-0506	SB-462-0708
SB-463-0102	SB-463-0203	SB-463-0304	SB-463-0506	SB-463-0708
SB-464-0102	SB-464-0203	SB-464-0304	SB-464-0506	SB-464-0708
SB-465-0102	SB-465-0203	SB-465-0304	SB-465-0506	SB-465-0708

Overview

This sample set for the Lockheed Middle River, SDG 7J24271, consists of 20 environmental soil samples. The samples were analyzed for mercury. No field duplicates were included in this data set.

The samples were collected by Tetra Tech NUS, Inc. on October 23, 2007 and analyzed by Test America. The samples were analyzed by SW-846 Method 7471A [Cold Vapor Atomic Absorption (CVAA)].

Summary

All samples were successfully analyzed. The findings in this report are based upon a general review of all available data including: data completeness, holding times, calibrations, laboratory method/preparation blanks, matrix spike results, laboratory duplicate results, laboratory control sample (LCS) results, analyte quantitation, and detection limits. Areas of concern are listed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

Major Problems

None.

Minor Problems

None.

MEMO TO: M. MARTIN - PAGE 2 DATE: JANUARY 8, 2008

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analysis" (4/93). The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech NUS Thomas Jackman 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 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

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: M

00885

nsample samp_date

SB-462-0102 10/23/2007 nsample samp_date

lab_id

SB-462-0203 10/23/2007

nsample samp_date SB-462-0304 10/23/2007

lab_id qc_type units A7J240271001 NM

qc_type units A7J240271002 NM MG/KG lab_id qc_type units A7J240271003 NM MG/KG

Pct_Solids DUP_OF:

MG/KG 89.0

Pct_Solids DUP_OF: 87.0

Pct_Solids DUP_OF:

87.0

Parameter Result Qual Code

MERCURY 0.091

Parameter	Result	Val Qual	Qual Code
MERCURY	0.21		

Parameter	Resul	Val Qual	Qual Code
MERCURY	0.019	Ü	

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-462-0506

10/23/2007

lab_id

A7J240271004

Result

0.021

qc_type NM units MG/KG Pct_Solids 79.0

Parameter

DUP_OF:

MERCURY

nsample samp_date

Qual

Code

Val

Qual

Ū

lab_id qc_type units

Pct_Solids DUP_OF:

SB-462-0708

10/23/2007 A7J240271005

NM MG/KG

82.0

nsample

samp_date

lab_id qc_type units

Pct_Solids DUP_OF:

SB-463-0102

10/23/2007 A7J240271006

NM MG/KG 86.0

Val Qual Parameter Result Qual Code MERCURY 0.02 U

Parameter	Result	Val Qual	Qual Code
MERCURY	0.036		

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

SB-463-0203

lab_id

10/23/2007

qc_type units

A7J240271007 NM

Pct_Solids DUP_OF:

MG/KG

74.0

nsample

samp_date lab_id qc_type

units Pct_Solids

DUP_OF:

SB-463-0304

10/23/2007 A7J240271008

NM MG/KG

79.0

nsample

samp_date lab_id

qc_type units

Pct_Solids

SB-463-0506 10/23/2007 A7J240271009

NM MG/KG 81.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.063		

Parameter	Result	Val Qual	Qual Code
MERCURY	0.021	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.021	U	

00885

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

SB-463-0708

10/23/2007

nsample samp_date lab_id SB-464-0102 10/23/2007 A7J240271011 nsample samp_date lab_id SB-464-0203 10/23/2007 A7J240271012

lab_id qc_type units A7J240271010 NM MG/KG

qc_type units NM MG/KG 90.0 qc_type units Pct_Solids NM MG/KG 89.0

Pct_Solids DUP_OF:

80.0

Pct_Solids DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.021	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

SB-464-0304 10/23/2007 nsample samp_date SB-464-0506 10/23/2007 nsample samp_date

SB-464-0708 10/23/2007

lab_id qc_type

A7J240271013 NM lab_id qc_type A7J240271014 NM lab_id qc_type A7J240271015 NM

units
Pct_Solids

MG/KG 81.0

units
Pct_Solids
DUP_OF:

MG/KG 79.0

units
Pct_Solids
DUP_OF:

MG/KG 85.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.021	U	

Parameter	Result	Val Qual	Qual Code
MÉRCURY	0.021	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

00885

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

SB-465-0102 10/23/2007 A7J240271016

nsample samp_date lab_id

10/23/2007 A7J240271017

SB-465-0203

nsample samp_date lab_id qc_type SB-465-0304 10/23/2007 A7J240271018

lab_id qc_type units Pct_Solids

NM MG/KG 88.0

qc_type units Pct_Solids DUP_OF: NM MG/KG 90.0

units
Pct_Solids
DUP_OF:

MG/KG 85.0

NM

Parameter	Result	Val Qual	Qual Code
MERCURY	0.04		

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

SDG: 7J24271 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

SB-465-0506

10/23/2007

nsample samp_date SB-465-0708

A7J240271019

10/23/2007

lab_id qc_type

lab_id qc_type units

A7J240271020 NM

units Pct_Solids MG/KG

NM

1

_Solids 84.0

Pct_Solids DUP_OF: MG/KG 84.0

Parameter	Result	Val Qual	Qual Code	
MERCURY	0.02	11		

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	,

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QD0

Client ID:

SB-463-0304

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/25/2007

Prep Batch: 7298022

Weight:

0.60

Volume:

100

Percent Moisture:

21.196

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.13	0.021	U	1	CVAA	10/26/2007	11:09

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QD1

Client ID:

SB-463-0506

Matrix:

Soil

Units: mg/kg

Prep Date: 10/25/2007

Prep Batch: 7298022

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.12	0.021	U	1	CVAA	10/26/2007	11:10

Comments: _Lot #: A7J240271 Sample #: 9

5.21.0

Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QD2

Client ID:

SB-463-0708

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/25/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.12	0.021	U	1	CVAA	10/26/2007	11:11

Comments: Lot #: A7J240271 Sample #: 10

5.21.0

Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QD3

Client ID:

SB-464-0102

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/25/2007

Prep Batch: 7298022

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:12

Comments: Lot #: A7J240271 Sample #: 11

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QD4

Client ID:

SB-464-0203

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/25/2007

Prep Batch: 7298022

Weight:

0.60

Volume:

100

Percent Moisture:

10.566

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:13

Comments: Lot #: A7J240271 Sample #: 12

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Metals Data Reporting Form

Sample Results

J9QD5 Lab Sample ID:

Client ID:

SB-464-0304

Matrix:

Soil

Units: mg/kg

Prep Date: 10/25/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture:

18.982

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.12	0.021	U	1	CVAA	10/26/2007	11:15

Comments: Lot #: A7J240271 Sample #: 13

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9QD6 Client ID:

SB-464-0506

Matrix:

Soil

Units: mg/kg

Prep Date: 10/25/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture:

20.657

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.13	0.021	U	1	CVAA	10/26/2007	11:16

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9QD7

Client ID:

SB-464-0708

Matrix:

Soil

Units: mg/kg

Prep Date: 10/25/2007

Prep Batch:

7298022

Weight:

0.60

Volume:

100

Percent Moisture:

15.317

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:17

Comments: <u>Lot #: A7J240271 Sample #: 15</u>

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QD8

Client ID:

SB-465-0102

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/25/2007

Prep Batch: 7298022

Weight:

0.60

Volume:

Percent Moisture:

11.576

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.040	В	1	CVAA	10/26/2007	11:21

Comments: Lot #: A7J240271 Sample #: 16

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9QDG

Client ID:

SB-462-0102

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/25/2007

Prep Batch:

7298022

Weight:

0.60

Volume:

100

Percent Moisture:

10.915

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.091	В	1	CVAA	10/26/2007	11:22

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9QDH

Client ID:

SB-462-0203

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/25/2007

Prep Batch:

7298022

Weight:

0.60

Volume:

100

Percent Moisture:

12.921

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.21		1	CVAA	10/26/2007	11:23

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QDK

Client ID:

SB-462-0304

Matrix:

Soil

Units: mg/kg

Prep Date: 10/25/2007

Prep Batch: 7298022

Weight:

0.60

Volume:

100

Percent Moisture:

12.925

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:24

Comments: Lot #: A7J240271 Sample #: 3

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9QDL

Client ID:

SB-462-0506

Matrix:

Soil

Units: mg/kg

Prep Date: 10/25/2007

Prep Batch:

7298022

Weight:

0.60

Volume: 100

Percent Moisture:

sture: 20.949

		•							_
	WL/		Report					Anal	Anal
Element	Mass	IDL	<u>Limit</u>	Conc	Q	DF	Instr	Date	Time
Mercury	253.7	0.021	0.13	0.021	U	1	CVAA	10/26/2007	11:26

Comments: Lot #: A7J240271 Sample #: 4

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QDM Client ID: SB-462-0708

Matrix:

Soil

mg/kg

Prep Date: 10/25/2007

Prep Batch:

Weight:

0.60

Volume: 100

Units:

Percent Moisture:

18.489

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:27

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QDR

Client ID:

SB-463-0102

Matrix:

Soil

Units: mg/kg

Prep Date: 10/25/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture:

13.713

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.036	В	1	CVAA	10/26/2007	11:28

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QDW

Client ID:

SB-463-0203

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/25/2007

07 **Prep Batch:**

7298022

Weight:

0.60

Volume:

100

Percent Moisture:

26.059

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.023	0.14	0.063	В	1	CVAA	10/26/2007	11:30

Metals Data Reporting Form

Sample Results

Lab Sample ID: ____

J9QEA

Client ID:

SB-465-0203

Matrix:

Soil

Units:

mg/kg

100

Prep Date: 10/25/2007

Prep Batch:___

7208022

Weight:

0.60

Volume:

Percent Moisture:

10.071

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/26/2007	11:31

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QED

Client ID:

SB-465-0304

Matrix:

Soil

Units: mg/kg

g/kg Pren Date

Prep Date: 10/25/2007

Prep Batch: 7298022

Weight:

0.60

Volume:

100

Percent Moisture:

15.331

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:32

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QEE

Client ID:

SB-465-0506

Matrix:

Soil

Units:

mg/kg Prep

Prep Date: 10/25/2007

Prep Batch: 7298022

Weight:

0.60

Volume:

100

Percent Moisture:

16.132

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:35

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J9QEF

Client ID:

SB-465-0708

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/25/2007

Prep Batch: 7298022

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/26/2007	11:39

Comments: Lot #: A7J240271 Sample #: 20

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

APPENDIX C SUPPORT DOCUMENTATION

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 1.7 and 2.6°C.

See TestAmerica's Cooler Receipt Form for additional information.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for sample(s) SB-465-0506 had RPD's outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The matrix spike/matrix spike duplicate(s) for batch(es) 7299474 had RPD's outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

Sample(s) SB-463-0304 had up to one surrogate recovery per fraction outside acceptance limits. However, since the recovery was greater than 10% and all associated QC met criteria, no corrective action was taken.

The internal standard areas were outside acceptance limits for sample(s) SB-465-0506 due to matrix effects. "(Refer to IS report following this Case Narrative for additional detail.)"

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

CASE NARRATIVE

7J24271

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc from the LMC MR Site, project number 112IC00885. The samples were received October 24, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID: A7J240271.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Dev Murali, John Poremba and Michael Martin on November 12, 2007. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters, which are never reported on a dry weight basis, is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

Chain of Custody Record



Telly Tech Addition 1 2025 Century Blud Place 2070 45 Telly file Blue 2025 Century Blud Place 305 Century 305 Century 40 Century Blud Place 305 Century 40 Centu	STL-4124 (0901) Client									•••	O: 11	•••	-114	Lany	пак	orie	:5, H	ıc.					
TOUS Cenhyl Blud From Tree grapher whether (need consider Kunster) Consider Cons	Tetra Tech	Proje	ct Man	ager Ua	bN	′								E	ate	<u></u>	1/2	7	CH	ain of Cusi	ody Numi	per	<u>.</u>
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Chain of Custody Record



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HG	MG/KG	SB-464-0506	A7J240271014	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-462-0304	A7J240271003	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-462-0506	A7J240271004	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-462-0708	A7J240271005	NM	10/23/2007	10/25/2007	10/26/2007	2	1 .	3
HG	MG/KG	SB-463-0203	A7J240271007	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-463-0506	A7J240271009	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-463-0708	A7J240271010	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-464-0102	A7J240271011	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-462-0203	A7J240271002	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-464-0304	A7J240271013	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-463-0102	A7J240271006	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-464-0708	A7J240271015	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-465-0102	A7J240271016	NM	10/23/2007	10/25/2007	10/26/2007	2	1 .	3
HG	MG/KG	SB-465-0203	A7J240271017	NM	.10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-465-0304	A7J240271018	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3

Friday, November 16, 2007

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-465-0506	A7J240271019	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-465-0708	A7J240271020	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-462-0102	A7J240271001	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-464-0203	A7J240271012	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
HG	MG/KG	SB-463-0304	A7J240271008	NM	10/23/2007	10/25/2007	10/26/2007	2	1	3
PCS	%	SB-464-0304	A7J240271013	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0506	A7J240271019	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0708	A7J240271020	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0304	A7J240271018	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0203	A7J240271017	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-465-0102	A7J240271016	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-464-0506	A7J240271014	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-462-0102	A7J240271001	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-464-0203	A7J240271012	NM ·	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-464-0102	A7J240271011	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-462-0304	A7J240271003	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-464-0708	A7J240271015	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-462-0203	A7J240271002	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10

Friday, November 16, 2007

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PCS	%	SB-463-0708	A7J240271010	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-462-0506	A7J240271004	NM	10/23/2007	11/1/2007	11/2/2007	9	1	. 10
PCS	%	SB-462-0708	A7J240271005	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-463-0102	A7J240271006	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-463-0203	A7J240271007	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-463-0304	A7J240271008	NM	10/23/2007	11/1/2007	11/2/2007	9	1	10
PCS	%	SB-463-0506	A7J240271009	NM	10/23/2007	11/1/2007	11/2/2007	9 .	1	10
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os	%	SB-463-0506	A7J240271009	NM	10/23/2007	10/27/2007	10/29/2007	4	2 .	6
os	%	SB-462-0203	A7J240271002	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	%	SB-462-0304	A7J240271003	NM	10/23/2007	10/27/2007	10/29/2007	. 4	2	6
os	%	SB-462-0506	A7J240271004	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	%	SB-462-0708	A7J240271005	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	%	SB-463-0102	A7J240271006	NM	10/23/2007	10/27/2007	10/30/2007	. 4	3	7
os	%	SB-463-0203	A7J240271007	NM .	10/23/2007	10/27/2007	10/30/2007	4	3	7
os	%	SB-463-0304	A7J240271008	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	%	SB-462-0102	A7J240271001	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
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Friday, November 16, 2007

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OS	%	SB-464-0203	A7J240271012	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	%	SB-464-0304	A7J240271013	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	%	SB-464-0506	A7J240271014	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	%	SB-464-0708	A7J240271015	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	%	SB-465-0102	A7J240271016	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	%	SB-465-0203	A7J240271017	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	%	SB-465-0304	A7J240271018	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	%	SB-463-0708	A7J240271010	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-464-0304	A7J240271013	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	UG/KG	SB-464-0506	A7J240271014	NM	10/23/2007	10/27/2007	10/31/2007	4	4 .	8,
os	UG/KG	SB-464-0708	A7J240271015	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	UG/KG	SB-465-0102	A7J240271016	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	UG/KG	SB-465-0203	A7J240271017	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	UG/KG	SB-465-0304	A7J240271018	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	UG/KG	SB-464-0203	A7J240271012	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-465-0708	A7J240271020	NM	10/23/2007	10/27/2007	10/31/2007	4	4	8
os	UG/KG	SB-463-0102	A7J240271006	NM	10/23/2007	10/27/2007	10/30/2007	4	3	7

Fřiday, November 16, 2007

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	SB-465-0506	A7J240271019	NM	10/23/2007	10/27/2007	10/30/2007	4	3	7
os	UG/KG	SB-464-0102	A7J240271011	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-463-0708	A7J240271010	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-463-0506	A7J240271009	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	UG/KG	SB-462-0102	A7J240271001	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-463-0203	A7J240271007	NM	10/23/2007	10/27/2007	10/30/2007	4	3	7
os	UG/KG	SB-462-0708	A7J240271005	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-462-0506	A7J240271004	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	UG/KG	SB-462-0304	A7J240271003	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
OS	UG/KG	SB-462-0203	A7J240271002	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6
os	UG/KG	SB-463-0304	A7J240271008	NM	10/23/2007	10/27/2007	10/29/2007	4	2	6

Friday, November 16; 2007 Page 5 of 5



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

M. MARTIN

DATE:

DECEMBER 6, 2007

FROM:

ROBERT JUPIN

COPIES:

DV FILE

SUBJECT:

ORGANIC DATA VALIDATION - BENZO(a)PYRENE

LOCKHEED MIDDLE RIVER COMPLEX

SAMPLE DELIVERY GROUP (SDG): 7J26310

SAMPLES:

20/Soil/

SB-470-0102	SB-470-0203	SB-470-0304	SB-470-0506	SB-470-0708
SB-471-0102	SB-471-0203	SB-471-0304	SB-471-0506	SB-471-0708
SB-472-0102	SB-472-0203	SB-472-0304	SB-472-0506	SB-472-0708
SB-473-0102	SB-473-0203	SB-473-0304	SB-473-0506	SB-473-0708

Overview

The sample set for SDG 7J26310, Lockheed MRC, consists of twenty (20) soil environmental samples.

All soil samples were analyzed for benzo(a)pyrene. The samples were collected by TetraTech NUS on October 23 and 24, 2007 and analyzed by Test America Laboratories, Inc. Analyses were conducted using SW-846 Method 8270C.

The findings in this report are based upon a general review of all available data including: data completeness, GC/MS tuning, holding times, initial/continuing calibrations, laboratory method/preparation and field quality control blank results, surrogate spike/internal standard recoveries, laboratory control sample (LCS)/blank spike results, matrix spike/matrix spike duplicate results, analyte quantitation, and detection limits. Areas of concern are listed below.

Major Problems

None.

Minor Problems

• Positive results reported below the detection limit have been qualified as estimated, "J".

Notes

The matrix spike sample was not spiked with benzo(a)pyrene therefore, no evaluation of the matrix spike could be performed.

Executive Summary

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (9/94) as modified by Region III.

Tetra Tech NUS Robert J. Jupin

Risk Assessment Specialist/Environmental Scientist

Tetra Tech NUS Joseph A. Samchuck

Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Support Documentation

Data Qualifier Key:

- U Value is a nondetect as reported by the laboratory.
- J Positive result is considered estimated, "J", as a result of technical noncompliances.

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

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 be any number of issues; e.g. poor 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:

Pct_Solids

DUP_OF:

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: OS

nsample SB-470-0102 samp_date 10/23/2007 A7J260310001 lab_id NM qc_type units UG/KG

samp_date lab_id qc_type units Pct_Solids

DUP_OF:

nsample

SB-470-0203 10/23/2007 A7J260310002 NM UG/KG 89.0

samp_date lab_id qc_type units Pct_Solids DUP_OF:

nsample

10/23/2007 A7J260310003 NM UG/KG 87.0

SB-470-0304

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	52	J	₽

89.0

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

PROJ_NO:

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

qc_type

Pct_Solids

DUP_OF:

units

SB-470-0506 10/23/2007 A7J260310004

A7J2603 NM UG/KG 82.0 nsample samp_date lab_id

qc_type

Pct_Solids DUP_OF:

units

10/23/2007 A7J260310005 NM

SB-470-0708

UG/KG 84.0 nsample samp_date lab_id

lab_id
qc_type
units
Pct_Solids

A7J260310006 NM UG/KG 81.0

SB-471-0102

10/23/2007

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

PROJ NO:

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

qc_type

units

SB-471-0203 10/23/2007 A7 1260310007

A7J260310007 NM UG/KG 81.0 nsample samp_date lab_id qc_type

units

Pct_Solids

DUP_OF:

10/23/2007 A7J260310008 NM

SB-471-0304

NM UG/KG 81.0 nsample samp_date lab_id qc_type

Pct_Solids

DUP_OF:

units

10/23/2007 A7J260310009 NM

SB-471-0506

UG/KG 83.0

Pct_Solids DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	21	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

PROJ_NO:

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

qc_type

Pct_Solids

DUP_OF:

units

SB-471-0708 10/23/2007 A7J260310010

NM UG/KG 84.0

nsample samp date lab_id

units

DUP_OF:

10/23/2007 A7J260310011 qc_type NM Pct_Solids

UG/KG 86.0

SB-472-0102

nsample samp_date

lab_id qc_type units

DUP_OF:

Pct_Solids

UG/KG 87.0

NM

SB-472-0203

A7J260310012

10/23/2007

Val Qual Parameter Result Qual Code U BENZO(A)PYRENE 1.6

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

PROJ_NO:

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id SB-472-0304 10/23/2007 A7J260310013

A7J2603100 NM UG/KG 82.0 nsample samp_date lab_id qc_type

units

Pct_Solids

DUP_OF:

SB-472-0506 10/23/2007 A7J260310014 NM

NM UG/KG 83.0 nsample samp_date lab_id qc_type

Pct_Solids

DUP_OF:

units

SB-472-0708 10/23/2007 A7J260310015 NM

UG/KG 83.0

Pct_Solids DUP_OF:

qc_type

units

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

PROJ NO:

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

qc_type

units

SB-473-0102 10/24/2007

A7J260310016 NM UG/KG 89.0 nsample samp_date lab_id qc_type units

Pct_Solids

DUP_OF:

SB-473-0203 10/24/2007 A7J260310017 NM

NM UG/KG 88.0 nsample samp_date lab_id qc_type

Pct_Solids

DUP_OF:

units

10/24/2007 A7J260310018 NM

SB-473-0304

NM UG/KG 85.0

Pct_Solids DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

PROJ NO:

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date SB-473-0506

nsample samp_date

SB-473-0708 10/24/2007

10/24/2007 lab_id A7J260310019

lab_id

A7J260310020

qc_type units

NM UG/KG 76.0

qc_type units

NM UG/KG 80.0

Pct_Solids DUP_OF:

Pct_Solids

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.7	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

APPENDIX B RESULTS AS REPORTED BY THE LABORATORY

Client Sample ID: SB-470-0102

GC/MS Semivolatiles

Date Sampled: Prep Date: Prep Batch #: Dilution Factor:	10/23/07 14:35 10/28/07 7300109 1	Analysis Date:	10/26/07			: SO
% Moisture:	11	Method	SW846 8270	C		
PARAMETER		RESULT	REPORTING LIMIT	UNITS	MDL	
Benzo(a)pyrene		52 J	370	ug/kg	1.5	
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5		71	(24 - 112)		•	
2-Fluorobiphenyl		73	(34 - 110)		•	
Terphenyl-d14		97	(41 - 119)	•		
Phenol-d5		65	(28 - 110)			
		65 60	(28 - 110) (26 - 110)			

J Estimated result. Result is less than RL.

Client Sample ID: SB-470-0203

GC/MS Semivolatiles

Lot-Sample #: A7				Matrix	so
Date Sampled: 10					
Prep Batch #: 73		Analysis Date:	10/31/01		
Dilution Factor: 1	300103				
% Moisture: 11	L	Method:	SW846 8270	С	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	370	ug/kg	1.5
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		58	(24 - 112)		
2-Fluorobiphenyl		60	(34 - 110)		
Terphenyl-d14		89	(41 - 119)		
Phenol-d5		63	(28 - 110)		
2-Fluorophenol		59	(26 - 110)		
2,4,6-Tribromopheno	1	51	(10 - 118)		
				$C_{\mathcal{A}} = C_{\mathcal{A}} = C_{\mathcal{A}} = C_{\mathcal{A}}$	
NOTE(S):					

Client Sample ID: SB-470-0304

GC/MS Semivolatiles

Lot-Sample #: A7J260310-003 Date Sampled: 10/23/07 14:3 Prep Date: 10/28/07 Prep Batch #: 7300109		: 10/26/07	Ma tri	x: SO
Dilution Factor: 1				
% Moisture: 13	Method	: SW846 8270)C	
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a) pyrene	ND RESULT	380	ug/kg	1.5
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	75	(24 - 112)		
2-Fluorobiphenyl	73	(34 - 110)		
Terphenyl-d14	96	(41 - 119)		
Phenol-d5	76	(28 - 110)		
2-Fluorophenol	79	(26 - 110)		
2,4,6-Tribromophenol	53	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-470-0506

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #: Dilution Factor:	10/23/07 14:41 10/28/07 7300109		10/26/07	Matrix	K:	SO
% Moisture:		Method:	SW846 8270	С		
			REPORTING			
PARAMETER		RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene		ND	400	ug/kg	1.6	
		PERCENT	RECOVERY			
SURROGATE		RECOVERY	LIMITS			
Nitrobenzene-d5		76	(24 - 112)			
2-Fluorobiphenyl		65	(34 - 110)			
Terphenyl-d14		95	(41 - 119)			
Phenol-d5		76	(28 - 110)			
2-Fluorophenol		76	(26 - 110)			
. •	enol	54	(10 - 118)			

Client Sample ID: SB-470-0708

GC/MS Semivolatiles

Lot-Sample #:		Work Order #:		Matrix	:	SO .
Date Sampled:	10/23/07 14:43	Date Received:				
Prep Date:	10/28/07	Analysis Date:	11/01/07			
Prep Batch #:	7300109					
Dilution Factor:	1					
% Moisture:	16	Method:	SW846 8270	С		
			REPORTING			
PARAMETER		RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene		ND	390	ug/kg	1.6	
		PERCENT	RECOVERY			
SURROGATE		RECOVERY	LIMITS			
Nitrobenzene-d5		79.	(24 - 112)			
2-Fluorobiphenyl		71	(34 - 110)			
Terphenyl-d14		95	(41 - 119)			
Phenol-d5		74	(28 - 110)			
2-Fluorophenol		73	(26 - 110)			
2,4,6-Tribromophe	enol	44	(10 - 118)			
NOTE(S):						

Client Sample ID: SB-471-0102

GC/MS Semivolatiles

Lot-Sample #: A7J260310-00 Date Sampled: 10/23/07 15 Prep Date: 10/28/07 Prep Batch #: 7300109 Dilution Factor: 1 % Moisture: 19		: 10/26/07 : 11/01/07		ix	: SO
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	_
Benzo(a)pyrene	ND	410	ug/kg	1.6	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	77	(24 - 112)	- n		
2-Fluorobiphenyl	65	(34 - 110)			
Terphenyl-d14	99	(41 - 119)			
Phenol-d5	77	(28 - 110)			
2-Fluorophenol	78	(26 - 110)			
2,4,6-Tribromophenol	59	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-471-0203

GC/MS Semivolatiles

Lot-Sample #: A7J260310-007 Date Sampled: 10/23/07 15:3			Matrix	atrix SO		
Prep Date: 10/28/07	Analysis Date:	11/01/07				
Prep Batch #: 7300109 Dilution Factor: 1						
% Moisture: 19	Method:	SW846 8270	С			
U INIBOUTO IIII 19		5				
		REPORTING				
PARAMETER	RESULT	LIMIT	UNITS	MDL		
Benzo(a)pyrene	21 J	410	ug/kg	1.6		
	PERCENT	RECOVERY				
SURROGATE	RECOVERY	LIMITS				
Nitrobenzene-d5	72	(24 - 112)				
2-Fluorobiphenyl	65	(34 - 110)				
Terphenyl-d14	95	(41 - 119)				
Phenol-d5	70	(28 - 110)				
2-Fluorophenol	69	(26 - 110)				
2,4,6-Tribromophenol	37	(10 - 118)				
NOTE (S):					<u></u>	

J Estimated result. Result is less than RL.

Client Sample ID: SB-471-0304

GC/MS Semivolatiles

Lot-Sample #: A7J26 Date Sampled: 10/23 Prep Date: 10/28 Prep Batch #: 73001	3/07 15:14 Date Recei 3/07 Analysis D	#: J90NL1AD ved.: 10/26/07 ate.: 11/01/07	Matrix	s	0
Dilution Factor: 1					
% Moisture: 19	Method	: SW846 8270	C		
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
Benzo(a) pyrene	ND	410	ug/kg	1.6	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	76	(24 - 112)			
2-Fluorobiphenyl	64	(34 - 110)			
Terphenyl-d14	92	(41 - 119)			
Phenol-d5	74	(28 - 110)			
2-Fluorophenol	74	(26 - 110)			
2,4,6-Tribromophenol	50	(10 - 118)			
NOTE(S):	*				

Client Sample ID: SB-471-0506

GC/MS Semivolatiles

Lot-Sample #: A7J260310-00 Date Sampled: 10/23/07 15: Prep Date: 10/28/07 Prep Batch #: 7300109		10/26/07	Matri	ix:	so
Dilution Factor: 1 % Moisture: 17	Method:	SW846 8270	С		
PARAMETER	RESULT	REPORTING	UNITS	MDL	
Benzo(a) pyrene	ND	400	ug/kg	1.6	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	78	(24 - 112)			
2-Fluorobiphenyl	71	(34 - 110)			
Terphenyl-d14	90	(41 - 119)			
Phenol-d5	66	(28 - 110)			
2-Fluorophenol	62	(26 - 110)			
2,4,6-Tribromophenol	30	(10 - 118)			
NOTE(S):					

Client Sample ID: SB-471-0708

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #: Dilution Factor:	10/23/07 15:18 10/28/07 7300109	Work Order #: Date Received: Analysis Date:	10/26/07	Matrix		: SO
% Moisture:	_	Method:	SW846 82700	C .		
PARAMETER		RESULT	REPORTING LIMIT	UNITS	MDL	
Benzo(a)pyrene		ND	390	ug/kg	1.6	
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS		· -	
Nitrobenzene-d5		80	(24 - 112)			
2-Fluorobiphenyl		72	(34 - 110)			
Terphenyl-d14		89	(41 - 119)			
Phenol-d5		73	(28 - 110)			
2-Fluorophenol		71	(26 - 110)			
2,4,6-Tribromophe	eno1	50	(10 - 118)			
NOTE (S):						

Client Sample ID: SB-472-0102

GC/MS Semivolatiles

Lot-Sample #: A7J260310-011	Work Order #:	J90NQ1AD	Matr:	ix SO
Date Sampled: 10/23/07 16:2	O Date Received:	10/26/07		•
Prep Date: 10/28/07	Analysis Date:	11/01/07		
Prep Batch #: 7300109	•			
Dilution Factor: 1	•			•
% Moisture: 14	Method	SW846 8270	C .	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	68	$\frac{24}{(24 - 112)}$	-	
2-Fluorobiphenyl	65	(34 - 110)		
Terphenyl-d14	80	(41 - 119)		
Phenol-d5	68	(28 - 110)		
2-Fluorophenol	64	(26 - 110)		
2,4,6-Tribromophenol	39	(10 - 118)		
NOTE(S):		<u> </u>		

Client Sample ID: SB-472-0203

GC/MS Semivolatiles

_	10/23/07 16:22 10/28/07	Work Order #: Date Received: Analysis Date:	10/26/07	Matrix	SO
Dilution Factor:	1				
% Moisture:	13	Method:	SW846 8270	С	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	:	ND	380	ug/kg	1.5
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		•
Nitrobenzene-d5		78	(24 - 112)		
2-Fluorobiphenyl		70	(34 - 110)		•
Terphenyl-d14		89	(41 - 119)		
Phenol-d5		74	(28 - 110)		
2-Fluorophenol		74	(26 - 110)		
2,4,6-Tribromopher	nol	37	(10 - 118)		

Client Sample ID: SB-472-0304

GC/MS Semivolatiles

Lot-Sample #: A7J260310-013	Work Order #:	J90NW1AD	Matrix		: SO
Date Sampled: 10/23/07 16:24 Prep Date: 10/28/07 Prep Batch #: 7300109	Date Received: Analysis Date:				
Dilution Factor: 1 8 Moisture: 18	Method:	SW846 8270	С		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	400	ug/kg	1.6	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	68	(24 - 112)			
2-Fluorobiphenyl	66	(34 - 110)			
Terphenyl-d14	91	(41 - 119)			
Phenol-d5	66	(28 - 110)			
2-Fluorophenol	66	(26 - 110)			
2,4,6-Tribromophenol	34	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-472-0506

GC/MS Semivolatiles

Date Received: Analysis Date:	10/26/07 11/01/07			SO
	REPORTING			
RESULT	LIMIT	UNITS	MDL	
ND	400	ug/kg	1.6	
PERCENT	RECOVERY			
RECOVERY	LIMITS			
78	(24 - 112)			
70	(34 - 110)			
98	(41 - 119)			
74	(28 - 110)			
69	(26 - 110)			
38	(10 - 118)			
	Method: RESULT ND PERCENT RECOVERY 78 70 98 74 69	REPORTING RESULT ND PERCENT RECOVERY RECOVERY LIMITS 78 (24 - 112) 70 (34 - 110) 98 (41 - 119) 74 (28 - 110) 69 (26 - 110)	Date Received.:: 10/26/07 Analysis Date: 11/01/07 Method: SW846 8270C RESULT REPORTING LIMIT 400 UNITS ug/kg PERCENT RECOVERY LIMITS (24 - 112) 034 - 110) 70 (34 - 110) 041 - 119) 74 (28 - 110) 069 (26 - 110) (26 - 110)	Date Received.:: 10/26/07 Analysis Date.:: 11/01/07 Method: SW846 8270C REPORTING LIMIT UNITS MDL 400 ug/kg 1.6 PERCENT RECOVERY RECOVERY LIMITS 78 (24 - 112) 70 (34 - 110) 98 (41 - 119) 74 (28 - 110) 69 (26 - 110)

NOTE(S):

Client Sample ID: SB-472-0708

GC/MS Semivolatiles

Lot-Sample #: A7J260310-015 Date Sampled: 10/23/07 16:2 Prep Date: 10/28/07 Prep Batch #: 7300109 Dilution Factor: 1		10/26/07	Matri	x: SO
% Moisture: 17	Method:	SW846 8270	C	
		DEDODUTNO		
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	81	(24 - 112)	•	
2-Fluorobiphenyl	73	(34 - 110)		
Terphenyl-d14	98	(41 - 119)		
Phenol-d5	79	(28 - 110)		
2-Fluorophenol	79	(26 - 110)		
2,4,6-Tribromophenol	65	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-473-0102

GC/MS Semivolatiles

Lot-Sample #: A7J260 Date Sampled: 10/24/	07 09:30 Date Received	d: 10/26/07	Mat	rix	: SO
Prep Date: 10/28/ Prep Batch #: 730010 Dilution Factor: 1	_	e: 11/01/07			
% Moisture: 11	Method	: SW846 8270	С		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	370	ug/kg	1.5	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	77	(24 - 112)			
2-Fluorobiphenyl	72	(34 - 110)			
Terphenyl-d14	92	(41 - 119)			
Phenol-d5	77	(28 - 110)			
2-Fluorophenol	79	(26 - 110)			
2,4,6-Tribromophenol	57	(10 - 118)	•		
NOTE(S):		,=,			· .

Client Sample ID: SB-473-0203

GC/MS Semivolatiles

Lot-Sample #: A7J260310-017 Date Sampled: 10/24/07 09:32 Prep Date: 10/28/07 Prep Batch #: 7300109		•	10/26/07				
Dilution Factor: % Moisture:		Method:	SW846 8270	C v			
			REPORTING				
PARAMETER		RESULT	LIMIT	UNITS	MDL		
Benzo(a)pyrene		ND	380	ug/kg	1.5		
		PERCENT	RECOVERY				
SURROGATE		RECOVERY	LIMITS				
Nitrobenzene-d5		77	$\frac{241113}{(24 - 112)}$				
2-Fluorobiphenyl		70	(34 - 110)				
Terphenyl-d14		90	(41 - 119)				
Phenol-d5		72	(28 - 110)				
	•	72	(26 - 110)				
2-Fluorophenol							

Client Sample ID: SB-473-0304

GC/MS Semivolatiles

Lot-Sample #: A7J260310-018 Date Sampled: 10/24/07 09:36 Prep Date: 10/28/07 Prep Batch #: 7300109 Dilution Factor: 1 % Moisture: 15		10/26/07 11/01/07				
	•	REPORTING				
PARAMETER	RESULT	LIMIT	UNITS	MDL		
Benzo(a)pyrene	ND	390	ug/kg	1.5		
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS				
Nitrobenzene-d5	75	(24 - 112)	-			
2-Fluorobiphenyl	67	(34 - 110)				
Terphenyl-d14	86	(41 - 119)				
Phenol-d5	64	(28 - 110)				
2-Fluorophenol	65	(26 - 110)				
2,4,6-Tribromophenol	41	(10 - 118)				
NOTE (S):	· · · · · · · · · · · · · · · · · · ·					

Client Sample ID: SB-473-0506

GC/MS Semivolatiles

Lot-Sample #: A7J260310-0 Date Sampled: 10/24/07 09			Matri	х	: SO
Prep Date: 10/28/07	Analysis Date	: 11/01/07			
Prep Batch #: 7300109					
Dilution Factor: 1					
% Moisture: 24	Method	: SW846 8270	C		
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
Benzo(a) pyrene	ND RESULI	430	ug/kg	$-\frac{11011}{1.7}$	·
Belizo (a) pyrene	ND	450	ug/kg	- • /	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	82	(24 - 112)	•		
2-Fluorobiphenyl	76	(34 - 110)			
Terphenyl-d14	92	(41 - 119)			
Phenol-d5	79	(28 - 110)			
2-Fluorophenol	80	(26 - 110)			
2,4,6-Tribromophenol	50	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-473-0708

GC/MS Semivolatiles

Lot-Sample #:	A7J260310-020	Work Order #:	J90PH1AD	Matrix	:	SO
Date Sampled:	10/24/07 09:38	Date Received:	10/26/07			
Prep Date:	10/28/07	Analysis Date:	11/01/07			
Prep Batch #:	7300109	_				
Dilution Factor:	1					
% Moisture:	20	Method:	SW846 8270	C		
			REPORTING			
PARAMETER		RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene		ND	410	ug/kg	1.6	
		PERCENT	RECOVERY			•
SURROGATE		RECOVERY	LIMITS			
Nitrobenzene-d5		79	(24 - 112)			
2-Fluorobiphenyl		66	(34 - 110)			
Terphenyl-d14		90	(41 - 119)			
Phenol-d5		67	(28 - 110)			
2-Fluorophenol		70	(26 - 110)			
2,4,6-Tribromophe	nol	46	(10 - 118)			
NOTE(S):					·	

APPENDIX C SUPPORT DOCUMENTATION

HOLDTIME

SDG: 7J26310

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-472-0506	A7J260310014	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-470-0304	A7J260310003	NM	10/23/2007	11/2/2007	11/2/2007	10	Ö	10
HG	MG/KG	SB-470-0506	A7J260310004	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-470-0708	A7J260310005	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-471-0203	A7J260310007	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-471-0506	A7J260310009	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-471-0708	A7J260310010	NM	10/23/2007	11/2/2007	11/2/2007	10	0 .	10
HG	MG/KG	SB-472-0102	A7J260310011	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-470-0203	A7J260310002	NM.	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-472-0304	A7J260310013	NM	10/23/2007	11/2/2007	11/2/2007	10	0 .	10
HG	MG/KG	SB-471-0102	A7J260310006	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-472-0708	A7J260310015	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-473-0102	A7J260310016	NM	10/24/2007	11/2/2007	11/2/2007	9	. 0	9
HG	MG/KG	SB-473-0203	A7J260310017	NM	10/24/2007	11/2/2007	11/2/2007	9	0	9
HG	MG/KG	SB-473-0304	A7J260310018	NM	10/24/2007	11/2/2007	11/2/2007	9	0	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-473-0506	A7J260310019	NM	10/24/2007	11/2/2007	11/2/2007	9	0	9
HG	MG/KG	SB-473-0708	A7J260310020	NM	10/24/2007	11/2/2007	11/2/2007	9	0	9
HG	MG/KG	SB-470-0102	A7J260310001	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-472-0203	A7J260310012	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-471-0304	A7J260310008	NM	10/23/2007	11/2/2007	11/2/2007	10		10
PCS	%	SB-472-0304	A7J260310013	NM	10/23/2007	11/2/2007	11/3/2007	10	. 1	11
PCS	%	SB-473-0506	A7J260310019	NM	10/24/2007	11/2/2007	11/3/2007	9	1	10
PCS	%	SB-473-0708	A7J260310020	NM	10/24/2007	11/2/2007	11/3/2007	9	1	10
PCS	%	SB-473-0304	A7J260310018	NM	10/24/2007	11/2/2007	11/3/2007	9	1	10
PCS	%	SB-473-0203	A7J260310017	NM	10/24/2007	11/2/2007	11/3/2007	9	1	10
PCS	%	SB-473-0102	A7J260310016	NM	10/24/2007	11/2/2007	11/3/2007	9	1	10
PCS	%	SB-472-0506	A7J260310014	NM -	10/23/2007	11/2/2007	11/3/2007	10	1.	11
PCS	%	SB-470-0102	A7J260310001	NM	10/23/2007	11/2/2007	11/3/2007	10	1	11
PCS	%	SB-472-0203	A7J260310012	NM	10/23/2007	11/2/2007	11/3/2007	10	1	11
PCS	%	SB-472-0102	A7J260310011	NM	10/23/2007	11/2/2007	11/3/2007	10	. 1	11
PCS	%	SB-470-0304	A7J260310003	NM	10/23/2007	11/2/2007	11/3/2007	10	. 1	11
PCS	%	SB-472-0708	A7J260310015	NM ·	10/23/2007	11/2/2007	11/3/2007	10	1	· 11
PCS	%	SB-470-0203	A7J260310002	NM	10/23/2007	11/2/2007	11/3/2007	10	1	11

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SORT	UNITS	NSAMPLE	LAB ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EVTD AND	CMD AND
PCS	%	SB-471-0708	A7J260310010	NM	10/23/2007	11/2/2007	11/3/2007	10	EATH AND	SMP_ANL 11
PCS	%	SB-470-0506	A7J260310004	NM	10/23/2007	11/2/2007	11/3/2007	10	1	11
PCS	%	SB-470-0708	A7J260310005	NM	10/23/2007	11/2/2007	11/3/2007	10	1	11
PCS	%	SB-471-0102	A7J260310006	NM .	10/23/2007	11/2/2007	11/3/2007	10	1	11
PCS	%	SB-471-0203	A7J260310007	NM	10/23/2007	11/2/2007	11/3/2007	10	. 1 .	11
PCS	%	SB-471-0304	A7J260310008	NM	10/23/2007	11/2/2007	11/3/2007	10	1	11
PCS	%	SB-471-0506	A7J260310009	NM	10/23/2007	11/2/2007	11/3/2007	10	1	11
OS	%	SB-473-0708	A7J260310020	NM	10/24/2007	10/28/2007	11/1/2007	4	4	8
os	%	SB-471-0506	A7J260310009	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	%	SB-470-0203	A7J260310002	NM	10/23/2007	10/28/2007	10/31/2007	5	3	8
os	%	SB-470-0304	A7J260310003	NM	10/23/2007	10/28/2007	10/31/2007	5	3	8
os	%	SB-470-0506	A7J260310004	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
OS	%	SB-470-0708	A7J260310005	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	%	SB-471-0102	A7J260310006	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	%	SB-471-0203	A7J260310007	NM	10/23/2007	10/28/2007	11/1/2007	5	4 .	9
OS .	. %	SB-471-0304	A7J260310008	NM	10/23/2007	10/28/2007	11/1/2007	- 5	4	9
os	%	SB-470-0102	A7J260310001	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9 .
os	%	SB-473-0506	A7J260310019	NM	10/24/2007	10/28/2007	11/1/2007	4	4	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	CMD EVEC	P.V.	
OS	%	SB-472-0102	A7J260310011	NM	10/23/2007	10/28/2007	11/1/2007	SMP_EXTR 5	EXTR_ANL	ar in the Section of the Control
os	%	SB-472-0203	A7J260310012	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	%	SB-472-0304	A7J260310013	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
OS	%	SB-472-0506	A7J260310014	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
OS	%	SB-472-0708	A7J260310015	NM	10/23/2007	10/28/2007	11/1/2007	5	4	
os	%	SB-473-0102	A7J260310016	NM	10/24/2007	10/28/2007	11/1/2007	4	4	9
OS	%	SB-473-0203	A7J260310017	NM	10/24/2007	10/28/2007	11/1/2007	4	4	8
os	`%	SB-473-0304	A7J260310018	NM	10/24/2007	10/28/2007	11/1/2007	4	4	8
OS	%	SB-471-0708	A7J260310010	NM	10/23/2007	10/28/2007	11/1/2007	5	4	8
OS	UG/KG	SB-472-0304	A7J260310013	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
OS	UG/KG	SB-472-0506	A7J260310014	NM	10/23/2007	10/28/2007	11/1/2007	5		9
os	UG/KG	SB-472-0708	A7J260310015	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	UG/KG	SB-473-0102	A7J260310016	NM	10/24/2007	10/28/2007	11/1/2007	4	4	9
os	UG/KG	SB-473-0203	A7J260310017	NM	10/24/2007	10/28/2007	11/1/2007	4	4	8
os	UG/KG	SB-473-0304	A7J260310018	NM	10/24/2007	10/28/2007	11/1/2007	4	4	8
os	UG/KG	SB-472-0203	A7J260310012	NM	10/23/2007	10/28/2007	11/1/2007		4	8
os	UG/KG	SB-473-0708	A7J260310020	NM ·	10/24/2007	10/28/2007	11/1/2007	5	4	9
os	UG/KG	SB-471-0102	A7J260310006	NM 1	0/23/2007	10/28/2007		4	4	8
	(Natur)med	(41) (3114)			U12012UU1	10/28/2007	11/1/2007	5	4	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
os	UG/KG	SB-473-0506	A7J260310019	NM	10/24/2007	10/28/2007	11/1/2007	4	4	8
os	UG/KG	SB-472-0102	A7J260310011	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	UG/KG	SB-471-0708	A7J260310010	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	UG/KG	SB-471-0506	A7J260310009	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	UG/KG	SB-470-0102	A7J260310001	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	UG/KG	SB-471-0203	A7J260310007	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
OS	UG/KG	SB-470-0708	A7J260310005	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	UG/KG	SB-470-0506	A7J260310004	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9
os	UG/KG	SB-470-0304	A7J260310003	NM	10/23/2007	10/28/2007	10/31/2007	5	3 3	8
os	UG/KG	SB-470-0203	A7J260310002	NM	10/23/2007	10/28/2007	10/31/2007	5	3	8
os	UG/KG	SB-471-0304	A7J260310008	NM	10/23/2007	10/28/2007	11/1/2007	5	4	9

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Chain of Custody Record

Severn Trent Laboratories, Inc.

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Chain of Custody Record



511.4124 (0901)						
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Address 1 01 / 11	T-1	iumber (Area Code)		Lat	Number	
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City State Zip Code	Site Contact	**	Lab Contact		s (Attach list if	
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		*		4.876 Hg		01 /
Sample I.D. No. and Description (Containers for each sample may be combined on one line) Date	Time	Sed Sed	Unpres. H2SO4 HNO3 HCI NaOH ZnAC/ NaOH	H3 H3		Block H
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Postable Hazard Identification	,	mple Disposal		· · · · · · · · · · · · · · · · · · ·	(A fee may be asse	ssed if samples are retained
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B Turn Around Time Required	Unknown 🔲	Return To Client			onths longer than 1 month	(r)
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days	Other S	TM	QC Requirements (Specify)		7
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CASE NARRATIVE

7J26310

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc. from the LMC MR Site, project number 112IC00885. The samples were received October 26, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J260310.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 4.7°C.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

OC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	
	·	Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica North Canton (formerly STL North Canton) Certifications and Approvals:

California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),

Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), OhioVAP (#CL0024), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY, USDA Soil Permit.

N:\QAQC\Customer Service\Narrative - Combined RCRA _CWA 061807.doc

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J26310

Lot #: A7J260310

Extraction: XXA11QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
		======	======	======	======	======	======	======
01	SB-470-0102	71	73	97	65	60	56	00
02	SB-470-0203	58	60	89	63	59	51	00
03	SB-470-0304	75	73	96	76	79	53	00
04	SB-470-0506	76	65	95	76	76	54	00
05	SB-470-0708	79	71	95	74	73	44	00
06	SB-471-0102	77	65	99	77	78	59	00
07	SB-471-0203	72	65	95	70	69	37	00
08	SB-471-0304	76	64	92	74	74	50	00
09	SB-471-0506	78	71	90	66	62	30	-00
10	SB-471-0708	80	72	89	73	71	50	00
11	SB-472-0102	68	65	80	68	64	39	00
12	SB-472-0203	78	70	89	74	74	37	00
13	SB-472-0304	68	66	91	66	66	34	00
14	SB-472-0506	78	70	98	74	69	38	00
15	SB-472-0708	81	73	98	79	79	65	00
16	SB-473-0102	77	72	92	77	79	57	00
17	SB-473-0203	77	70	90	72	72	51	00
18	SB-473-0304	75	67	86	64	65	41	00
19	SB-473-0506	82	76	92	79	80	50	00
20	SB-473-0708	79	66	90	67	70	46	00
21	METHOD BLK. J91WV1AA	74	68	90	69	72	44	00
22	LCS J91WV1AC	79	72	88	76	76	65	00
23	SB-473-0506 D	72	74	93	74	70	70	00
24	SB-473-0506 S	80	71	87	78	78	63	00

SURROGA	<u>ates</u>	QC LIMITS
SRG01	= Nitrobenzene-d5	(24-112)
SRG02	= 2-Fluorobiphenyl	(34-110)
SRG03	= Terphenyl-d14	(41-119)
SRG04	= Phenol-d5	(28-110)
SRG05	= 2-Fluorophenol	(26-110)
SRG06	= 2,4,6-Tribromophenol	(10-118)

[#] Column to be used to flag recovery values

^{*} Values outside of required QC Limits

D System monitoring Compound diluted out

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number: 7J26310

Lab File ID: J91WV1AA.

Lot Number: A7J260310

Date Analyzed: 11/01/07

Time Analyzed: 10:52

Matrix: SOLID

Date Extracted:10/28/07

GC Column: DB 5.625 ID: .00

Extraction Method: 3540C

Instrument ID: HP8

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS , MSD:

•		SAMPLE	LAB	DATE	TIME
	CLIENT ID.	WORK ORDER #	FILE ID	ANALYZED	ANALYZED
	=======================================	=========	= =========	========	
01	SB-470-0102	J90M91AD	J90M91AD.	11/01/07	21:02
02	SB-470-0203	J90ND1AD	J90ND1AD.	10/31/07	21:47
03	SB-470-0304	J90NE1AD	J90NE1AD.	10/31/07	22:06
04	SB-470-0506	J90NF1AD	J90NF1AD.	11/01/07	01:40
05	SB-470-0708	J90NH1AD	J90NH1AD.	11/01/07	01:59
06	SB-471-0102	J90NJ1AD	J90NJ1AD.	11/01/07	02:18
07	SB-471-0203	J90NK1AD	J90NK1AD.	11/01/07	02:38
80	SB-471-0304	J90NL1AD	J90NL1AD.	11/01/07	14:41
09	SB-471-0506	_J90NN1AD	J90NN1AD.	11/01/07	15:00
:	SB-471-0708	J90NP1AD	J90NP1AD.	11/01/07	15:19
11	SB-472-0102	J90NQ1AD	J90NQ1AD.	11/01/07	21:21
	SB-472-0203	J90NV1AD	J90NV1AD.	11/01/07	15:38
13	SB-472-0304	J90NW1AD	J90NW1AD.	11/01/07	15:57
,	SB-472-0506	J90N01AD	J90N01AD.	11/01/07	16:16
	SB-472-0708	J90N11AD	J90N11AD.	11/01/07	16:35
:	SB-473-0102	J90N31AD	J90N31AD.	11/01/07	16:54
17	SB-473-0203	J90N41AD	J90N41AD.	11/01/07	17:32
	SB-473-0304	J90N61AD	J90N61AD.	11/01/07	17:51
	SB-473-0506	J90N71AF	J90N71AF.	11/01/07	12:09
:	SB-473-0506	J90N71AJ S	J90N71AJ.	11/01/07	12:28
	SB-473-0506	J90N71AK D	J90N71AK.	11/01/07	12:47
	SB-473-0708	J90PH1AD	J90PH1AD.	11/01/07	17:13
! '	CHECK SAMPLE	J91WV1AC C	J91WV1AC.	11/01/07	11:12
24					
25].	
26		·			
27					
28					
29					
30					

COMMENTS:	•	•	

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J26310

Lab File ID: 8DF1031 DFTPP Injection Date: 10/31/07

Instrument ID: A4HP8 DFTPP Injection Time: 1539

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	38.7 0.0 (0.0)1 47.5 0.2 (0.5)1 48.4 0.0 100.0 6.8 26.7 3.4 9.4 61.4 11.6 (18.9)2
I I	1-Value is % of mass 69 2-Value is % of mass	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	=========	=======================================			========
01	SSTD005	L5	8SMM1031	10/31/07	1558
02	SSTD004	L4	8SM1031	10/31/07	1618
03	SSTD003	L3	8SML1031	10/31/07	1637
04	SSTD002	L2	8SL1031	10/31/07	1656
05	SSTD001	L1	8SLL1031	10/31/07	1716
06	SSTD009	L9	8HHH1031	10/31/07	1735
07	SSTD008	L8	8SHH1031	10/31/07	1754
08	SSTD007	L7	8SH1031	10/31/07	1814
09	SSTD006	L6	8SMH1031	10/31/07	1833
10	SB-470-0203	J90ND1AD	J90ND1AD	10/31/07	2147
11	SB-470-0304	J90NE1AD	J90NELAD	10/31/07	2206
12	SB-470-0506	J90NF1AD	J90NF1AD	11/01/07	0140
13	SB-470-0708	J90NH1AD	J90NH1AD	11/01/07	0159
14		J90NJ1AD	J90NJ1AD	11/01/07	0218
15	SB-471-0203	J90NK1AD	J90NKLAD	11/01/07	0238
16			· :		
17					
18					
19					
20					
21					
22					
				· I	

page 1 of 1

FORM V SV

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J26310

Lab File ID: 8DF1101 DFTPP Injection Date: 11/01/07

Instrument ID: A4HP8 DFTPP Injection Time: 1013

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	36.8 0.0 (0.0)1 44.4 0.2 (0.4)1 46.9 0.0 100.0 6.5 26.7 3.5 10.0 66.8 12.6 (18.9)2
ł	1-Value is % of mass 69 2-Value is % of mass 69	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	=========			========	========
01	SSTD006	L6	8SMH1101	11/01/07	1032
02	J91WVBLK	J91WVLAA	J91WV1AA	11/01/07	1052
03	J91WVCHK	J91WVLAC	J91WV1AC	11/01/07	1112
04	SB-473-0506	J90N71AF	J90N71AF	11/01/07	1209
05	SB-473-0506	J90N71AJ	J90N71AJ	11/01/07	1228
06	SB-473-0506	J90N71AK	J90N71AK	11/01/07	1247
07	SB-471-0304	J90NL1AD	J90NL1AD	11/01/07	1441
08	SB-471-0506	J90NNLAD	J90NN1AD	11/01/07	1500
09	SB-471-0708	J90NP1AD	J90NP1AD	11/01/07	1519
10	SB-472-0203	J90NV1AD	J90NVLAD	11/01/07	1538
11	SB-472-0304	J90NWLAD	J90NW1AD	11/01/07	1557
12	SB-472-0506	J90N01AD	J90N01AD	11/01/07	1616
13	SB-472-0708	J90N11AD	J90N11AD	11/01/07	1635
14	SB-473-0102	J90N3LAD	J90N31AD	11/01/07	1654
15	SB-473-0708	J90PH1AD	J90PH1AD	11/01/07	1713
	SB-473-0203	J90N41AD	J90N41AD	11/01/07	1732
17	SB-473-0304	J90N61AD	J90N61AD	11/01/07	1751
18	SB-470-0102	J90M91AD	J90M91AD	11/01/07	2102
19	SB-472-0102	J90NQ1AD	J90NQ1AD	11/01/07	2121
20		·-			
21					
22					
	I				

page 1 of 1

FORM V SV

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 31-OCT-2007 15:58 End Cal Date : 31-OCT-2007 18:33

Quant Method : ISTD : Disabled Origin Target Version : 4.14 : HP RTE Integrator

Method file : \\cansvr11\\dd\chem\MSS\a4hp8.i\71031a.b\8270P.m Last Edit : 01-Nov-2007 08:44 gruberj Curve Type : Average

	0.05000	0.25000	0.50000	1.000 Level 4	2.500 Level 5	5.000 Level 6	RRF	% RSD
Compound	Level 1	Level 2	Level 3			rever e	RRF	, a Rad
	7.500	10.000	12.500	i İ	į			
	Level 7	Level 8	Level 9	 	 			*******
.44 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	 -			+++++	+++++
45 Hexachlorophene product		+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	l			+++++	+++++
.46 Benzo(a)pyrene	 1.00609	0.85680	 0.92839	1.01385		1.14780	 	
	1.21126	1.27667	+++++	į	į		1.06509	13.342
.48 3-Methylcholanthrene	 +++++	 +++++	 +++++	 +++++	 +++++	+++++	[]	
	+++++	+++++	+++++	İ	i		+++++	+++++
49 Indeno (1,2,3-cd) pyrene	 1.05215	0.94193	1.02882	 1.10916	 1.16710	1.23713		<i></i>
as mideno (1,2,5 ca, pyrono	1.28978	1.35821	'	<u>'</u>	1		1.18659	14.808
To Division in the national and	0.91651	0.79502	0.83997	 0.94796	 0.97157	1.06074	 	
.50 Dibenz(a,h)anthracene	1.12563		•	•	0.97137	1.00074	1.01942	16.918
.51 Benzo(g,h,i)perylene	1.06388		<u>'</u>	:	0.96347 	0.98910	0.99679	 - 10.714
	·							
32 Bis (2-hydroxyphenyl) methane	+++++	+++++	+++++ +++++	+++++ 	 +++++ 	+++++ 	 +++++	 +++++
33 Bis(4-hydroxyphenyl)methane	1 +++++	+++++	+++++	+++++ 	+++++	+++++	 +++++	 +++++
	+++++ 	+++++ 	+++++ 	! 	! 	 		
234 4-Chlorophenol	+++++	+++++	+++++	++++	+++++	+++++		
	+++++ 	+++++ 	+++++ 	l. 	 	 	+++++ 	+++++
35 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	++++	 +++ +	İ	
	+++++	++++	+++++	1	!	l	+++++ 	+++++
	.	!			!	!		

Data File: \\cansvr11\dd\chem\MSS\a4hp8.i\71031a.b\ICVTCL.D Report Date: 01-Nov-2007 08:52

Page 3

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 31-OCT-2007 18:53
Lab File ID: ICVTCL.D Init. Cal. Date(s): 31-OCT-2007 31-OCT-2007
Analysis Type: Init. Cal. Times: 15:58 18:33
Lab Sample ID: icvtcl Quant Type: ISTD
Method: \\cansvr11\\dd\chem\MSS\a4hp8.i\\71031a.b\\8270P.m

L	1	_ 1	1	CCAL M	IN	,	MAX I	
COMPOUND	IRR	/ AMOUNT	RF5	RRF5 RI	RF %D	/ %DRIFT %	D / %DRIFT	CURVE TYPE
	==== = ==	=======================================	=======================================	=======================================	=== ===			· *=====##==
142 Benzo(k)fluoranthene	11	1.31598	1.31479	1.31479 0.		0.090481	50.000001	
146 Benzo(a)pyrene	1	1.06509	1.14284	1.14284 0.0	010	-7.300451	20.000001	Averaged
[149 Indeno(1,2,3-cd)pyrene	1	1.18659	1.236971	1.23697 0.0	010	-4.245621	50.000001	Averaged
1150 Dibenz(a,h)anthracene	. 1	5.000001	5.03216	1.0582210.0	010	-0.64321	0.000e+0001	Quadratic
1151 Benzo(g,h,i)perylene	1	0.996791	0.99112	0.99112 0.0	010	0.56931	50.000001	Averaged
1198 1,4-Dioxane	1	0.59367	0.58021	0.58021 0.0	0101	2.266321	50.000001	Averaged
\$ 154 Nitrobenzene-d5	1	0.44581	0.46280	0.4628010.0	010	-3.81005	50.000001	Averaged
\$ 155 2-Fluorobiphenyl	. 1	1.31614	1.32545	1.32545 0.0	101	-0.706941	50.000001	Averaged
\$ 156 Terphenyl-d14	1	0.775291	0.809081	0.8090810.0	101	-4.357321	50.000001	Averagedi
\$ 157 Phenol-d5	1	1.75954	1.73764	1.73764 0.0	101	1.244451	50.000001	Averaged
\$ 158 2-Fluorophenol	1	1.21919	1.214031	1.21403 0.0	101	0.423661	50.000001	Averaged
\$ 159 2,4,6-Tribromophenol	í	5.000001	5.06941	0.15059 0.0	101	-1.388251 (0.000e+0001	•
\$ 186 2-Chlorophenol-d4	E	1.22310	1.18894	1.18894 0.0	101	2.793461	50.000001	Averagedi
\$ 187 1,2-Dichlorobenzene-d4	i	0.827441	0.827461	0.82746 0.0	101	-0.002691	50.000001	Averaged
M 195 Cresols, total	1	2.80785	2.76041	2.76041 0.0	10	1.68951	50.000001	Averaged
101 Diphenylamine	1	5.000001	5.20967	0.5001910.0	101	-4.19348 (0.000e+0001	Ouadratic
	1	1	1	1				

Data File: \\cansvr11\dd\chem\MSS\a4hp8.i\71101a.b\8SMH1101.D Page 3 Report Date: 01-Nov-2007 10:22

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i

Injection Date: 01-NOV-2007 10:32

Lab File ID: 8SMH1101.D Init. Cal. Date(s): 31-OCT-2007 31-OCT-2007 Analysis Type: Init. Cal. Times: 15:58 18:33
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\\dd\chem\MSS\a4hp8.i\\71101a.b\\8270p.m

	. 1		CONT	l serve		1 222	
1 CONTROLLED			CCAL	MIN		MAX	
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
	== =======			=====			
142 Benzo (k) fluoranthene	1.31598	1.31861	1.31861	0.010	-0.19959	50.00000	Averaged
146 Benzo(a)pyrene	1.06509	1.17408	1.17408	0.010	-10.23312	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.18659	1.27416	1.27416	0.010	-7.38015	50.00000	Averaged
150 Dibenz (a, h) anthracene	5.00000	5.13427	1.08220	0.010	-2.68540	0.000e+000	Quadratic
151 Benzo(g,h,i)perylene	0.99679	1.05320	1.05320	0.010	-5.65836	50.00000	Averaged
198 1,4-Dioxane	0.59367	0.62502	0.62502	0.010	-5.28091	50.00000	Averaged
\$ 154 Nitrobenzene-d5	0.44581	0.49392	0.49392	0.010	-10.79019	50.00000	Averaged
\$ 155 2-Fluorobiphenyl	1.31614	1.32483	1.32483	0.010	-0.66033	50.00000	Averaged
\$ 156 Terphenyl-d14	0.77529	0.80478	0.80478	0.010	-3.80303	50.00000	Averaged
\$ 157 Phenol-d5	1.75954	1.81571	1.81571	0.010	-3.19229	50.00000	Averaged
\$ 158 2-Fluorophenol	1.21919	1.28951	1.28951	0.010	-5.76740	50.00000	Averaged
\$ 159 2,4,6-Tribromophenol	5.00000	4.91061	0.14539	0.010	1.78781	0.000e+000	Quadratic
\$ 186 2-Chlorophenol-d4	1.22310	1.25277	1.25277	0.010	-2.42549	50.00000	Averaged
\$ 187 1,2-Dichlorobenzene-d4	0.82744	0.87635	0.87635	0.010	-5.91198	50.00000	Averaged
M 195 Cresols, total	2.80785	2.97145	2.97145	0.010	-5.82669	50.00000	Averaged
101 Diphenylamine	5.00000	5.09131	0.48747	0.010	-1.82617	0.000e+000	Quadratic
1		1	i	i	. i		i

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SDG No.: 7J26310 SAS No.:

Lab File ID (Standard): 8SMH1031 Date Analyzed: 10/31/07

Instrument ID: A4HP8 Time Analyzed: 1833

1-	- 	IS1 (DCB)		TOO (NOON)		TGO (33777)	
		AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
=	========	========	=====			ARCA #	
	12 HOUR STD	285499	3.56	1160062	4.46	660271	5.73
	UPPER LIMIT	570998	4.06	2320124	4.96	1320542	6.23
	LOWER LIMIT	142750	3.06	580031	3.96	330136	5.23
	EPA SAMPLE NO.					2222222	=====
01 S 02 S 03 S 04 S 05 S	BB-470-0203 BB-470-0304 BB-470-0506 BB-470-0708 BB-471-0102 BB-471-0203	207840 210367 159576 164217 158936 157558	3.56 3.56 3.56 3.56 3.56	872487 870150 660347 679504 658996 666049	4.45 4.45 4.46 4.45 4.46 4.45	483418 472197 394036 396125 391079 391805	5.73 5.73 5.73 5.72 5.73 5.73

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2

= Naphthalene-d8 (NPT) IS3 = Acenaphthene-d10 (ANT)

UPPER LIMIT = +100%

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J26310

Lab File ID (Standard): 8SMH1031 Date Analyzed: 10/31/07

Time Analyzed: 1833 Instrument ID: A4HP8

1		IS4 (PHN)		IS5 (CRY)		IS6 (PRY)	
	·	AREA #	RT	AREA #	RT	AREA #	RT
	12 HOUR STD	1283416	6.82	1390290	8.81	1092312	10.31
·	==== = =====	========	=====		=====	========	======
	UPPER LIMIT	2566832	7.32	2780580	9.31	2184624	10.81
	LOWER LIMIT	641708	6.32	695145	8.31	546156	9.81
	EPA SAMPLE NO.		=====				=====
	=========		======		=====	=======================================	=====
01	SB-470-0203	959568	6.81	969993	8.81	822670 812105	10.32 10.30
02 03	SB-470-0304 SB-470-0506	932862 778389	6.81 6.81	948042 767359	8.80	661461	10.30
04	SB-470-0308	812760	6.82	811209	8.79	697886	10.29
05	SB-471-0102	780613	6.82	802739	8.80	677679	10.30
06	SB-471-0203	785196	6.81	799684	8.81	675502	10.31
07							
08			 .				
10							·
11						•	
12							
13							
14 15	· · · · · · · · · · · · · · · · · · ·	·					
16					<u></u>		
17	1.						
18							
19							
20 21							
22							
نے بے	l	l			l 	l ————————	·

IS4 IS5 UPPER LIMIT = +100%

(PHN) = Phenanthrene-d10 (CRY) = Chrysene-d12 (PRY) = Perylene-d12 IS6

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J26310

Lab File ID (Standard): 8SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4HP8 Time Analyzed: 1032

	I	TG1 (DGD)		TOO (MINIT)		IS3 (ANT)	
		IS1 (DCB) AREA #	. TOM	IS2(NPT) AREA #	RT	AREA #	RT
		AREA #	RT	AREA #	K1	AREA #	
	10 HOLD COLD	181143	3.49	740183	4.39	417773	5.66
	12 HOUR STD	101143	-	740163	4.39	41///2	3.00
	UPPER LIMIT	362286	3.99	1480366	4.89	835546	6.16
		302200			=====	033340	=====
	TOWER TANTE	90572	2.99	370092	3.89	208887	5.16
	LOWER LIMIT	90572		3/0092	3.03	200007	3.10
-	EPA SAMPLE		=====				
	NO.						,
	NO.		=====				
01	J91WVBLK	197859	3.50	809663	4.39	450884	5.66
02	J91WVCHK	190086	3.50	778772	4.39	441122	5.66
03	SB-473-0506	200506	3.50	815431	4.39	461547	5.66
04	SB-473-0506	120878	3.49	508510	4.39	286840	5.66
05	SB-473-0506	153173	3.49	641320	4.39	366301	5.66
06	SB-471-0304	185545	3.49	750148	4.39	422476	5.66
07	SB-471-0506	193032	3.50	762525	4.39	435755	5.66
08	SB-471-0708	167893	3.49	660438	4.39	378276	5.66
09	SB-472-0203	185366	3.50	744045	4.39	422979	5.66
10	SB-472-0304	196047	3.49	805673	4.39	436220	5.66
11	SB-472-0506	158619	3.50	633640	4.39	365783	5.66
12	SB-472-0708	176183	3.49	729450	4.39	415939	5.66
13	SB-473-0102	180984	3.49	770768	4.39	421234	5.66
14	SB-473-0708	156062	3.49	614762	4.39	363139	5.66
15	SB-473-0203	145405	3.50	590472	4.39	336020	5.66
16	SB-473-0304	110307	3.49	431785	4.39	250405	5.66
17	SB-470-0102	124966	3.49	503235	4.39	285725	5.66
18	SB-472-0102	134943	3.49	576972	4.39	357437	5.66
19				,			
20							
21							
22		***************************************					

IS1 (DCB) = 1,4-Dichlorobenzene-d4 UPPER LIMIT = +100%
IS2 (NPT) = Naphthalene-d8 of internal standard area.
IS3 (ANT) = Acenaphthene-d10 LOWER LIMIT = -50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J26310

Lab File ID (Standard): 8SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4HP8 Time Analyzed: 1032

1		IS4 (PHN)		IS5 (CRY)		IS6 (PRY)	
	* .	AREA #	RT	AREA #	RT	AREA #	RT
	12 HOUR STD	809192	6.75	824405	8.74	663613	10.18
	UPPER LIMIT	1618384	7.25	1648810	9.24	1327226	10.68
	LOWER LIMIT	404596	6.25	412203	8.24	331807	9.68
	EPA SAMPLE NO.	========		========	====		
	=======================================	========	=====	=========	======	======================================	10.00
01	J91WVBLK	861449	6.75	845862	8.75	733488	10.20
02	J91WVCHK	839636	6.75	847780	8.75	703442	10.19
03	SB-473-0506	889202	6.74	889528	8.72	773016 465756	10.17
04	SB-473-0506	547281	6.74	560233	8.73 8.73	618915	10.17
05	SB-473-0506	726205 812860	6.74 6.74	748644 821434	8.73	704771	10.17
06	SB-471-0304 SB-471-0506	839252	6.74	852939	8.74	733027	10.19
07 08	SB-471-0508 SB-471-0708	728234	6.74	763504	8.74	654815	10.19
09	SB-471-0708 SB-472-0203	808480	6.74	822445	8.74	708214	10.20
10	SB-472-0203 SB-472-0304	847861	6.75	829816	8.73	722008	10.17
11	SB-472-0506	688264	6.74	690632	8.74	603840	10.19
12	SB-472-0708	806841	6.74	795801	8.73	696756	10.19
13	SB-473-0102	835314	6.74	812709	8.74	710071	10.19
14	SB-473-0708	718030	6.74	736681	8.72	619619	10.17
15	SB-473-0203	645386	6.75	656629	8.73	568360	10.18
16	SB-473-0304	477967	6.74	467589	8.74	410273	10.18
17	SB-470-0102	566524	6.74	553403	8.72	450553	10.16
18	SB-472-0102	700937	6.74	671334	8.72	568632	10.17
19							
20							<u> </u>
21							
22							l <u></u>]

IS4 (PHN) = Phenanthrene-d10 UPPER LIMIT = +100% of internal standard area. IS6 (PRY) = Perylene-d12 LOWER LIMIT = -50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

SAMPLE CALC

SAMPLE ID: SB-470-0102

COMPOUND: BAP

IS AREA

450553

DILUTION COMPOUND OF INTEREST AREA IS AMOUNT (NG)

1 83750 2 2000 1.0651 PERCENT SOLIDS AMOUNT INJECTED (UL) CONCENTRATION PPB

1 0.89 0.5 52.15

2000

1.0651

0.89

Sample Amount (g) 30.08

0.5

Tetra Tech NUS, Inc

Client Sample ID: SB-470-0102

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #:	10/23/07 14:35 10/28/07	Work Order #: Date Received: Analysis Date:	10/26/07	Matrix	so :
Dilution Factor:	1	<pre>Initial Wgt/Vol:</pre>	30.08 g	Final	Wgt/Vol: 2 mL
% Moisture:	11	Method:	SW846 8270	C .	
PARAMETER		RESULT	REPORTING LIMIT	UNITS	
Benzo (a) pyrene	,	52 J	370	ug/kg	-
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5		71	(24 - 112)		
2-Fluorobiphenyl		73	(34 - 110)		
Terphenyl-d14		97	(41 - 119)		
Phenol-d5		65	(28 - 110)		
2-Fluorophenol		60	(26 - 110)	4	
2,4,6-Tribromophe	enol	56	(10 - 118)		
NOTE (S):					

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Data File: \\cansvr11\dd\chem\MSS\a4hp8.i\71101a.b\J90M91AD.D |

Report Date: 05-Nov-2007 16:22

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file: \\cansvr11\\dd\\chem\MSS\a4hp8.i\71101a.b\\J90M91AD.D

Lab Smp Id: j90m91ad Client Smp ID: SB-470-0102

Inj Date : 01-NOV-2007 21:02

Operator : 001710 Inst ID: a4hp8.i

Smp Info : j90m91ad,71101a.b,8270p,bap.sub

Misc Info:

Comment :

Method : \\cansvr11\\dd\\chem\\MSS\\a4hp8.i\\71101a.b\\8270P.m Meth Date : 05-Nov-2007 16:20 gruberj Quant Type: ISTD Cal Date : 31-OCT-2007 18:33 Cal File: 8SMH1031.D

Als bottle: 35

Dil Factor: 1.00000

Integrator: HP RTE Compound Sublist: bap.sub

Target Version: 4.14

Processing Host: CANPMSSV01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws *) * CpndVariable

Name	Value	Description
DF Uf Vt Vi Ws Cpnd Variable	1.000	Dilution Factor ng unit correction factor Volume of final extract (uL)(1000 low, 2 Volume injected (uL) Weight of sample extracted (g) Local Compound Variable

						CONCENTRA	TIONS
	QUANT SIG					ON-COLUMN	FINAL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(NG)	(ug/kg)
******					=======	======	======
* 1 1,4-Dichlorobenzene-d4	152	3.492	3.494	(1.000)	124966	2.00000	(Q)
* 2 Naphthalene-d8	136	4.387	4.389	(1.000)	503235	2.00000	
* 3 Acenaphthene-d10	164	5.656	5.658	(1.000)	285725	2.00000	
* 4 Phenanthrene-d10	188	6.743	6.745	(1.000)	566524	2.00000	
* 5 Chrysene-d12	240	8.719	8.736	(1.000)	553403	2.00000	
* 6 Perylene-d12	264	10.162	10.183	(1.000)	450553	2.00000	
146 Benzo(a)pyrene	252	10.095	10.121	(0.993)	83750	0.34905	46.416
\$ 154 Nitrobenzene-d5	82	3.872	3.874	(0.883)	398351	3.55119	472.23
\$ 155 2-Fluorobiphenyl	172	5.151	5.148	(0.911)	690033	3.66985	488.01
\$ 156 Terphenyl-d14	244	7.892	7.899	(0.905)	1036265	4.83050	642.35
\$ 157 Phenol-d5	99	3.209	3.201	(0.919)	533882	4.85607	645.75
\$ 158 2-Fluorophenol	112	2.636	2.624	(0.755)	344674	4.52454	601.67
\$ 159 2,4,6-Tribromophenol	330	6.229	6.230	(1.101)	87327	4.19104	557.32
\$ 186 2-Chlorophenol-d4	132	3.343	3.340	(0.957)	343154	4.49018	597.10
\$ 187 1,2-Dichlorobenzene-d4	152	3.603	3.605	(1.032)	128676	2.48887	330.97

QC Flag Legend



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

M. MARTIN

DATE:

JANUARY 15, 2008

FROM:

MATTHEW D. KRAUS

COPIES:

DV FILE

SUBJECT:

INORGANIC DATA VALIDATION - MERCURY

LOCKHEED MIDDLE RIVER

SDG - 7J26310

SAMPLES:

20/Solid/

SB-470-0102 SB-470-0506 SB-471-0203 SB-471-0708 SB-472-0304	SB-470-0203 SB-470-0708 SB-471-0304 SB-472-0102 SB-472-0506	SB-670-0304 SB-471-0102 SB-471-0506 SB-472-0203 SB-472-0708
SB-472-0304 SB-473-0102		SB-472-0708
SB-473-0506	SB-473-0203 SB-473-0708	SB-473-0304

Overview

The sample set for Lockheed Middle River, SDG 7J26310, consists of twenty soil environmental samples which were all analyzed for mercury and percent solids. The samples were collected from October 23-24, 2007 and analyzed by TestAmerica Laboratories, Inc. All of the samples were analyzed for mercury in accordance with SW 846 method 7471A and cold vapor atomic absorption (CVAA) methodologies.

Summary

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, initial/continuing calibrations, laboratory method blank results, matrix spike/matrix spike duplicate recoveries, compound quantitation and detection limits. Areas of concern are listed below.

Major Problems

None.

Minor Problems

 The contract required detection limit standard percent recovery (%R) for mercury was less than the lower quality control limit but greater than 50% affecting all samples. The positive and non-detected results (< 2X CRDL) reported for mercury were qualified as biased low, "L" or "UL", respectively.

Executive Summary

Laboratory Performance: Mercury results were qualified due to calibration noncompliance.

Other Factors Affecting Data Quality: None.

TO: MARTIN, M. – PAGE 2 DATE: JANUARY 15, 2008

The data for these analyses were reviewed with reference to the "Region III Modifications to National Functional Guidelines for Inorganic Data Validation", April 1993. The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech NUS
Matthew D. Kraus
Environmental Chemist

Aerra Tech NVS
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 - Support Documentation

Data Qualifier Key

U - Value is considered non-detected as reported by the laboratory.

J - Positive result is considered estimated, "J", as a result of technical noncompliance.

UJ - Non-detected result is considered estimated, "UJ", as a result of technical noncompliance.

L - Positive result is considered biased low, "L", as a result of technical noncompliance.

UL - Non-detected result is considered biased low, "UL", as a result of technical noncompliance.

APPENDIX A QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

= Lab Blank Contamination

= Field Blank Contamination

= Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

= GC/MS Tuning Noncompliance

= MS/MSD Recovery Noncompliance

= LCS/LCSD Recovery Noncompliance Ε

= Lab Duplicate Imprecision

= Field Duplicate Imprecision G

= Holding Time Exceedance

= ICP Serial Dilution Noncompliance

GFAA PDS - GFAA MSA's r < 0.995

K ICP Interference - includes ICS % R Noncompliance

= Instrument Calibration Range Exceedance L

Sample Preservation Noncompliance M

 Internal Standard Noncompliance N

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

= Poor Instrument Performance (e.g. base-line drifting)

= 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.)

= Surrogates Recovery Noncompliance

= Pesticide/PCB Resolution

% Breakdown Noncompliance for DDT and Endrin

= % Difference between columns/detectors >25% for positive results determined via GC/HPLC

= Non-linear calibrations; correlation coefficient r < 0.995

EMPC result

Signal to noise response drop

Percent solids <30%

Uncertainty at 2 sigma deviation is greater than sample activity

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: M

nsample SB-470-0102 samp_date 10/23/2007 A7J260310001 lab_id qc_type NM units

MG/KG Pct_Solids 89.0 DUP_OF:

nsample samp_date lab_id qc_type

units

DUP_OF:

10/23/2007 A7J260310002 NM MG/KG Pct_Solids 89.0

samp_date lab_id qc_type units Pct_Solids DUP_OF:

nsample

SB-470-0304 10/23/2007 A7J260310003 NM

MG/KG 87.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.48		

Parameter	Result	Val Qual	Qual Code
MERCURY	0.023	L	С

SB-470-0203

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	UL	С

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: M

nsample samp_date lab_id

qc_type

units

SB-470-0506 10/23/2007 A7J260310004

NM MG/KG 82.0

Pct_Solids
DUP_OF:

nsample samp_date

> lab_id qc_type units

units
Pct_Solids
DUP_OF:

SB-470-0708

10/23/2007 A7J260310005

NM MG/KG 84.0 nsample samp_date

lab_id
qc_type
units

units
Pct_Solids
DUP_OF:

NM MG/KG 81.0

SB-471-0102

A7J260310006

10/23/2007

::

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	ÜL	С

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	UL	С

Parameter	Result	Val Qual	Qual Code
MERCURY	0.021	UL	С

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: M

nsample samp_date lab_id

qc_type

Pct_Solids

DUP_OF:

units

SB-471-0203 10/23/2007

A7J260310007 NM MG/KG

81.0

nsample samp_date lab_id qc_type

units

Pct_Solids

DUP_OF:

10/23/2007 A7J260310008 NM MG/KG

SB-471-0304

81.0

nsample samp_date

lab_id qc_type units

Pct_Solids

10/23/2007 A7J260310009 NM

SB-471-0506

MG/KG 83.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.021	UL	С

Parameter	Result	Val Qual	Qual Code
MERCURY	0.021	UL	С

Parameter	Result-	Val Qual	Qual Code
MERCURY	0.02	UL	С

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: M

nsample samp_date lab_id

SB-471-0708 10/23/2007

A7J260310010

qc_type NM units MG/KG Pct_Solids 84.0 DUP_OF:

nsample samp_date lab_id qc_type units Pct_Solids DUP_OF:

SB-472-0102 10/23/2007 A7J260310011 NM MG/KG

86.0

lab_id qc_type units Pct_Solids DUP_OF:

SB-472-0203 10/23/2007 A7J260310012

NM MG/KG 87.0

nsample

samp_date

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	UL	С

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	UL.	С

Parameter	Resul	Val t Qual	Qual Code
MERCURY	0.019	UL	С

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: M

nsample samp_date lab_id

SB-472-0304 10/23/2007

A7J260310013

qc_type units Pct_Solids

NM MG/KG 82.0

DUP_OF:

nsample

samp_date lab_id qc_type

NM units MG/KG Pct_Solids 83.0 DUP_OF:

nsample

samp_date lab_id

qc_type units Pct_Solids A7J260310015 NM MG/KG 83.0

SB-472-0708

10/23/2007

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	UL	С

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	UL	С

SB-472-0506

A7J260310014

10/23/2007

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	·UJ	С

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

lab_id

units

qc_type

Pct_Solids

DUP_OF:

SB-473-0102 10/24/2007

10/24/2007 A7J260310016

NM MG/KG 89.0 nsample samp_date lab_id qc_type units

Pct_Solids

DUP_OF:

SB-473-0203 10/24/2007 A7J260310017 NM

NM MG/KG 88.0 nsample samp_date lab_id qc_type

SB-473-0304 10/24/2007 A7J260310018

NM MG/KG 85.0

Pct_Solids DUP_OF:

units

 Parameter
 Result Qual Code

 MERCURY
 0.019
 UL
 C

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	UL	С

Paramete	er	Result	Val Qual	Qual Code
MERCURY		0.02	UL	С

00885

SDG: 7J26310 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-473-0506 10/24/2007 nsample samp_date SB-473-0708 10/24/2007

lab_id

A7J260310019

lab_id qc_type A7J260310020

qc_type units Pct_Solids NM MG/KG 76.0

units
Pct_Solids
DUP_OF:

NM MG/KG 80.0

DUP_OF:

		Val	Qual
Parameter	Result	Qual	Code
MERCURY	0.022	UL	С

Parameter	Result	Val Qual	Qual Code
MERCURY	0.021	UL	С

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90M9

Client ID:

SB-470-0102

Matrix:

Soil

Units: mg/kg

100

Prep Date: 11/2/2007

Prep Batch: 7302034

Weight:

0.60

Volume:

Percent Moisture: 11.108

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.48		1	CVAA	11/2/2007	14:43

Comments: Lot #: A7J260310 Sample #: 1

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90ND

Client ID:

SB-470-0203

Matrix:

Soil

Units: mg/kg

100

Prep Date: __11/2/2007

Prep Batch:

Weight:

0.60

Volume:

Percent Moisture: 11.481

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.023	В	1	CVAA	11/2/2007	14:56

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90NE

Client ID:

SB-470-0304

Matrix: Soil

Units: mg/kg **Prep Date:** 11/2/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture: 13.208

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	11/2/2007	14:57

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90NF

Client ID:

SB-470-0506

Matrix:

Soil

Units: mg/kg

Prep Date: 11/2/2007

Prep Batch: <u>7302034</u>

Weight: 0.60

Volume:

100

Percent Moisture: 17.749

Element	WL/ <u>Mass</u>	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	11/2/2007	14:58

Comments: <u>Lot #: A7J260310 Sample #: 4</u>

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90NH

Client ID:

SB-470-0708

Matrix:

Soil

Units: mg/kg **Prep Date:** __11/2/2007

Prep Batch: 7302034

Weight:

0.60

Volume:

100

Percent Moisture: 16.251

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	11/2/2007	14:59

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90NJ

100

Client ID:

SB-471-0102

Matrix:

Soil

Units: mg/kg **Prep Date:** 11/2/2007

Prep Batch: 7302034

Weight:

0.60

Volume:

Percent Moisture: 19.468

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.12	0.021	U	1	CVAA	11/2/2007	15:01

Comments: Lot #: A7J260310 Sample #: 6

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90NK

Client ID:

SB-471-0203

Matrix:

Soil

Units:

mg/kg

Prep Date: 11/2/2007

Prep Batch: 7302034

Weight:

0.60

Volume:

100

Percent Moisture:

18.927

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.12	0.021	U	1	CVAA	11/2/2007	15:02

Comments: Lot #: A7J260310 Sample #: 7

5.21.0

Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90NL

Client ID:

SB-471-0304

Matrix:

Soil

Units:

mg/kg

100

Prep Date: 11/2/2007

Prep Batch: 7302034

Weight:

0.60

Volume:

Percent Moisture: 19.277

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.12	0.021	U	1	CVAA	11/2/2007	15:03

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90NN Client ID:

SB-471-0506

Matrix: Soil

Units: mg/kg **Prep Date:** 11/2/2007

Prep Batch: 7302034

Weight: 0.60

Volume: 100 **Percent Moisture:** 17.332

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	.U	1	CVAA	11/2/2007	15:04

Metals Data Reporting Form

Sample Results

J90NP Lab Sample ID:

Client ID:

SB-471-0708

Matrix:

Soil

Units: mg/kg **Prep Date:** 11/2/2007

Prep Batch: 7302034

Weight:

0.60

Volume: 100 **Percent Moisture:** 16.289

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	11/2/2007	15:05

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90NQ Client ID: SB-472-0102

Matrix: Soil

Units:

mg/kg

Prep Date: __11/2/2007

Prep Batch: 7302034

Weight: 0.60

Volume: 100 Percent Moisture: 13.663

Element	WL/ Mass	IDL	Report Limit	Conc	Q.	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	11/2/2007	15:09

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90NV Client ID:

SB-472-0203

Matrix: Soil

mg/kg **Units:**

Prep Date: 11/2/2007

Prep Batch: 7302034

Weight: 0.60

Volume: 100 **Percent Moisture:** 13.407

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	11/2/2007	15:10

E Serial dilution percent difference not within limits

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90NW

Client ID:

SB-472-0304

Matrix: Soil

Units: mg/kg **Prep Date:** 11/2/2007

Prep Batch: <u>7302034</u>

Weight: 0.60

Volume: 100 **Percent Moisture:** 18.469

Element	WL/ Mass	IDL_	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	11/2/2007	15:11

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90N0

Client ID: SB-472-0506

Matrix: Soil

Units: mg/kg **Prep Date:** 11/2/2007

Prep Batch: ___7302034

Weight: 0.60

Volume: 100

Percent Moisture: 16.876

Element	WL/ Mass	IDL	Report Limit	_ Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	11/2/2007	14:44

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90N1

Client ID:

SB-472-0708

Matrix:

Soil

Units: mg/kg

Prep Date: 11/2/2007

Prep Batch:_

Weight:

0.60

Volume: 100 Percent Moisture: 16.821

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	11/2/2007	14:46

Comments: <u>Lot #: A7J260310 Sample #: 15</u>

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90N3

Client ID:

SB-473-0102

Matrix:

Soil

Units: mg/kg

100

Prep Date: 11/2/2007

Prep Batch: 7302034

Weight: 0.60

Volume:

Percent Moisture: 10.668

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	11/2/2007	14:47

Comments: Lot #: A7J260310 Sample #: 16

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90N4

Client ID:

SB-473-0203

Matrix:

Soil

Units: mg/kg **Prep Date:** 11/2/2007

Prep Batch:

Weight: 0.60

Volume: 100 Percent Moisture:

12.089

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	11/2/2007	14:48

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90N6

Client ID:

SB-473-0304

Matrix: Soil

Units: mg/kg **Prep Date:** 11/2/2007

Prep Batch:__ 7302034

Weight: 0.60

Volume: 100 Percent Moisture: 14.926

Element	WL/ Mass	IDL	Report Limit	Conc	Q	O DF		Anal Date	Anal Time
Mercury .	253.7	0.020	0.12	0.020	U	1	CVAA	11/2/2007	14:49

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90N7

Client ID:

SB-473-0506

Matrix:

Soil

Units:

mg/kg

Prep Date: __11/2/2007

Prep Batch:__

Weight:

0.60

Volume:

100

Percent Moisture:

23.859

Element	WL/ Mass			Report Limit Conc		Q DF		Anal Date	Anal Time
Mercury	253.7	0.022	0.13	0.022	U	1	CVAA	11/2/2007	14:50

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90PH Client ID:

SB-473-0708

Matrix: Soil

mg/kg Units:

Prep Date: 11/2/2007

Prep Batch: 7302034

Weight: 0.60

Volume: 100 **Percent Moisture:** 19.511

Element	WL/ Mass	IDL	Report Limit	Conc Q		DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.12	0.021	U	1	CVAA	11/2/2007	15:12

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Client Sample ID: SB-470-0102

General Chemistry

Lot-Sample #...: A7J260310-001 Work Order #...: J90M9 Matrix.....: S0

Date Sampled...: 10/23/07 14:35 Date Received..: 10/26/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 88.9
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-470-0203

General Chemistry

Lot-Sample #...: A7J260310-002 Work Order #...: J90ND Matrix.....: S0

Date Sampled...: 10/23/07 14:37 Date Received..: 10/26/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 88.5
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-470-0304

General Chemistry

Lot-Sample #...: A7J260310-003 Work Order #...: J90NE Matrix.....: SO

Date Sampled...: 10/23/07 14:39 Date Received..: 10/26/07

% Moisture....: 13

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 86.8
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-470-0506

General Chemistry

Lot-Sample #...: A7J260310-004 Work Order #...: J90NF Matrix.....: S0

Date Sampled...: 10/23/07 14:41 Date Received..: 10/26/07

% Moisture....: 18

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 82.3
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-470-0708

General Chemistry

Lot-Sample #...: A7J260310-005 Work Order #...: J90NH Matrix........... S0

Date Sampled...: 10/23/07 14:43 Date Received..: 10/26/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 83.7
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-471-0102

General Chemistry

Lot-Sample #...: A7J260310-006 Work Order #...: J90NJ Matrix.....: SO

Date Sampled...: 10/23/07 15:10 Date Received..: 10/26/07

% Moisture....: 19

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 80.5
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-471-0203

General Chemistry

Lot-Sample #...: A7J260310-007. Work Order #...: J90NK

Matrix..... SO

Date Sampled...: 10/23/07 15:12 Date Received..: 10/26/07

% Moisture....: 19

PREPARATION-PREP PARAMETER RESULT RLUNITS METHOD ANALYSIS DATE BATCH # Percent Solids 81.1 10.0 MCAWW 160.3 MOD 11/02-11/03/07 7306395

Client Sample ID: SB-471-0304

General Chemistry

Lot-Sample #...: A7J260310-008 Work Order #...: J90NL Matrix.....: S0

Date Sampled...: 10/23/07 15:14 Date Received..: 10/26/07

% Moisture....: 19

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 80.7
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-471-0506

General Chemistry

Lot-Sample #...: A7J260310-009 Work Order #...: J90NN Matrix.....: S0

Date Sampled...: 10/23/07 15:16 Date Received..: 10/26/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 82.7
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-471-0708

General Chemistry

Lot-Sample #...: A7J260310-010 Work Order #...: J90NP Matrix...... S0

Date Sampled...: 10/23/07 15:18 Date Received..: 10/26/07

% **Moisture....:** 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 83.7
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-472-0102

General Chemistry

Lot-Sample #...: A7J260310-011 Work Order #...: J90NQ. Matrix.....: S0

Date Sampled...: 10/23/07 16:20 Date Received..: 10/26/07

% Moisture....: 14

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 86.3
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-472-0203

General Chemistry

Lot-Sample #...: A7J260310-012 Work Order #...: J90NV Matrix.....: S0

Date Sampled...: 10/23/07 16:22 Date Received..: 10/26/07

% Moisture....: 13

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 86.6
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-472-0304

General Chemistry

Lot-Sample #...: A7J260310-013 Work Order #...: J90NW Matrix.....: S0

Date Sampled...: 10/23/07 16:24 Date Received..: 10/26/07

% Moisture....: 18

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 81.5
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306395

Client Sample ID: SB-472-0506

General Chemistry

Lot-Sample #...: A7J260310-014 Work Order #...: J90N0 Matrix.....: S0

Date Sampled...: 10/23/07 16:26 Date Received..: 10/26/07

% **Moisture....:** 17

PARAMETER	RESULT	RL'	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Percent Solids	83.1	10.0		MCAWW 160.3 MOD	11/02-11/03/07	7306400

Client Sample ID: SB-472-0708

General Chemistry

Lot-Sample #...: A7J260310-015 Work Order #...: J90N1 Matrix.....: S0

Date Sampled...: 10/23/07 16:28 Date Received..: 10/26/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 83.2
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306400

Client Sample ID: SB-473-0102

General Chemistry

Lot-Sample #...: A7J260310-016 Work Order #...: J90N3 Matrix...... S0

Date Sampled...: 10/24/07 09:30 Date Received..: 10/26/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 89.3
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306400

Client Sample ID: SB-473-0203

General Chemistry

Lot-Sample #...: A7J260310-017 Work Order #...: J90N4 Matrix.....: S0

Date Sampled...: 10/24/07 09:32 Date Received..: 10/26/07

% Moisture....: 12

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 87.9
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306400

Client Sample ID: SB-473-0304

General Chemistry

Lot-Sample #...: A7J260310-018 Work Order #...: J90N6 Matrix.....: S0

Date Sampled...: 10/24/07 09:34 Date Received..: 10/26/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 85.1
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306400

Client Sample ID: SB-473-0506

General Chemistry

Lot-Sample #...: A7J260310-019 Work Order #...: J90N7 Matrix.....: S0

Date Sampled...: 10/24/07 09:36 Date Received..: 10/26/07

% Moisture....: 24

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 76.1
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306400

Client Sample ID: SB-473-0708

General Chemistry

Lot-Sample #...: A7J260310-020 Work Order #...: J90PH Matrix...... S0

Date Sampled...: 10/24/07 09:38 Date Received..: 10/26/07

% **Moisture....:** 20

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 80.5
 10.0
 %
 MCAWW 160.3 MOD
 11/02-11/03/07
 7306400

APPENDIX C SUPPORT DOCUMENTATION

FROTEDIUME:

SDG 7J26310

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL DATE	SMP_EXTR	EXTR_ANL	SMP ANL
HG	MG/KG	SB-472-0506	A7J260310014	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-470-0304	A7J260310003	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-470-0506	A7J260310004	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG ,	MG/KG	SB-470-0708	A7J260310005	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-471-0203	A7J260310007	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-471-0506	A7J260310009	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-471-0708	A7J260310010	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-472-0102	A7J260310011	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-470-0203	A7J260310002	NM	10/23/2007	11/2/2007	11/2/2007	10]	0	10
HG	MG/KG	SB-472-0304	A7J260310013	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-471-0102	A7J260310006	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-472-0708	A7J260310015	NM	10/23/2007	11/2/2007	11/2/2007	10	0	10
HG	MG/KG	SB-473-0102	A7J260310016	NM	10/24/2007	11/2/2007	11/2/2007	9	0	9
HG	MG/KG	SB-473-0203	A7J260310017	NM	10/24/2007	11/2/2007	11/2/2007	9	0	9
HG	MG/KG	SB-473-0304	A7J260310018	NM	10/24/2007	11/2/2007	11/2/2007	9	0	9

Tuesday, November 20, 2007

Chain of Custody Record

Severn Trent Laboratories, Inc.

STL-4124 (0901)				
Client	Project Manager		Date	Chain of Custody Number
Address Address	M. Mark		10/2	5/07 227049
20251 (PATURY Blad # 200	301-528-	3022	Lab Number	Page of
City State Zip Code	Site Contact	Lab Contact	Analysis (Attach more space is nee	list if
German fown MD 20974 Project Name and Location (State)	Carrier/Waybill Number	K. Tves	- I I I I I I	T T
/ is / / // // // //	Courier			
Contract/Purchase Order/Quote No.		Containers &	- ³	Special Instructions/ Conditions of Receipt
1/2IC00495	Matrix	Preservatives	22	
Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Time Aqueous Sed.	Unpress. HZSO4 HCI NaOH ZACC/ NaOH	17.8 H	Block H Hbenzo (a) pyrene
5B-470-0102 10/23 1	435 X	2	77	Thenso (a) am M
	437			
	y39			
	Y41			
	443			
	510			
	572			
	514			
	516			
	1518			
	520		NN	
_ ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	622	2	XI	A beyro (a) pyrene
Possible Hazard Identification	Sample Disposal			fee may be assessed if samples are retained
Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B Turn Around Time Required	Unknown Return To Cli	ent Disposal By Lab QC Requirements (Special		nger than 1 month)
24 Hours 48 Hours 7 Days 14 Days 21 Days	Stother STM)			Д.
Relinquished By	Date / Time 16:0	1. Receively By	Theret	16-25-17 1600 H
2. Relinquished By	Date Time	2. Received By	Mittis	MON 20 04 1/2 00
3. Relinquished By	Date Time	3. Heceived Sil		Dalv Time
Comments				<u> 0</u>
				t Am
DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with	n the Sample; PINK - Field Co	уу		

Chain of Custody Record

Severn Trent Laboratories, Inc.

STL-4124 (0901)		_ ,		· · · · · · · · · · · · · · · · · · ·			
Address Tech		Project Man	ager North Number (Area Coo			10/25/07	Chain of Custody Number 227050
Address						ab Number	
City Germantown MD 20	n/)	301~	528-30	72			Page 2 of Z
City State Zip	Code	Site Contact	· 11	Lab Contact	Analy	sis (Attach list if	
Germantown State Zip MD 20	nd 74	5. Hal	dhu	K, Ives		pace is needed)	
Project Name and Location (State)	<i>) </i>	Carrier/Way	bill Number	INIEVI	4 1		
			wier				
Contract/Purchase Order/Quote No.		1 4	14/60	T	- 126		Special Instructions/ Conditions of Receipt
		1	Matrix	Containers & Preservatives	2		Conditions of neceipt
112200995	,			 	12 4	1 1 1	
Sample I.D. No. and Description	Date	Time	Aqueous Sed. Soil	Unpres H2SO4 HNO3 HC! NaOH ZnAc/ NaOH	12 2		Block H
(Containers for each sample may be combined on one line)		¥	Sed. Soil	Unpr HRCI NaO NaO NaO	77		DIOCIT IT
56-472-0304	10/23	1624	X	2	17/11		Y benzo (a) preve
1 -0506		1626			1 1		
			 		 	 	
472~0708	1923	1628		 	11 11 -		
473-0102	10/24	0930					
1 -0203	60LD 1	M32					
-030y	- - -	0934		 	 		
-0506) D	2936					<u> </u>
-0506 m5/2D		0936	1		77		
515-473-0708	10/23 19/4	0938	8	2	71		Abouro (a) pyresse
			 	 	++++	+	
Possible Hazard Identification	<u> </u>	1.5	Sample Disposal				
	☐ Poison B		Return To Clie	nt Disposal By Lab	Archive For	(A fee may be as Months longer than 1 mo	sessed if samples are retained ന nth) ന
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Turn Around Time Required		3 Similowii	riciani io one	QC Requirements (Speci			
	lave 7 21 Dave	Other_	< MD			A	ď
24 Hours 48 Hours 7 Days 14 D	ays Lar Days	. Date	, Time	1. Received by	11		Date Time
		10/20/0	= 16:CC		1 M	- 	1/0,75-67 16000
2. Relinguished By		Date	Time	. Receive By	1 Pacra		Bate Time
2. Hemiquianed by					MULAT	I I	DANIGT 10100 5
3. Relinquished By		Date	, Time	3 Received By	V 1 - W ()		
3. neuriquistied by			1	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			Date Time Time
Comments			1 -	1			<u> </u>
Comments				•			
CONTROL WITE CO. LAND CO. LAND CO.	CANARY Chair	ith the Comple:	DINK - Field Con				
DISTRIBUTION: WHITE - Returned to Client with Report:	CANAMI - SIBYS W	iui ale sample:	Filen COD	y			Ψ

TestAmerica C	ooler Receip	t Form/Narrative	Lot Number	21008\$5
North Canton F	acility)
Client: 12tra fech		Project:	_ Quote#:	058
Cooler Received on:_ FedEx ☑ Client Drop Stetson ☐ US Cargo	p Off 📗 UPS 🗌	Opened on: 16-26-57 DHL FAS TestAn Other:	narios Courier	(Signature)
TestAmerica Cooler N	_		lient Cooler Other	
Were custody seal If YES, Quantity	s on the outside of	the cooler? Yes \(\square\) No \(\square\)	lient Cooler∭ Other Intact? Yes ☐ No	□ NA □
Were custody seal Were custody seal If YES, are there	s on the bottles?	cooler signed and dated?	Yes ☐ No ☐ NA Yes ☐ No 🔀	
2. Shipper's packing		form?	- Yes ☑ No ☐	
3. Did custody papers	s accompany the sa	amples?Yes ♥No □	Relinquished by client	? Yes Æb No □
Did you sign the cu Packing material uses	sed: Bubble Wran	Fram None	Yes ∰ No ☐	. , 99 (25) 110 []
6. Cooler temperature	upon receipt _4/	°C (see back of form fo	r multiple coolers/temp)	
INETHOD, IK ES	Other L_			
COOLANT: Wet Ice			er None	
7. Did all bottles arrive 8. Could all bottle labe	e in good condition els and/or tags be r	(Unbroken)? econciled with the COC?	Yes ☑ No ☐	
9. Were samples at th	ne correct pH upon	receipt?	Yes ☑ No ☐ Yes ☐ No ☐ N	ia PP
10. Were correct bottle	s used for the tests	indicated?	Yes No	
11. Were air bubbles >	6 mm in any VOA v	vials?		IA EP
12. Sufficient quantity	received to perform	indicated analyses?	Yes 🗗 No 🗌	_
Contacted PM	present in the coole	r? Yes ∐ No ⊈ Were \	VOAs on the COC? Yes	No 🔀
Concerning:	Date	by:	via Voice Mail Verbal	Other _
14. CHAIN OF CUSTO				
The following disc	repancies occurred	: ^		(7)
COC 3+60m	+ TECETVED	3×60 ml for ID	58-474 039 7 - 5B-4	74-05
		**************************************	***************************************	
15. SAMPLE CONDITI	ON			
Sample(s)	U.T	word an active 1 - re		
Sample(s)_		were received after	er the recommended holding t	time had expired.
16. SAMPLE PRESER	VATION	were received i	n a broken container.	
Sample(s)		ware fu	rther preserved in sample rec	oiving to mad
recommended pH I	level(s). Nitric Acid L	.ot #042607-HNO3 - Sulfuric A	old Lat # 000000 Uppoor a counting	
1 122000 114011, 11yu	CONTONO MOIG LOUT U	92UUD-MUT SOAIIIM HVARAYIAA s	and Zinc Acetate Lot # 050205-C	H3COO2ZN/NaOH
What time was pre-	servative added to	samples?		H
Client ID		were received with b	oubble > 6 mm in diameter (N	
VIIVIL ID	 	<u>Ηα</u>	<u>Date</u>	<u>Initials</u>
	1			
	 			

CASE NARRATIVE

7J26310

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc. from the LMC MR Site, project number 112IC00885. The samples were received October 26, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J260310.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 4.7°C.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

OC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	
		Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica North Canton (formerly STL North Canton) Certifications and Approvals:

California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), OhioVAP (#CL0024), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY, USDA Soil Permit,

N:\QAQC\Customer Service\Narrative - Combined RCRA _CWA 061807.doc

ANALYTICAL METHODS SUMMARY

7J26310

PARAMETER		ANALYTICAL METHOD
Semivolat	n Solid Waste (Manual Cold-Vapor) ile Organic Compounds by GC/MS idue as Percent Solids	SW846 7471A SW846 8270C MCAWW 160.3 MOD
Reference	es:	
MCAWW	"Methods for Chemical Analysis of Water EPA-600/4-79-020, March 1983 and subsequ	
SW846	"Test Methods for Evaluating Solid Waste Methods", Third Edition, November 1986 a	-

SAMPLE SUMMARY

7J26310 : A7J260310

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
J90М9_	001	SB-470-0102	10/23/07	14:35
J90ND	002	SB-470-0203	10/23/07	14:37
J90NE	003	SB-470-0304	10/23/07	14:39
J90NF	004	SB-470-0506	10/23/07	14:41
J90NH	005	SB-470-0708	10/23/07	14:43
J90NJ	006	SB-471-0102	10/23/07	15:10
J90NK	007	SB-471-0203	10/23/07	
J90NL	800	SB-471-0304	10/23/07	15:14
J90NN	009	SB-471-0506	10/23/07	15:16
J90NP	010	SB-471-0708	10/23/07	
J90NQ	011	SB-472-0102	10/23/07	16:20
J90NV	012	SB-472-0203	10/23/07	16:22
J90NW	013	SB-472-0304	10/23/07	
J90N0	014	SB-472-0506	10/23/07	16:26
J90N1	015	SB-472-0708	10/23/07	16:28
J90N3	016	SB-473-0102	10/24/07	09:30
J90N4	017	SB-473-0203	10/24/07	09:32
J90N6	018	SB-473-0304	10/24/07	09:34
J90N7	019	SB-473-0506	10/24/07	09:36
Ј90РН	020	SB-473-0708	10/24/07	09:38

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: ____CVAA

Units: ug/L

Chart Number: hg11102a.prn

Acceptable Range: 90% - 110%

Standard Source: Ultra

	WL/		Ck5IC 11/2/20 11:04 A	07								
151 4		True	T1	% Date	P4	%	T1	%	177. 1	%	17. 1	%
Element	Mass	Conc	Found	Rec	Found	Rec	Found	Rec	Found	Rec	Found	Rec
Mercury	253.7	2.5	2.44	97.4								

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ____CVAA

Units: ___ ug/L

Chart Number: hg11102a.prn

Acceptable Range: 80% - 120%

Standard Source: Ultra

	WL/		Ck2CCV 11/2/2007 11:07 AM		Ck2CC 11/2/20 11:15 A	07	Ck2CC 11/2/20 11:19 A	07	Ck2CCV 11/2/2007 11:33 AM		Ck2CCV 11/2/2007 11:48 AM	
Element	Mass	True Conc	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	4.97	99.5	5.15	102.9	5.11	102.3	5.26	105.2	5.24	104.8

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: <u>CVAA</u>

Units: ug/L

Chart Number: hg11102a.prn

Acceptable Range: 80% - 120%

Standard Source: Ultra

			Ck2CCV 11/2/2007			Ck2CCV Ck2CCV 11/2/2007 11/2/2007			Ck2CCV		Ck2CCV	
	WL/	_	12:02 PM			12:16 PM 12:32 PM		PM	11/2/2007 12:46 PM		11/2/2007 1:01 PM	
Element	Mass	True Conc	Found	% Rec	_Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	5.26	105.3	5.18	103.5	5.22	104.3	5.21	104.3	5.33	106.6

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: <u>CVAA</u>

Units: ____ug/L

Chart Number: _hg11102a.prn

Acceptable Range: __80% - 120%

Standard Source:

Ultra

					·							
			Ck2CCV		Ck2CC	V	Ck2CC	V	Ck2CCV		Ck2CCV	
			11/2/2007		11/2/20	1/2/2007 11/2/2007		11/2/2007		11/2/2007		
	$ \mathbf{w}_{\mathbf{L}} $		1:12 PM		1:19 Pl	1:19 PM 1:33 PM		М	1:48 PM		2:02 PM	
) **L/	True		%		%		%		%		%
Element	Mass	Conc	Found	Rec	Found	Rec	Found	Rec	Found	Rec	Found	Rec
Mercury	253.7	5.0	5.28	105.6	5.08	101.5	5.11	102.3	5.02	100.5	5.07	101.4

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ____CVAA

Units: ug/L

Chart Number: hg11102a.prn

Acceptable Range: 80% - 120%

Standard Source:

Ultra

	WL/		Ck2CCV 11/2/2007 2:16 PM		Ck2CC 11/2/20 2:30 Pi	007 11/2/2007		07	Ck2CCV 11/2/2007 2:53 PM		Ck2CCV 11/2/2007 3:06 PM	
Element	Mass	True Conc	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Réc
Mercury	253.7	5.0	5.02	100.4	5.07	101.3	5.07	101.4	5.06	101.3	5.11	102.2

Continuing	<u> 5 Calibra</u>	ition Ve	rification	1								
Instrument:	<u>C\</u>	VAA	_				Units:	i	ug/L			
Chart Numl	ber: <u>hg</u>	<u>ց11102a.բ</u>	orn -				Accepta	ıble Ra	ange: 8	0% - 1	20%	
Standard So	ource:		Ultra				Standa	rd ID:				
	WL/		Ck2CC 11/2/20 3:20 Pi	07								
Element	Mass	True Conc	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	5.03	100.5								

Contract I	Required	l Detect	ion Lim	it Stan	dard							7.0
Instrumen	t:	CVAA					Units:		ug/L			
Chart Nun	nber: <u>h</u>	ng11102a	.prn				Accep	table I	Range:	50% -	150%	
Standard S	Source: _		Ult	tra			Stand	ard ID	:			
Element	WL/ Mass	True Conc	Ck3CRA 11/2/2 11:06 Found	:007	Folun	% ıd Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	0.2	0.1	2 58.9								

Initial Calib	ration B	lank R	esults									
Instrument:	CV.	AA	_				Units:		ug/L	_		
Chart Numb	er: <u>hg</u> l	1102a.p	orn	•								
Standard Sou	ırce:						Standar	d ID:				
	Ck4ICB 11/2/2007 11:05 AM											
Element	WL/ Mass	Report Limit	Found	Q	Found	Q	Found	Q	Found	_ Q	Found	Q
Mercury	253.7	0.6	0.1	TI								

Metals Data Reporting Form

Chart Number: hg11102a.prn

Standard Source: _____ Standard ID: ____

			Ck1CC 11/2/200 11:08 A	07	Ck1CC 11/2/200 11:17 A	07	Ck1CC 11/2/20 11:21 A	07	Ck1CC 11/2/20 11:35 A	07	Ck1CC 11/2/20 11:49 A	07
Element	WL/ Mass	Report Limit	Found	Q	Found	Q	Found	O_	Found	Q	Found	O
Mercury	253.7	0.6	-0.1	В	0.1 U		0.1	U	0.1	U	0.1	U

Continuin	g Calibra	ation B	lank Resi	ults										
Instrument	: <u>C</u>	VAA_					Units:		ug/L					
Chart Number: hg11102a.prn														
Standard S	ource:					_	Standa	rd II):					
			Ck1CC 11/2/200	07	Ck1CC 11/2/20	07	Ck1CC 11/2/200	07	Ck1CC	07	Ck1CC	07		
Element	WL/ Mass	Report Limit	12:03 P	O O	12:18 P Found	Q Q	12:33 P Found	<u>М</u>	12:47 P Found	O O	1:02 Pi Found	<u>м</u> О		
Mercury	253.7	0.6	0.1	TI	_0.1	R	0.1	TT	0.1	11	0.1	ΤT		

Metals Data Reporting Form

Continuing Calibration Blank Results Instrument: CVAA Units: ug/L Chart Number: hg11102a.prn Standard Source: _ Standard ID: Ck1CCB Ck1CCB Ck1CCB Ck1CCB Ck1CCB 11/2/2007 11/2/2007 11/2/2007 11/2/2007 11/2/2007 1:13 PM 1:20 PM 1:34 PM 2:03 PM 1:49 PM WL/ Report Element Mass Limit Found Q Found Found Found Found Mercury 253.7 0.1 U 0.1 U

0.1 U 0.1 U 0.1 U

Metals Data Reporting Form

Continuing	Calibra	tion B	lank Resi	ults											
Instrument:	C	VAA	<u>.</u>				Units:		ug/L						
Chart Numl	Chart Number: hg11102a.prn														
Standard Source: Standard ID:															
			Ck1CC	_	Ck1CC	_	Ck1CC	-	Ck1C0	СВ	Ck1CC	В			
			11/2/20 2:17 PN		11/2/20 2:31 PM		11/2/200 2:39 PN		11/2/20		11/2/200				
	WL/	Report		<u>v1</u>		VI		/1	2:54 P	IVI	3:07 PN	/1			
Element	Mass	Limit	Found	O_	Found	<u> </u>	Found	O	Found	<u> </u>	Found	Q			
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	Ņ	0.1	U	0.1	U			

Continuing	g Calibra	ation B	lank Resi	ults					_			
Instrument:	<u> </u>	VAA					Units:		ug/L			
Chart Num	ber: h	g11102a	.prn									
Standard So	ource:					<u>-</u> .	Stand	ard II):		<u></u>	
			Ck1CC 11/2/20 3:22 Pi	07		_						-
Element	WL/ Mass	Report Limit	Found	Q	Found	Q	Found	Q	Found	Q	Found	0
Mercury	253.7	0.6	0.1	IJ								

U Result is less than the IDL

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: J924RB

Matrix: Soil Units: mg/kg Prep Date: 11/2/2007 Prep Batch: 7302034

Weight: 0.60 Volume: 100 Percent Moisture: NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.017	0.10	0.017	U	1	CVAA	11/2/2007	14:41

Comments: Lot #: A7J260310

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: J90N7S

Original Sample ID: J90N7 Client ID: SB-473-0506

Matrix: Soil Units: mg/kg Prep Date: 11/2/2007 Prep Batch: 7302034

Weight: 0.60 Volume: 100 Percent Moisture: 23.859

Element	WL/ Mass	OS Conc	Q	MS Conc	Q	Spike Level	% Rec	OS DF	MS DF	Instr	OS Anal Date	OS Anal Time	MS Anal Date	MS Anal Time
Mercury	253.7	0.022	TI	0.21		0.2189	97.4	1	1	CVAA	11/2/2007	14:50	11/2/2007	14:55

Comments: Lot #: A7J260310 Sample #: 19

5.21.0

N Spike recovery failed

Form 5A Equivalent

NC Percent recovery was not calculated

- * Duplicate analysis RPD was not within limits
- E Serial dilution percent difference not within limits
 - U Result is less than the IDL

Metals Data Reporting Form

Duplicate Sample Results

Lab Sample ID: J90N7X Client ID: SB-473-0506

Matrix: Soil Units: mg/kg Prep Date: 11/2/2007 Prep Batch: 7302034

Weight: _____0.60 ____ Volume: ____100 ____ Percent Moisture: 23.859

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.022	0.13	0.022	U	1	CVAA	11/2/2007	14:51

Comments: _Lot #: A7J260310 Sample #: 19

Metals Data Reporting Form

Sample Duplicate RPD Report

Duplicate Sample ID: J90N7X

Original Sample ID: J90N7 Client ID: SB-473-0506

Matrix: Soil Units: mg/kg Prep Date: 11/2/2007 Prep Batch: 7302034

Weight: 0.60 Volume: 100 Percent Moisture: 23.859

Element	WL/ Mass	OS Conc	Q	Dupe Conc	Q	% RPD	OS DF	Dupe DF	Instr	OS Anal Date	OS Anal Time	Dupe Anal Date	Dupe Anal Time
Mercury	253.7	0.022	U	0.022	U		1	1	CVAA	11/2/2007	14:50	11/2/2007	14:51

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID:

J924RC

Matrix: Soil Units: mg/kg

100

Prep Date: 11/2/2007

Prep Batch: 7302034

Weight:

0.60

Volume:

Percent Moisture: NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.83	0.86	103.6		81-123	1	CVAA	11/2/2007	14:42

Comments: Lot #: A7J260310

Metals Data Reporting Form

Instrument Detection Limits

Instrument: CVAA Units: ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL	
Mercury	253.700	0.6	0.10	2/1/2007	

Batch Number: 7302034

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By: Lisa McGall (e-Signature)

Prep Date:

11/02/07

			Prep Date:	11/02/07			
Lot	Work Ord	er	Due Date:	11/09/07	ICP Weight	ICPMS Weight	Hg Weight
A7J290000 Solid	J924R	В	Due Date: SDG:				<u>0.60 g</u>
A7J290000 Solid	J924R	С	Due Date: SDG:				<u>0.60 g</u>
A7J260310 Solid	J90M9 Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90ND Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NE Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NF Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NH Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NJ Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NK Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NL Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NN Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NP Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NQ Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90NV Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60</u> g
A7J260310 Solid	J90NW Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90N0 Total		Due Date: 11/09/07 SDG: 7J26310			·	<u>0.60 g</u>
A7J260310 Solid	J90N1 Total		Due Date: 11/09/07 SDG: 7J26310		,		<u>0.60 g</u>
A7J260310 Solid	J90N3 Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90N4 Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90N6 Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90N7 Total		Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>
A7J260310 Solid	J90N7 Total	S	Due Date: 11/09/07 SDG: 7J26310				<u>0.60 g</u>

Batch Number:

7302034

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:

Lisa McGall (e-Signature)

Prep Date:

11/02/07

Due Date: Work Order

11/09/07

ICP Weight

ICPMS Weight

Hg Weight

A7J260310 Solid

Lot

J90N7 Total

Due Date: 11/09/07

J90PH

SDG: 7J26310

0.60 g

A7J260310 Solid

Total

Due Date: 11/09/07 SDG: 7J26310 <u>0.60</u> g

LEVEL 2

BLANK AND CHECK STANDARD ON BATCH

MS/MSD AND PDS ON BATCH

CORRECT SPIKES ADDED

SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

Matrix Spike Information:

J90N7

Hg

Check Sample Information:

J924R

Hg

Prep Method(s): SW846 7471A

METHOD BLANK REPORT

General Chemistry

Client Lot #...: 7J26310

Matrix....: SOLID

		REPORTING	G.		PREPARATION-	PREP
PARAMETER	RESULT	LIMIT	UNITS	METHOD	ANALYSIS DATE	BATCH #
Percent Solids		Work Order	#: KAFCF1AA	MB Lot-Sample #:	A7K020000-395	
	ND	10.0	%	MCAWW 160.3 MOD	11/02-11/03/07	7306395
		Dilution Fact	or: 1			
Percent Solids	•	Work Order	#: KAFC41AA	MB Lot-Sample #:	A7K020000-400	
	ND	10.0	90	MCAWW 160.3 MOD	11/02-11/03/07	7306400
		Dilution Fact	or: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J260310 Work Order #...: J90NW-SMP Matrix.....: S0

J90NW-DUP

Date Sampled...: 10/23/07 16:24 Date Received..: 10/26/07

% Moisture....: 18

	DUPLICATE		RPD		PREPARATION-	PREP	
PARAM RESULT	RESULT	UNITS	RPD	LIMIT	METHOD	ANALYSIS DATE	BATCH #
Percent Solids					SD Lot-Sample #:	A7J260310-013	
81.5	82.7	િ	1.4	(0-20)	MCAWW 160.3 MOD	11/02-11/03/07	7306395

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J260310 Work Order #...: KAEAV-SMP Matrix.....: SOLID

KAEAV-DUP

Date Sampled...: 10/30/07 09:00 Date Received..: 11/02/07

% Moisture....: 17

 PARAM RESULT
 RESULT
 UNITS
 RPD
 PREPARATION PREPA

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J260310 Work Order #...: J90N7-SMP Matrix.....: S0

J90N7-DUP

Date Sampled...: 10/24/07 09:36 Date Received..: 10/26/07

% Moisture....: 24

	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	UNITS	RPD	LIMIT	METHOD .	ANALYSIS DATE	BATCH #
Percent Solids					SD Lot-Sample #:	A7J260310-019	
76.1	79.2	%	3.9	(0-20)	MCAWW 160.3 MOD	11/02-11/03/07	7306400

Dilution Factor: 1

SRV', J90M9=58-470-0102 [Hg]=0.48mg/kg as reported by the lab.

Eine Conc. Units SD/RSD 1 2 3 4 5 **** Check Standard: 1 Ck1CCB Line Flag Found Range(+/-) Units Hg0225 .2000 ppb **** Check Standard: 2 Ck2CCV Line Flag XRcv. Found True Line Flag XRcv. Found True Hg 101.4 5.071 5.000 ppb .0000 % **** Check Standard: 1 Ck1CCB Line Flag Found Range(+/-) Units Hg0600 .2000 ppb .0000 % **** Check Standard: 1 Ck1CCB Line Flag Found Range(+/-) Units Hg 101.4 5.071 5.000 ppb .0000 % **** Sample ID: J924RB		Folder: HG11102A 14:31:44 02 Nov 2007 Protocol: HGPPB		Page	16	
Line Flag Found Range(+/-) Units SD/RSD .0000 % **** Check Standard: 2 Ck2CCV Seg: 175 14:38:42 02 Nov 2007 HG Line Flag %kev. Found True Units SD/RSD .0000 % **** Check Standard: 1 Ck1CCB Units Flag Found Range(+/-) Units F		Line Conc. Units SD/RSD 1 2 3 4	5			
Line Flag %Kev. Found True Units SD/RSD .0000 % *** Check Standard: 1 Ck1CCB Line Flag Found Range(+/-) Units Flag Found Range(+/-) Units Flag Found Range(+/-) Units Flag Found Range(+/-) Units Flag Found Range(+/-) Units SD/RSD .0000 % *** Sample ID: J924RB Seq: 177 14:41:04 02 Nov 2007 HG		*** Check Standard: 1 Ck1CCB Seq: 174 14:31:44 U2 Nov Line Flag Found Range(+/-) Units SD/RSD Hg0225 .2000 ppb .0000 %	· 2007	HG		
Line Flag Found Range(+/-) Units SU/RSU .0000 % **** Sample ID: J924RB		Line Flag %kcv. Found True Units SD/RSD	· 2007	' HG		
### Sample ID: J924RC Hg 5.179 ppb .0000 %0313 **** Sample ID: J924RC Hg 5.179 ppb .0000 % 5.179 **** Sample ID: J90M9 Hg 2.578 ppb .0000 % 5.179 **** Sample ID: J90N0 Hg 0637 ppb .0000 %0637 **** Sample ID: J90N1 Hg 0379 ppb .0000 %0637 **** Sample ID: J90N1 Hg 0525 ppb .0000 %0379 **** Sample ID: J90N4 Hg 0525 ppb .0000 % .0525 **** Sample ID: J90N4 Hg 0157 ppb .0000 % .0157 **** Sample ID: J90N6 Hg 0000 % .0157 **** Sample ID: J90N6 Hg 0000 % .0000 % .0000 % .0157 **** Sample ID: J90N6 Hg 0000 % .0000 % .0000 % .0157 **** Sample ID: J90N6 Hg 0000 % .0000		*** Check Standard: 1 Ck1CCB Seq: 176 14:39:47 02 Nov Line Flag Found Range(+/-) Units SD/RSD Hg0600 .2000 ppb .0000 %	- 2007	HG .		
**** Sample ID: J924RC Seq: 178 14:42:13 02 Nov 2007 HG Hg (5.179) ppb .0000 % 5.179 **** Sample ID: J90M9 Seq: 179 14:43:28 02 Nov 2007 HG SOLID Hg (0.637) ppb .0000 %0637 **** Sample ID: J90N1 Seq: 180 14:44:36 02 Nov 2007 HG Hg (0.379) ppb SOLID Hg (0.0379) ppb SOLID Hg (0.0525) ppb SOLID Hg (0.0525) ppb SOLID Hg (0.0157) ppb SOLID Hg (0.0077) ppb SOLID Hg (0.0077) ppb SOLID Hg (0.0077) ppb SOLID Hg (0.0077) ppb SOLID Hg (0.0077) ppb SOLID SOLID SOLID SOLID SOLID SOLID Hg (0.0077) ppb SOLID <td colspan<="" td=""><td>ton of</td><td></td><td>r 2007</td><td>HG</td><td></td></td>	<td>ton of</td> <td></td> <td>r 2007</td> <td>HG</td> <td></td>	ton of		r 2007	HG	
### Sample ID: J90M9 Hg)60m	*** Sample ID: J924RC Seq: 178 14:42:13 02 Nov	[,] 2007	' HG		
*** Sample ID: J90N0 Hg .0637 ppb .0000 %0637 *** Sample ID: J90N1 Seq: 181 14:46:01 02 Nov 2007 HG Hg .0379 ppb .0000 %0379 *** Sample ID: J90N3 Seq: 182 14:47:05 02 Nov 2007 HG Hg .0525 ppb .0000 % .0525 *** Sample ID: J90N4 Seq: 183 14:48:10 02 Nov 2007 HG Hg .0157 ppb .0000 % .0157 *** Sample ID: J90N6 Solid Seq: 184 14:49:28 02 Nov 2007 HG Hg .0077 ppb .0000 % .0077 *** Sample ID: J90N6 Solid Seq: 185 14:50:44 02 Nov 2007 HG Solid Solid Solid Seq: 185 14:50:44 02 Nov 2007 HG Solid S		*** Sample ID: J90M9 SOLID Seq: 179 14:43:28 02 Nov	⁷ 2007	' HG		
Hg .0379 ppb .0000 %0379 *** Sample ID: J90N3 Seq: 182 14:47:05 02 Nov 2007 HG Hg .0525 ppb .0000 % .0525 *** Sample ID: J90N4 Seq: 183 14:48:10 02 Nov 2007 HG Hg .0157 ppb .0000 % .0157 *** Sample ID: J90N6 SoLID Hg .0077 ppb .0000 % .0077 *** Sample ID: J90N6 SoLID Hg .0077 ppb .0000 % .0077 *** Sample ID: J90N7 Seq: 185 14:50:44 02 Nov 2007 HG SOLID		*** Sample ID: J90NO Seq: 180 14:44:36 02 Nov	⁷ 2007	' HG		
### Sample ID: J90N3 Seq: 182 14:47:05 02 Nov 2007 HG Hg .0525 ppb .0000 % .0525 ### Sample ID: J90N4 Seq: 183 14:48:10 02 Nov 2007 HG Hg .0157 ppb .0000 % .0157 ### Sample ID: J90N6 Seq: 184 14:49:28 02 Nov 2007 HG Hg .0077 ppb .0000 % .0077 ### Sample ID: J90N7 Seq: 185 14:50:44 02 Nov 2007 HG SOLID SO		SOLID	r 2007	7 HG		
*** Sample ID: J90N4 Seq: 183 14:48:10 02 Nov 2007 HG Hig .0157 ppb .0000 % .0157 *** Sample ID: J90N6 Seq: 184 14:49:28 02 Nov 2007 HG Hig .0077 ppb .0000 % .0077 *** Sample ID: J90N7 Seq: 185 14:50:44 02 Nov 2007 HG SOLID		*** Sample ID: J90N3 Seq: 182 14:47:05 02 Nov	r 2007	7 HG		
*** Sample ID: J90N6 Seq: 184 14:49:28 02 Nov 2007 HG SOLID Hg .0077 ppb .0000 % .0077 *** Sample ID: J90N7 Seq: 185 14:50:44 02 Nov 2007 HG SOLID SOLID		*** Sample ID: J90N4 Seq: 183 14:48:10 02 Nov	7 2007	' HG		
*** Sample ID: J90N7 Seq: 185 14:50:44 02 Nov 2007 HG SOLID		*** Sample ID: J90N6 Seq: 184 14:49:28 02 Nov	r 2007	7 HG		
		*** Sample 1D: J90N7 Seq: 185 14:50:44 02 Nov	7 2007	7 HG		



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

MIKE MARTIN

DATE:

JANUARY 10, 2008

FROM:

THOMAS JACKMAN

COPIES:

DV FILE

SUBJECT:

ORGANIC AND INORGANIC DATA VALIDATION - BENZO(A)PYRENE /

MERCURY

LOCKHEED MIDDLE RIVER FACILITY

SAMPLE DELIVERY GROUP (SDG) - 7J26337

SAMPLES:

20/Solid

SB-474-0102	SB-474-0203	SB-474-0304	SB-474-0506	SB-474-0708
SB-475-0102	SB-475-0203	SB-475-0304	SB-475-0506	SB-475-0708
SB-476-0102	SB-476-0203	SB-476-0304	SB-476-0506	SB-476-0708
SB-477-0102	SB-477-0203	SB-477-0304	SB-477-0506	SB-477-0708

Overview

This sample set for the Lockheed Middle River, SDG 7J26337, consists of 20 environmental soil samples. The samples were analyzed for benzo(a)pyrene and mercury. No field duplicates were included in this data set.

The samples were collected by Tetra Tech NUS, Inc. on October 24 and 25, 2007 and analyzed by Test America. The samples were analyzed by SW-846 Method 8270C for benzo(a)pyrene and by SW-846 Method 7471A for mercury.

Summary

All samples were successfully analyzed. The organic findings in this report are based upon a general review of all available data including: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank contamination, surrogate spike, matrix spike/matrix spike duplicate (MS/MSD) results, Laboratory Control Sample (LCS) results, compound identification, compound quantitation, and detection limits.

The inorganic findings in this report are based upon a general review of all available data including: data completeness, holding times, calibrations, laboratory method/preparation blanks, matrix spike results, laboratory duplicate results, laboratory control sample (LCS) results, analyte quantitation, and detection limits.

Areas of concern are listed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

Major Problems

None.

MEMO TO: M. MARTIN - PAGE 2 DATE: JANUARY 10, 2008

Minor Problems

• Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, "J".

Notes

In the analysis of benzo(a)pyrene, matrix spike/matrix spike duplicate RPDs were outside quality criteria for sample SB-477-0708 MS/MSD and the batch MS/MSD used by the laboratory. No data were qualified on the basis of the MS/MSD results because benzo(a)pyrene was not one of the spiked compounds.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "Region III Modifications to the National Functional Guidelines for Organic Data Review" (9/94) and "Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analysis" (4/93). The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Teon NUS Thomas Jackman 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 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

00885

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

SB-474-0102 10/24/2007 A7J260337001 nsample samp_date lab_id qc_type

SB-474-0203 10/24/2007 A7J260337002 NM

UG/KG

86.0

nsample samp_date lab_id qc_type units

SB-474-0304 10/24/2007 A7J260337003 NM

units Pct_Solids

qc_type

NM UG/KG 85.0

units Pct_Solids DUP_OF:

Pct_Solids DUP_OF:

UG/KG 78.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	24	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	31	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	490		

00885

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

qc_type

Pct_Solids

DUP_OF:

units

SB-474-0506 10/24/2007

A7J260337004

NM UG/KG 90.9

nsample samp_date lab_id

units

10/24/2007 A7J260337005 NM qc_type UG/KG

Pct_Solids DUP_OF:

nsample samp_date

'lab_id qc_type

10/25/2007 A7J260337006 NM

SB-475-0102

UG/KG 88.0

Pct_Solids DUP_OF:

units

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.4	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

86.0

SB-474-0708

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: OS

00885

nsample	SB-475-0203	nsample	SB-475-0304	nsample	SB-475-0506
samp_date	10/25/2007	samp_date	10/25/2007	samp_date	10/25/2007
lab_id	A7J260337007	lab_id	A7J260337008	lab_id	A7J260337009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	87.0	Pct_Solids	82.0	Pct_Solids	81.0
DUP OF:		DUP OF:		DUP OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	-

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	-

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

00885

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id qc_type

SB-475-0708 10/25/2007 A7J260337010

NM UG/KG units Pct_Solids 83.0 DUP_OF:

nsample samp_date lab_id

units

10/25/2007 A7J260337011 qc_type NM UG/KG

Pct_Solids DUP_OF:

nsample samp_date lab_id

10/25/2007 A7J260337012 NM qc_type units UG/KG

Pct_Solids DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	· U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

88.0

SB-476-0102

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

86.0

SB-476-0203

00885

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: OS

nsample	
samp_date	
lab_id	
qc_type	
units	

Pct_Solids

DUP_OF:

SB-476-0304 10/25/2007 A7J260337013

NM UG/KG 0.08

nsample samp_date lab_id qc_type units

Pct_Solids DUP_OF:

SB-476-0506RE 10/25/2007 A7J260337014 NM UG/KG

83.0

nsample samp_date lab_id qc_type

A7J260337015 NM UG/KG Pct_Solids 84.0

DUP_OF:

units

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

SB-476-0708

10/25/2007

00885

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

SB-477-0102 10/25/2007 A7J260337016

qc_type NM units UG/KG Pct_Solids 89.0 DUP_OF:

nsample samp_date lab_id

units

10/25/2007 A7J260337017 NM qc_type UG/KG

Pct_Solids DUP_OF:

nsample

samp_date lab_id qc_type

A7J260337018 NM UG/KG Pct_Solids 80.0

DUP_OF:

units

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.7	U	

78.0

SB-477-0203

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

SB-477-0304

10/25/2007

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: OS

00885

nsample samp_date SB-477-0506RE 10/25/2007 nsample samp_date SB-477-0708RE

samp_date 10/25/2007
lab_id A7J260337019
qc_type NM

lab_id qc_type 10/25/2007 A7J260337020

qc_type NM
units UG/KG
Pct_Solids 85.0
DUP_OF:

units Pct_Solids NM UG/KG 85.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	· 1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: M

nsample

SB-474-0102 10/24/2007

nsample samp_date

lab_id

SB-474-0203 10/24/2007

nsample samp_date

SB-474-0304 10/24/2007

samp_date lab_id qc_type

A7J260337001

A7J260337002

A7J260337003

units Pct_Solids NM MG/KG 85.0

qc_type NM MG/KG lab_id qc_type units

NM

units Pct_Solids DUP_OF:

Pct_Solids DUP_OF:

MG/KG 78.0

DUP_OF:

Parameter	Result		Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.025	•	

86.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.095	1	

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

SB-474-0506 10/24/2007 nsample samp_date SB-474-0708 10/24/2007

nsample samp_date SB-475-0102 10/25/2007

lab_id qc_type units

A7J260337004 NM MG/KG lab_id qc_type

A7J260337005 NM lab_id qc_type units A7J260337006 NM

Pct_Solids DUP_OF:

90.9

units
Pct_Solids
DUP_OF:

MG/KG 86.0

Pct_Solids DUP_OF: MG/KG 88.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.018	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	. U	

Parameter	Result	Val Qual	Qual Code			
MERCURY	0.019	Ų				

00885

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-475-0203 10/25/2007

nsample samp_date SB-475-0304 10/25/2007 nsample samp_date SB-475-0506 10/25/2007

lab_id

A7J260337007 NM lab_id qc_type A7J260337008

lab_id qc_type A7J260337009 NM

qc_type
units
Pct_Solids

MG/KG 87.0 units
Pct_Solids

DUP_OF:

NM MG/KG 82.0

units
Pct_Solids
DUP_OF:

MG/KG 81.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	Ü	

Parameter	Result	Val Qual	Qual Code	
MERCURY	0.02	U		

00885

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

lab_id

units

qc_type

SB-475-0708

10/25/2007

A7J260337010

NM MG/KG 83.0

Pct_Solids DUP_OF:

nsample

SB-476-0102 samp_date lab_id

qc_type units Pct_Solids

DUP_OF:

10/25/2007 A7J260337011 NM

MG/KG 88.0

nsample

samp_date lab_id qc_type

units Pct_Solids

DUP_OF:

SB-476-0203 10/25/2007 A7J260337012

NM

MG/KG 86.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U'	

00885

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-476-0304 10/25/2007

nsample samp_date SB-476-0506 10/25/2007

nsample samp_date SB-476-0708 10/25/2007

lab_id qc_type A7J260337013 NM lab_id qc_type A7J260337014 NM lab_id qc_type A7J260337015 NM

units
Pct_Solids

MG/KG 80.0

units
Pct_Solids
DUP_OF:

MG/KG 83.0

units
Pct_Solids
DUP_OF:

MG/KG 84.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY ·	0.021	Ü	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

00885 SDG: 7J26337 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-477-0102 10/25/2007

nsample samp_date lab_id

SB-477-0203 10/25/2007

nsample samp_date lab_id

SB-477-0304 10/25/2007 A7J260337018

lab_id qc_type units

A7J260337016 NM MG/KG

qc_type units

A7J260337017 NM MG/KG

78.0

qc_type units Pct_Solids NM MG/KG 80.0

Pct_Solids DUP_OF:

89.0

Pct_Solids DUP_OF:

Parameter	Resu	Val t Qual	Qual Code
MERCURY	0.01	e u	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.021	U	

		Val	Qual
Parameter	Result	Qual	Code
MERCURY	0.021	U	

SDG: 7J26337 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-477-0506

10/25/2007

lab_id

A7J260337019

qc_type units

NM MG/KG

85.0

Pct_Solids DUP_OF:

77-0506

nsample samp_date

SB-477-0708 10/25/2007

lab_id

A7J260337020

qc_type units NM

Pct_Solids

MG/KG 85.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Client Sample ID: SB-474-0102

GC/MS Semivolatiles

Lot-Sample #: A7J260337-00 Date Sampled: 10/24/07 10: Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1		: 10/26/07	Matr	ix: SO
% Moisture: 15	Method	: SW846 8270)C .	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	24 J	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	63	(24 - 112)		
2-Fluorobiphenyl	60	(34 - 110)		
Terphenyl-d14	86	(41 - 119)		
Phenol-d5	58	(28 - 110)		
2-Fluorophenol	61	(26 - 110)		
2,4,6-Tribromophenol	56	(10 - 118)		
NOTE(S):				

 $[\]label{eq:J-stimated} \textbf{J} \quad \text{Estimated result. Result is less than RL}.$

Client Sample ID: SB-474-0203

GC/MS Semivolatiles

Lot-Sample #: A7J260337-0 Date Sampled: 10/24/07 10 Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1		1: 10/26/07	Matr	ix S0
% Moisture: 14	Method	: SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	31 J	380	ug/kg	1.5
	P	5566115511		
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	70	(24 - 112)		
2-Fluorobiphenyl	64	(34 - 110)		
Terphenyl-d14	92	(41 - 119)		
Phenol-d5	63	(28 - 110)		
2-Fluorophenol	63	(26 - 110)		
2,4,6-Tribromophenol	55	(10 - 118)		
NOTE (S):				

J Estimated result. Result is less than RL.

Client Sample ID: SB-474-0304

GC/MS Semivolatiles

Lot-Sample #: A7J260337-00 Date Sampled: 10/24/07 10: Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1		: 10/26/07	Matr	ix: SO
% Moisture: 22	Method	: SW846 8270	C -	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	490	430	ug/kg	1.7
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		•
Nitrobenzene-d5	68	(24 - 112)		
2-Fluorobiphenyl	65	(34 - 110)		
Terphenyl-d14	72	(41 - 119)		
Phenol-d5	68	(28 - 110)		
2-Fluorophenol	63	(26 - 110)		
2,4,6-Tribromophenol	52	(10 - 118)		

NOTE (S):

Client Sample ID: SB-474-0506

GC/MS Semivolatiles

		11/01/07		
Dilution Factor: 1 % Moisture: 9.1	Method	CM846 8270	-	
o HOISCUIE 9.1	riechod	5W040 02700		
		REPORTING	•	
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	57	(24 - 112)		
2-Fluorobiphenyl	55	(34 - 110)		
Terphenyl-d14	76	(41 - 119)		
Phenol-d5	58	(28 - 110)		
2-Fluorophenol	56	(26 - 110)		
-	53	(10 - 118)		

Results and reporting limits have been adjusted for dry weight.

NOTE(S):

Client Sample ID: SB-474-0708

GC/MS Semivolatiles

Lot-Sample #: A7J260337-005 Date Sampled: 10/24/07 10:3 Prep Date: 10/29/07 Prep Batch #: 7302362		10/26/07	Matr	ix So)
Dilution Factor: 1					
% Moisture: 14	Method:	SW846 8270)C	•	
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	380	ug/kg	1.5	
	DEDCEME	DECOVEDA			
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	59	$\frac{111113}{(24 - 112)}$	-		
2-Fluorobiphenyl	57	(34 - 110)			
Terphenyl-d14	88	(41 - 119)			
Phenol-d5	57	(28 - 110)			
2-Fluorophenol	60	(26 - 110)			
2,4,6-Tribromophenol	38	(10 - 118)			

Results and reporting limits have been adjusted for dry weight.

NOTE(S):

Client Sample ID: SB-475-0102

GC/MS Semivolatiles

Lot-Sample #: A7J260337-00 Date Sampled: 10/25/07 07: Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1		: 10/26/07	Matri	x SO
% Moisture: 12	Method	SW846 8270)C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	61	(24 - 112)		
2-Fluorobiphenyl	61	(34 - 110)		
Terphenyl-d14	91	(41 - 119)		
Phenol-d5	61	(28 - 110)		
2-Fluorophenol	60	(26 - 110)		
2,4,6-Tribromophenol	60	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-475-0203

GC/MS Semivolatiles

Lot-Sample #: A7J260337-007 Date Sampled: 10/25/07 07:57 Prep Date: 10/29/07 Prep Batch #: 7302362		10/26/07	Matri	x: SO
Dilution Factor: 1 % Moisture: 13	Method:	SW846 8270	C	
		DEDODMING		
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	73	(24 - 112)	•	
2-Fluorobiphenyl	67	(34 - 110)		
Terphenyl-d14	90	(41 - 119)		
Phenol-d5	65	(28 - 110)		
2-Fluorophenol	67	(26 - 110)		
2,4,6-Tribromophenol	43	(10 - 118)		

NOTE(S):

Client Sample ID: SB-475-0304

GC/MS Semivolatiles

Lot-Sample #: A7J260337-00 Date Sampled: 10/25/07 07: Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1		: 10/26/07	Matr	rix: SO	
% Moisture: 18	Method	: SW846 8270)C		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	400	ug/kg	1.6	_
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	67	(24 - 112)	-		
2-Fluorobiphenyl	61	(34 - 110)			
Terphenyl-d14	89	(41 - 119)			
Phenol-d5	58	(28 - 110)			
2-Fluorophenol	62	(26 - 110)			
2,4,6-Tribromophenol	37	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-475-0506

GC/MS Semivolatiles

Lot-Sample #: A7J260337-00 Date Sampled: 10/25/07 08 Prep Date: 10/29/07 Prep Batch #: 7302362		1: 10/26/07	Matr	rix: SO	
Dilution Factor: 1					
% Moisture: 19	Method	: SW846 827	OC .		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	410	ug/kg	1.6	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	48	$\frac{24 - 112}{(24 - 112)}$	- 1		
2-Fluorobiphenyl	47	(34 - 110)			
Terphenyl-d14	88	(41 - 119)			
Phenol-d5	49	(28 - 110)	•		
2-Fluorophenol	47	(26 - 110)	•		
2,4,6-Tribromophenol	36	(10 - 118)	•		

NOTE(S):

Client Sample ID: SB-475-0708

GC/MS Semivolatiles

<pre>Date Sampled: Prep Date: Prep Batch #:</pre>	10/25/07 08:03 10/29/07 7302362	Work Order #: Date Received: Analysis Date:	10/26/07	Matrix	so :
Dilution Factor: % Moisture:		Method:	SW846 8270	C	
PARAMETER		RESULT	REPORTING LIMIT	UNITS	MDL .
Benzo(a)pyrene		ND	400	ug/kg	1.6
SURROGATE ·		PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5		51	(24 - 112)		
2-Fluorobiphenyl		48	(34 - 110)		
Terphenyl-d14		79	(41 - 119)		
Phenol-d5		47	(28 - 110)		
2-Fluorophenol		45	(26 - 110)		
2,4,6-Tribromophe	enol	44	(10 - 118)		

Client Sample ID: SB-476-0102

GC/MS Semivolatiles

	A7J260337-011	Work Order #:	J90XL1AD	Matrix	SO
Date Sampled:	10/25/07 08:30	Date Received:	10/26/07		
Prep Date:	10/29/07	Analysis Date:	11/06/07		
Prep Batch #:	7302362				•
Dilution Factor:	1				
% Moisture:	12	Method:	SW846 8270	С	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	380	ug/kg	1.5
		PERCENT	RECOVERY		
		LUICHNI	VICOATIVI		
SURROGATE		RECOVERY	LIMITS		
SURROGATE Nitrobenzene-d5					
		RECOVERY	LIMITS		
Nitrobenzene-d5		RECOVERY 18 *	<u>LIMITS</u> (24 - 112)	·	
Nitrobenzene-d5 2-Fluorobiphenyl	•	RECOVERY 18 * 34	LIMITS (24 - 112) (34 - 110)	·	
Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	· · · · · · · · · · · · · · · · · · ·	RECOVERY 18 * 34 63	LIMITS (24 - 112) (34 - 110) (41 - 119)		

^{*} Surrogate recovery is outside stated control limits.

Client Sample ID: SB-476-0203

GC/MS Semivolatiles

Lot-Sample #: A7J260337-012 Date Sampled: 10/25/07 08:32 Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1 % Moisture: 14		10/26/07 11/06/07		: SO
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	68	(24 - 112)		
2-Fluorobiphenyl	60	(34 - 110)		
Terphenyl-d14	96	(41 - 119)		÷
Phenol-d5	66	(28 - 110)		
2-Fluorophenol	61	(26 - 110)		
2,4,6-Tribromophenol	74	(10 - 118)		
NOTE(S):				

Client Sample ID: SB-476-0304

GC/MS Semivolatiles

Lot-Sample #: A7J260337 Date Sampled: 10/25/07 Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1		: 10/26/07	Matr	ix: SO
% Moisture: 20	Method	: SW846 8270	C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	24	(24 - 112)	•	
2-Fluorobiphenyl	32 *	(34 - 110)		
Terphenyl-d14	82	(41 - 119)		
Phenol-d5	30	(28 - 110)		•
2-Fluorophenol	29	(26 - 110)		
2,4,6-Tribromophenol	53	(10 - 118)		
NOTE (S):				

^{*} Surrogate recovery is outside stated control limits.

Client Sample ID: SB-476-0506

GC/MS Semivolatiles

Lot-Sample #: A7J260 Date Sampled: 10/25/ Prep Date: 11/07/ Prep Batch #: 731131 Dilution Factor: 1	07 08:36 Date Received. 07 Analysis Date.	.: 10/26/07	Matı	rix:	: SO
% Moisture: 17	Method	.: SW846 8270	С		
		REPORTING		VD.	
PARAMETER	RESULT	_ LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	400	ug/kg	1.6	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	56	(24 - 112)			
2-Fluorobiphenyl	57	(34 - 110)			•
Terphenyl-d14	75	(41 - 119)			
Phenol-d5	57	(28 - 110)			
2-Fluorophenol	56	(26 - 110)			
2,4,6-Tribromophenol	63	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-476-0708

GC/MS Semivolatiles

Lot-Sample #: A7J260337-0 Date Sampled: 10/25/07 08 Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1		: 10/26/07	Matr	ix SO	
% Moisture: 16	Method	: SW846 8270)C		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	390	ug/kg	1.6	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	58	(24 - 112)	-		
2-Fluorobiphenyl	61	(34 - 110)			
Terphenyl-d14	87	(41 - 119)			
Phenol-d5	62	(28 - 110)			
2-Fluorophenol	54	(26 - 110)			
2,4,6-Tribromophenol	54	(10 - 118)			
NOTE (S):	·				

Client Sample ID: SB-477-0102

GC/MS Semivolatiles

Lot-Sample #: A7J260337-0. Date Sampled: 10/25/07 09 Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1		: 10/26/07	Matr	ix: SO
% Moisture: 11	Method	: SW846 8270)C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDĻ
Benzo(a)pyrene	ND	370	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	47	(24 - 112)		
2-Fluorobiphenyl	48	(34 - 110)		
Terphenyl-d14	72	(41 - 119)		
Phenol-d5	56	(28 - 110)		
2-Fluorophenol	50	(26 - 110)		
2,4,6-Tribromophenol	49	(10 - 118)		
NOTE(S):				•

Client Sample ID: SB-477-0203

GC/MS Semivolatiles

Lot-Sample #: A7J260337-0 Date Sampled: 10/25/07 09 Prep Date: 10/29/07 Prep Batch #: 7302362 Dilution Factor: 1		: 10/26/07	Matr	i x: SO
% Moisture: 22	Method	: SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.7
	•			
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	60	(24 - 112)		
2-Fluorobiphenyl	54	(34 - 110)	•	
Terphenyl-d14	77	(41 - 119)		
Phenol-d5	56	(28 - 110)		
2-Fluorophenol	57	(26 - 110)		
2,4,6-Tribromophenol	61	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-477-0304

GC/MS Semivolatiles

Lot-Sample #: A7J2603 Date Sampled: 10/25/0 Prep Date: 10/29/0 Prep Batch #: 7302362 Dilution Factor: 1	7 09:36 Date Received 7 Analysis Date	: 10/26/07	Matr	ix SO
% Moisture: 20	Method	: SW846 8270)C	
		REPORTING		•
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6
		4	•	
•	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	59	(24 - 112)		
2-Fluorobiphenyl	53	(34 - 110)		
Terphenyl-d14	86	(41 - 119)		
Phenol-d5	62	(28 - 110)		
2-Fluorophenol	56	(26 - 110)		
2,4,6-Tribromophenol	59	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-477-0506

GC/MS Semivolatiles

Lot-Sample #: A7J260337-019 Date Sampled: 10/25/07 09:38 Prep Date: 11/07/07 Prep Batch #: 7311315 Dilution Factor: 1		10/26/07	Matrix	so so
% Moisture: 15	Method:	SW846 8270	С	
		REPORTING		
PARAMETER	RESULT	<u>LIMIT</u>	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
		•		
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		•
Nitrobenzene-d5	29	(24 - 112)		
2-Fluorobiphenyl	34	(34 - 110)		
Terphenyl-d14	66	(41 - 119)		
Phenol-d5	33	(28 - 110)		
2-Fluorophenol	28	(26 - 110)		
2,4,6-Tribromophenol	51	(10 - 118)		

Results and reporting limits have been adjusted for dry weight.

NOTE(S):

Client Sample ID: SB-477-0708

GC/MS Semivolatiles

0/25/07 09:40	Date Received:	10/26/07		
		10/20/07		
1/06/07	Analysis Date:	11/07/07		
310037				
5	Method:	SW846 8270	С	
		REPORTING		
	RESULT	LIMIT	UNITS	MDL
	ND	390	ug/kg	1.5
•	PERCENT	RECOVERY		
	RECOVERY	LIMITS		
	70	(24 - 112)		
	73	(34 - 110)		
	92	(41 - 119)		
	74	(28 - 110)		
	76	(26 - 110)		
ol	75	(10 - 118)		
	310037	310037 Method: RESULT ND PERCENT RECOVERY 70 73 92 74 76	310037 Method: SW846 8270 RESULT LIMIT ND 390 PERCENT RECOVERY RECOVERY LIMITS 70 (24 - 112) 73 (34 - 110) 92 (41 - 119) 74 (28 - 110) 76 (26 - 110)	310037 Method: SW846 8270C REPORTING LIMIT UNITS 390 ug/kg

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90W8 Client ID:

SB-474-0102

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/29/2007

Prep Batch: 7302035

Weight:

0.60

Volume:

100

Percent Moisture:

14.911

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	11:20

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90W9

Client ID:

SB-474-0203

Matrix: Soil

Units:

mg/kg

Prep Date: 10/29/2007

Prep Batch:

7302035

Weight: 0.60

Volume:

100

Percent Moisture:

13.993

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.025	В	1	CVAA	10/31/2007	11:23

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90XA

Client ID:

SB-474-0304

Matrix:

Soil

Units: mg/kg

Prep Date: 10/29/2007

Prep Batch: 7302035

Weight:

0.60

Volume: 100

Percent Moisture:

22.361

Element	WL/ Mass	IDL	Report Limit	Conc	O_	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.13	0.095	В	1	CVAA	10/31/2007	11:31

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90XC

Client ID:

SB-474-0506

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/29/2007

Prep Batch: 7302035

Weight: 0.60

Volume:

100

Percent Moisture:

9.134

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.018	0.11	0.018	U	1	CVAA	10/31/2007	11:32

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

Client ID:

SB-474-0708

Matrix: Soil

Units:

mg/kg

Prep Date: 10/29/2007

Prep Batch: 7302035

Weight:

0.60

Volume:

100

J90XD

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	11:34

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90XE

Client ID:

SB-475-0102

Matrix: Soil

mg/kg **Units:**

Prep Date: 10/29/2007

Prep Batch: 7302035

Weight:

 0.60°

Volume:

100

Percent Moisture:

11.626

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	11:37

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90XF Client ID:

SB-475-0203

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/29/2007

Prep Batch: 7302035

Weight:

0.60

Volume:

100

Percent Moisture: 12.95

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	11:38

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90XG

Client ID:

SB-475-0304

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/29/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture: 18.229

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	11:39

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90XH

Client ID:

SB-475-0506

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/29/2007

7302035

Weight:

0.60

100 Volume:

Percent Moisture:

18.641

Prep Batch:

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	11:40

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90XK

Client ID:

SB-475-0708

Matrix: Soil

Units:

mg/kg

Prep Date: <u>10/29/2007</u>

Prep Batch: 7302035

Weight: 0.60

Volume:

100

Percent Moisture: 16.666

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	11:41

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90XL

Client ID:

SB-476-0102

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/29/2007

Prep Batch: 7302035

Weight: 0.60

Volume:

100

Percent Moisture: 12.307

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	11:43

Result is less than the IDL U

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90XM Client ID:

SB-476-0203

Matrix: Soil

Units: mg/kg

Prep Date: 10/29/2007

Prep Batch:_

Weight: 0.60

Volume:

100

Percent Moisture:

14.219

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	11:44

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90XP

Client ID:

SB-476-0304

Matrix:

Soil

Units:

mg/kg Prep I

Prep Date: 10/29/2007

Prep Batch:

7302035

Weight: 0.60

0.60

Volume:

100

Percent Moisture:

20.109

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.13	0.021	U-	1	CVAA	10/31/2007	11:45

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90XT

Client ID:

SB-476-0506

Matrix:

Soil

Units: mg/kg

Prep Date: 10/29/2007

Prep Batch: 7302035

Weight: 0.60

Volume:

100

Percent Moisture:

16.721

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	11:47

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90XV Client ID:

SB-476-0708

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/29/2007

Prep Batch: 7302035

Weight:

0.60

Volume:

100

Percent Moisture:

16.379

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	11:48

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90XX Client ID:

SB-477-0102

Matrix:

Soil

Units: mg/kg

Prep Date: _10/29/2007

Prep Batch: 7302035

Weight:

0.60

Volume:

100

Percent Moisture:

11.419

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	11:51

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90X1

Client ID:

SB-477-0203

Matrix: Soil

Units: mg/kg

Prep Date: 10/29/2007

Prep Batch:_

Weight: 0.60

100 Volume:

Percent Moisture:

Element	WL/ Mass	_ IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.13	0.021	U	1	CVAA	10/31/2007	11:24

Form 1 Equivalent

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J90X3

Client ID:

SB-477-0304

Matrix: Soil

Units: mg/kg **Prep Date:** 10/29/2007

Prep Batch:

Weight: 0.60

Volume:

100

Percent Moisture:

20.229

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.13	0.021	U	1	CVAA	10/31/2007	11:26

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90X5

Client ID:

SB-477-0506

Matrix:

Soil

mg/kg Units:

Prep Date: 10/29/2007

Prep Batch:__

Weight: 0.60

Volume:

100

Percent Moisture:

15.361

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	11:27

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J90X6

Client ID:

SB-477-0708

Matrix:

Soil

Units: mg/kg

Prep Date: __10/29/2007

Prep Batch: 7302035

Weight:

0.60

Volume:

100

Percent Moisture:

15.08

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	11:28

E Serial dilution percent difference not within limits

U Result is less than the IDL

APPENDIX C SUPPORT DOCUMENTATION

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J26337

Matrix Spike ID: SB-477-0708

Lot #: A7J260337

WO #: J90X61AQ BATCH: 7310037

	SPIKE ADDED	SAMPLE CONCENT.	MS CONCENT.	MS %	LIMITS	<u></u>
COMPOUND	(ug/kg)	(ug/kg)	(ug/kg)	REC	REC	QUAL
=======================================	=======	=======	=======	=====	========	========
1,2,4-Trichlorobenzene	780	ND	350	45	33- 110	Í
Acenaphthene	780	ND	370	47	10- 200	
2,4-Dinitrotoluene	780	ND	420	54	42- 118	
Pyrene	780	ND	420	53	10- 200	
N-Nitrosodi-n-propylamine	780	ND	370	47	30- 121	
1,4-Dichlorobenzene	780	ND	300	39	26- 110	
Pentachlorophenol	780	ND	330	42	10- 182	·
Phenol	780	ND	370	47	10- 144	
2-Chlorophenol	780	ND	360	46	32- 110	
4-Chloro-3-methylphenol	780	ND	380	48	32 - 117	
4-Nitrophenol	780	ND	320	41	10- 125	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

#	Column	to	be	used	to	flag	recovery	and	\mathtt{RPD}	values	with	an	asterisk
---	--------	----	----	------	----	------	----------	-----	----------------	--------	------	----	----------

RPD: 0 out of 0 outside limits Spike Recovery: 0 out of 11 outside limits

COMMENTS:

^{*} Values outside of QC limits

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J26337

Matrix Spike ID: SB-477-0708

Lot #: A7J260337

WO #: J90X61AR BATCH: 7310037

	SPIKE	MSD	MSD				
	ADDED	CONCENT.	%	왕	QC 1	LIMITS	
COMPOUND	(ug/kg)	(ug/kg)	REC	RPD	RPD	REC	QUAL
_======================================	=========	========	=====	======	: ====	=======	=========
1,2,4-Trichlorobenzene	780	270	34	27	30	33- 110	l
Acenaphthene	780	260	33_	34 *	30	10- 200	p
2,4-Dinitrotoluene	780	300	38*	34 *	30	42- 118	ар
Pyrene	780	280	35	41 *	30	10- 200	p
N-Nitrosodi-n-propylamine	780	270	34	32 *	30	30- 121	p
1,4-Dichlorobenzene	780	240	31	23	30	26- 110	
Pentachlorophenol	780	210	26_	45 *	30	10- 182	p
Phenol	780	260	33	34 *	30	10- 144	р
2-Chlorophenol	780	260	33	32 *	30	32- 110	p
4-Chloro-3-methylphenol	780	270	34	34 *	30	32- 117	p q
4-Nitrophenol	780	200	25	48 *	30	10- 125	р

NOTES (S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 9 out of 11 outside limits
Spike Recovery: 1 out of 11 outside limits

COMMENTS	:
----------	---

p Relative percent difference (RPD) is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J26337

Matrix Spike ID: LAB MS/MSD

Level: (low/med) LOW

Lot #: A7K070148

WO #: KANG01AD BATCH: 7311315

	SPIKE	SAMPLE	MS	MS	****	
	ADDED	CONCENT.	CONCENT.	용	LIMITS	
COMPOUND	(ug/kg)	(ug/kg)	(ug/kg)	REC	REC	QÜAL
=======================================	========	=======	=======	=====	========	=======
1,2,4-Trichlorobenzene	1300	ND		47	33- 110	DIL
Acenaphthene	1300	1300	1400	9*	10- 200	DIL a
2,4-Dinitrotoluene	1300	ND		52	42- 118	DIL
Pyrene	1300	31000	9900	0*	10- 200	DIL a
N-Nitrosodi-n-propylamine	1300	ND		50	30- 121	DIL
1,4-Dichlorobenzene	1300	ND		48	26- 110	DIL
Pentachlorophenol	1300	ND		180	10- 182	DIL
Phenol	1300	ND		46	10- 144	DIL
2-Chlorophenol	1300	ND		44	32- 110	DIL
4-Chloro-3-methylphenol	1300	ND		43	32 - 117	DIL
4-Nitrophenol	1300	ND		100	10- 125	DIL

NOTES (S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes. Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk * Values outside of QC limits

RPD: ___0 out of ___0 outside limits

Spike Recovery: ___2 out of ___11 outside limits

COMMENTS:

a Spiked analyte recovery is outside stated control limits.

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J26337

Matrix Spike ID: LAB MS/MSD

Level: (low/med) LOW

Lot #: A7K070148

WO #: KANG01AE BATCH: 7311315

	SPIKE	MSD	MSD				[
	ADDED	CONCENT.	ક	8	QC I	LIMITS	
COMPOUND	(ug/kg)	(ug/kg)	REC	RPD	RPD	REC	QUAL
======================================			=====	======	= ====	========	========
1,2,4-Trichlorobenzene	1300		46	1.5	30	33- 110	DIL
Acenaphthene	1300	1100	0*	0.0	30	10- 200	DIL a
2,4-Dinitrotoluene	1300		41*	24	30	42- 118	DIL a `
Pyrene	1300	5200	0*	0.0	30	10- 200	DIL a
N-Nitrosodi-n-propylamine	1300		58	13	30	30- 121	DIL
1,4-Dichlorobenzene	1300		49	2.5]30	26- 110	DIL
Pentachlorophenol	1300	0.0	0*	200	30	10- 182	DILap
Phenol	1300	·	54	15	30	10- 144	DIL
2-Chlorophenol	1300		<u>51</u>	16	30	32- 110	DIL
4-Chloro-3-methylphenol	1300		53	22	30	32- 117	DIL
4-Nitrophenol	1300	0.0	0*	200 *	30	10- 125	DILap

NOTES(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

- a Spiked analyte recovery is outside stated control limits.
- p Relative percent difference (RPD) is outside stated control limits.
- # Column to be used to flag recovery and RPD values with an asterisk
- * Values outside of QC limits

RPD: 2 out of 11 outside limits

Spike Recovery: ___5 out of __11 outside limits

COMMENTS:

CALCULATION WORKSHEET

Page 1 of 1

CLIENT:	SDG No.							
LOCKHEED MIDDLE RIVER	7J26337							
SUBJECT:	•							
EXAMPLE CALCULATION - BENZO(A)PYRENE - SOIL								
BY:	DATE:							

Sample ID = SB-474-0304 Benzo(a)pyrene Concentration = 490 ug/kg

EQUATION:

$$C_{s} = \frac{A_{x} \times ls \times Vt \times Df}{Als \times RRF \times V_{j} \times W_{s} \times D}$$

Where:

=	analyte concentration in soil		ug/kg
=	analyte response	=	952966
=	amount of internal standard	=	2 ng
=	volume of final extract	=	2000 uL
=	dilution factor	=	1
=	response of internal standard	=	621956
=	response factor of compound	=	1.06509
=	volume injected	=	0.5 uL
=	sample weight	=	30.1 g
=	percent solids	=	0.78
	= = = = = = = = = = = = = = = = = = = =	= amount of internal standard = volume of final extract = dilution factor = response of internal standard = response factor of compound = volume injected = sample weight	= analyte response = amount of internal standard = volume of final extract = dilution factor = response of internal standard = response factor of compound = volume injected = sample weight =

Therefore: benzo(a)pyrene concentration in soil =

952966 x 2ng x 2000uL x 1 621956 x 1.06509 x 0.5uL x 30.1g x 0.78

C_s = 490.2 ug/kg

Client Sample ID: SB-474-0304

GC/MS Semivolatiles

Lot-Sample #: A7J260337-003 Date Sampled: 10/24/07 10:34 Prep Date: 10/29/07 Prep Batch #: 7302362		10/26/07	Matrix SO
Dilution Factor: 1	Initial Wgt/Vol	30.1 g	Final Wgt/Vol.: 2 mJ
% Moisture22	Method	SW846 8270	c
		REPORTING	
PARAMETER	R ESU ĻT	LIMIT	UNITS
Benzo(a)pyrene	490	430	ug/kg
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
Nitrobenzene-d5	68	(24 - 112)	
2-Fluorobiphenyl	65	(34 - 110)	

(41 - 119)

(28 - 110)

(26 - 110)

(10 - 118)

72

68

63

52

NOTE(S):

Phenol-d5

Terphenyl-d14

2-Fluorophenol

2,4,6-Tribromophenol

Data File: \\cansvr11\\dd\chem\MSS\a4hp8.i\\71101a.b\\J90XA1AD.D Page 1

Report Date: 05-Nov-2007 16:22

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4hp8.i\71101a.b\J90XA1AD.D

Lab Smp Id: j90xa1ad
Inj Date : 01-NOV-2007 21:40 Client Smp ID: SB-474-0304

Operator : 001710 Inst ID: a4hp8.i

Smp Info : j90xa1ad,71101a.b,8270p,bap.sub

Misc Info :

Comment

: \\cansvr11\dd\chem\MSS\a4hp8.i\71101a.b\8270P.m Method Meth Date: 05-Nov-2007 16:20 gruberj Quant Type: ISTD Cal File: 8SMH1031.D

Cal Date: 31-OCT-2007 18:33
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE

Compound Sublist: bap.sub

Target Version: 4.14

Processing Host: CANPMSSV01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws *) * CpndVariable

Name	Value	Description
DF Uf Vt Vi Ws Cpnd Variable		Dilution Factor ng unit correction factor Volume of final extract (uL)(1000 low, 2 Volume injected (uL) Weight of sample extracted (g) Local Compound Variable

						CONCENTRATIONS	
	QUANT SIG					ON-COLUMN	FINAL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(NG)	(ug/kg)
	====	====			=======================================	======	======
* 1 1,4-Dichlorobenzene-d4	152	3.495	3.494	(1.000)	126162	2.00000	(Q)
* 2 Naphthalene-d8	136	4.389	4.389	(1.000)	549070	2.00000	
* 3 Acenaphthene-d10	164	5.659	5.658	(1.000)	318893	2.00000	
* 4 Phenanthrene-d10	188	6.746	6.745	(1.000)	609661	2.00000	
* 5 Chrysene-d12	240	8.732	8.736	(1.000)	736875	2.00000	
* 6 Perylene-d12	264	10.199	10.183	(1.000)	621956	2.00000	
146 Benzo(a)pyrene	252	10.131	10.121	(0.993)	952966	2.87715	382.34
\$ 154 Nitrobenzene-d5	82	3.870	3.874	(0.882)	414456	3.38633	450.01
\$ 155 2-Fluorobiphenyl	172	5.149	5.148	(0.910)	686318	3.27045	434.61
\$ 156 Terphenyl-d14	244	7.895	7.899	(0.904)	1025170	3.58893	476.93
\$ 157 Pheno1-d5	99	3.207	3.201	(0.917)	5.63507	5.07695	674.68
\$ 158 2-Fluorophenol	112	2.634	2.624	(0.754)	361377	4.69882	624.43
\$ 159 2,4,6-Tribromophenol	330	6.231	6.230	(1.101)	90697	3.92175	521.16
\$ 186 2-Chlorophenol-d4	132	3.341	3.340	(0.956)	369182	4.78497	635.88
\$ 187 1,2-Dichlorobenzene-d4	152	3.606	3.605	(1.032)	143048	2.74062	364.20

QC Flag Legend

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 31-OCT-2007 15:58 End Cal Date : 31-OCT-2007 18:33

: ISTD Quant Method : Disabled Origin Target Version : 4.14 Integrator : HP RTE

: \\cansvrl1\dd\chem\MSS\a4hp8.i\71031a.b\8270P.m : 01-Nov-2007 08:44 gruberj Method file

Last Edit

Curve Type : Average

									_
	0.05000	0.25000	0.50000	1.000	2.500	5.000	<u> </u>		I
Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	RRF	% RSD	1
	7.500	10.000	12.500		 		! [i İ	i
	Level 7	Level 8	Level 9	Ì	ĺ	ļ	Ī		١
		=======		=======		=======		=======	۱
144 Hexachlorophene	+++++	+++++ +++++	+++++ +++++	+++++ 	+++++ 	+++++ 	++++	 +++++	1
		++++++ 		 	 			 	
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++	[1	-
	+++++	+++++	+++++	<u> </u>			+++++	++++	1
146 Benzo (a) pyrene	1.00609	0.85680	0.92839	1.01385	1.07984	1.14780			ı
Tio Bonso (a) Practice	1.21126	1.27667	<u>'</u>		i İ	į	1.06509) 13.342	:
								<u> </u>	۱
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++ 	1 +++++	+++++	++++	 +++++	
	+++++	+++++ 	+++++ 	 	 	 			ا .
149 Indeno(1,2,3-cd)pyrene	1.05215	0.94193	1.02882	1.10916	1.16710	1.23713	I		j
	1.28978	1.35821	,				1.18659	14.808	:
150 Dibenz (a,h) anthracene	0.91651	 0.79502	0.83997	 0.94796	0.97157	1.06074	 		1
150 Dibenz (a, ii) antiniacene	1.12563		<u>'</u>	•	0.5725.	2.000.1	1.01942	16.918	,
									۱ -
151 Benzo(g,h,i)perylene	1.06388	•	•	,	0.96347	0.98910	 0.99679	 10.714	ا
	1.03120	1.08506	1.18240 	 	 	 		10.714	; .
232 Bis(2-hydroxyphenyl)methane	+++++	, +++++	+++++	++++	+++++] +++++	i İ	i I	j
	+++++	+++++	++++	<u> </u>	1	!	+++++	+++++	
222 Dis (4 hydroughbour) mothers	1	 +++++	 +++++	 +++++	+++++	+++++	[]		·
233 Bis(4-hydroxyphenyl)methane	1 +++++	1 +++++	+++++	++++ <i>+</i> 	+++++	1	 +++++	+++++	1
					, 			 	.
234 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
·	1	+++++	+++++ 	 1	l !	i 1	+++++ 	+++++	I .
235 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	++++			
•	++++	, ++++	++++	1 .	1	l	++++	+++++	Ì
									۱.
	.	l	1	l	l	l	I	l	ا۔



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

M. MARTIN

DATE:

JANUARY 10, 2008

FROM:

ROBERT JUPIN

COPIES:

DV FILE

SUBJECT:

ORGANIC DATA VALIDATION - BENZO(a)PYRENE

LOCKHEED MIDDLE RIVER COMPLEX

SAMPLE DELIVERY GROUP (SDG): 7J30180

SAMPLES:

20/Soil/

SB-478-0102	SB-478-0203	SB-478-0304	SB-478-0506	SB-478-0708
SB-479-0102	SB-479-0203	SB-479-0304	SB-479-0506	SB-479-0708
SB-480-0102	SB-480-0203	SB-480-0304	SB-480-0506	SB-480-0708
SB-481-0102	SB-481-0203	SB-481-0304	SB-481-0506	SB-481-0708

Overview

The sample set for SDG 7J30180, Lockheed MRC, consists of twenty (20) soil environmental samples.

All soil samples were analyzed for benzo(a)pyrene. The samples were collected by TetraTech NUS on October 25 and 29, 2007 and analyzed by Test America Laboratories, Inc. Analyses were conducted using SW-846 Method 8270C.

The findings in this report are based upon a general review of all available data including: data completeness, GC/MS tuning, holding times, initial/continuing calibrations, laboratory method/preparation and field quality control blank results, surrogate spike/internal standard recoveries, laboratory control sample (LCS)/blank spike results, matrix spike/matrix spike duplicate results, analyte quantitation, and detection limits,. Areas of concern are listed below.

Major Problems

None.

Minor Problems

- Positive results reported below the detection limit have been qualified as estimated, "J".
- The internal standard area for perylene-d12 was below acceptance limits for sample SB-478-0102. The nondetected result for benzo(a)pyrene was qualified as estimated "UJ".

<u>Notes</u>

The matrix spike sample was not spiked for benzo(a)pyrene therefore, no evaluation of the matrix spike could be performed. All surrogate recoveries were compliant. No action was taken.

Executive Summary

Laboratory Performance Issues: The internal standard perylene-d12 was low in sample SB-478-0102.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (9/94) as modified by Region III.

Tetra Tech NUS Robert J. Jupin

Risk Assessment Specialist/Environmental Scientist

Tetra Tech NUS Joseph A. Samchuck

Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Support Documentation

Data Qualifier Key:

- U Value is a nondetect as reported by the laboratory.
- UJ Nondetected result is considered estimated, "UJ", as a result of technical noncompliances.
- J Positive result is considered estimated, "J", as a result of technical noncompliances.

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

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 be any number of issues; e.g. poor 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

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

SB-478-0102 10/25/2007 nsample samp_date lab_id SB-478-0203 10/25/2007 A7J300180002 nsample samp_date lab_id SB-478-0304 10/25/2007 A7J300180003

lab_id qc_type units A7J300180001 NM UG/KG

90.3

qc_type units

Pct_Solids

DUP_OF:

NM UG/KG 88.0 qc_type
units
Pct_Solids
DUP_OF:

NM UG/KG 85.0

Pct_Solids DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.4	UJ	N

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id

SB-478-0506

10/25/2007 A7J300180004

NM qc_type units UG/KG Pct_Solids

87.0

DUP_OF:

nsample

samp_date

lab_id qc_type units Pct_Solids 10/25/2007 A7J300180005 NM UG/KG

DUP_OF:

nsample

samp_date lab_id

A7J300180006 NM qc_type units UG/KG Pct_Solids 88.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

84.0

SB-478-0708

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	15	J	Р

SB-479-0102

10/25/2007

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date SB-479-0203 10/25/2007 nsample samp_date lab_id

DUP_OF:

SB-479-0304 10/25/2007 A7J300180008 nsample samp_date lab_id SB-479-0506 10/25/2007 A7J300180009

lab_id qc_type units Pct_Solids A7J300180007 NM UG/KG 86.0

qc_type units Pct_Solids

NM UG/KG 84.0 qc_type
units
Pct_Solids
DUP_OF:

NM UG/KG 85.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date SB-479-0708 10/25/2007 A7J300180010 nsample samp_date lab_id SB-480-0102 10/25/2007 A7J300180011

NM

89.0

UG/KG

nsample samp_date lab_id qc_type SB-480-0203 10/25/2007 A7J300180012 NM

lab_id qc_type units Pct_Solids

NM UG/KG 86.0

qc_type
units
Pct_Solids
DUP_OF:

qc_type
units
Pct_Solids
DUP_OF:

UG/KG 89.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id SB-480-0304 10/25/2007 A7J300180013

qc_type NM
units UG/KG
Pct_Solids 88.0
DUP_OF:

nsample samp_date lab_id qc_type units Pct_Solids

DUP_OF:

SB-480-0506 10/25/2007 A7J300180014 NM

NM UG/KG 84.0 nsample samp_date lab_id qc_type units SB-480-0708 10/25/2007 A7J300180015 NM

NM UG/KG 86.0

Pct_Solids DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

lab_id

units

qc_type

Pct_Solids

DUP_OF:

SB-481-0102

10/29/2007 A7J300180016

NM UG/KG 85.0

nsample samp_date lab_id

qc_type units

Pct_Solids DUP_OF:

SB-481-0203

10/29/2007 A7J300180017

NM. UG/KG 86.0

nsample samp_date lab_id qc_type

10/29/2007 A7J300180018

SB-481-0304

NM UG/KG 84.0

Pct_Solids DUP_OF:

units

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	31	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	10	J	Р

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: OS

nsample

SB-481-0506

/0007

nsample samp_date SB-481-0708 10/29/2007

samp_date 10/29/2007 lab_id A7J300180019

lab_id qc_type A7J300180020

qc_type NM units UG/KG Pct_Solids 82.0

units
Pct_Solids

NM UG/KG 83.0

it_Solius 62

DUP_OF:

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

APPENDIX B RESULTS AS REPORTED BY THE LABORATORY

Client Sample ID: SB-478-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300180- Date Sampled: 10/25/07 1 Prep Date: 10/30/07 Prep Batch #: 7303328 Dilution Factor: 1		: 10/30/07	Matri	x: SO
% Moisture: 9.7	Method	: SW846 8270	C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	61	(24 - 112)		
2-Fluorobiphenyl	62	(34 - 110)		
Terphenyl-d14	90	(41 - 119)		
Phenol-d5	64	(28 - 110)		•
2-Fluorophenol	62	(26 - 110)		
2,4,6-Tribromophenol	70	(10 - 118)		
NOTE (S):	·			

Client Sample ID: SB-478-0203

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date:	10/25/07 10:47	Work Order #: Date Received: Analysis Date:	10/30/07	Matrix	: SO
Prep Batch #:	7303328				
Dilution Factor:	1				
% Moisture:	12	Method:	SW846 8270	C	•
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	•	ND	380	ug/kg	1.5
SURROGATE	· · · · · · · · · · · · · · · · · · ·	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5		65	(24 - 112)		
2-Fluorobiphenyl		62	(34 - 110)	•	•
Terphenyl-d14		89	(41 - 119)		
Phenol-d5		64	(28 - 110)		
2-Fluorophenol		62	(26 - 110)		
2,4,6-Tribromophe	enol	68	(10 - 118)		
NOTE (S):					

Client Sample ID: SB-478-0304

GC/MS Semivolatiles

Lot-Sample #: A7J300180-0 Date Sampled: 10/25/07 10 Prep Date: 10/30/07 Prep Batch #: 7303328 Dilution Factor: 1		10/30/07	Matri	ix: SO
% Moisture: 15	Method:	SW846 8270	OC .	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	65	(24 - 112)		
2-Fluorobiphenyl	63	(34 - 110)		
Terphenyl-d14	86	(41 - 119)		
Phenol-d5	66	(28 - 110)		
2-Fluorophenol	61	(26 - 110)		
2,4,6-Tribromophenol	71	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-478-0506

GC/MS Semivolatiles

Lot-Sample #: A Date Sampled: 1 Prep Date: 1 Prep Batch #: 7	10/25/07 10:51 10/30/07 7303328	Work Order #: Date Received: Analysis Date:	10/30/07	Matrix	:	SO
Dilution Factor: 1 % Moisture: 1	•	Method	SW846 82700	7		
· Holder of the last			5.1010 0270			
			REPORTING			
PARAMETER	•	RESULT	LIMIT	UNITS	MDL	*
Benzo(a)pyrene		ND	380	ug/kg	1.5	
		PERCENT	RECOVERY			
SURROGATE		RECOVERY	LIMITS			
Nitrobenzene-d5		59	(24 - 112)			
2-Fluorobiphenyl		53	(34 - 110)			
Terphenyl-d14		83	(41 - 119)			
Phenol-d5		60	(28 - 110)			
2-Fluorophenol	* - 1	59	(26 - 110)			
2,4,6-Tribromophen	nol	63	(10 - 118)			,
NOTE (S):						

Client Sample ID: SB-478-0708

GC/MS Semivolatiles

Lot-Sample #: A7J300180-005 Date Sampled: 10/25/07 10:53 Prep Date: 10/30/07 Prep Batch #: 7303328 Dilution Factor: 1 % Moisture: 16		10/30/07 11/08/07		: SO
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	51	(24 - 112)		
2-Fluorobiphenyl	49	(34 - 110)		
Terphenyl-d14	70	(41 - 119)		
Phenol-d5	48	(28 - 110)		
2-Fluorophenol	45	(26 - 110)		
2,4,6-Tribromophenol	38	(10 - 118)		
NOTE(S):				

Client Sample ID: SB-479-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300180-0 Date Sampled: 10/25/07 11 Prep Date: 10/30/07 Prep Batch #: 7303328 Dilution Factor: 1		.: 10/30/07	Matr	Fix SO
% Moisture: 12	Method	.: SW846 8270	C	
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo (a) pyrene	15 J	380	ug/kg	1.5
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	53	(24 - 112)		
2-Fluorobiphenyl	55	(34 - 110)		
Terphenyl-d14	82	(41 - 119)		
Phenol-d5	58	(28 - 110)		
2-Fluorophenol	54	(26 - 110)		
2,4,6-Tribromophenol	66	(10 - 118)		
NOTE (S):				

J Estimated result. Result is less than RL.

Client Sample ID: SB-479-0203

GC/MS Semivolatiles

Lot-Sample #: A7J300180-007 Date Sampled: 10/25/07 11:2 Prep Date: 10/30/07 Prep Batch #: 7303328 Dilution Factor: 1		10/30/07	Mat	rix SO
% Moisture: 14	Method:	SW846 8270	С	
		REPORTING		· .
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	71	(24 - 112)		
2-Fluorobiphenyl	64	(34 - 110)		
Terphenyl-d14	84	(41 - 11 [.] 9)		
Phenol-d5	63	(28 - 110)		
2-Fluorophenol	63	(26 - 110)		
	71	(10 - 118)		

Client Sample ID: SB-479-0304

GC/MS Semivolatiles

Date Sampled: Prep Date: Prep Batch #:	10/25/07 11:26 10/30/07 7303328	Work Order #: Date Received: Analysis Date:	10/30/07	Matrix	so
Dilution Factor: % Moisture:		Method:	SW846 8270	С	
			REPORTING		
DADAMEMED	•	RESULT	LIMIT	UNITS	MDL
PARAMETER		ND	390	ug/kg	1.6
Benzo(a)pyrene		מע	390	ug/kg	1.0
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		64	(24 - 112)		
2-Fluorobiphenyl		59	(34 - 110)		
Terphenyl-d14		90	(41 - 119)		
Phenol-d5		64	(28 - 110)		
		60	(26 - 110)		
2-Fluorophenol		00			

Client Sample ID: SB-479-0506

GC/MS Semivolatiles

Lot-Sample #: A7J300180-00 Date Sampled: 10/25/07 11: Prep Date: 10/30/07 Prep Batch #: 7303328 Dilution Factor: 1	28 Date Received	: 10/30/07	Matri	ix:	SO
% Moisture: 15	Method	: SW846 8270)C		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	390	ug/kg	1.5	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS	_		
Nitrobenzene-d5	58	(24 - 112)			
2-Fluorobiphenyl	54	(34 - 110)			
Terphenyl-d14	81	(41 - 119)			
Phenol-d5	59	(28 - 110)			
2-Fluorophenol	57	(26 - 110)			
2,4,6-Tribromophenol	67	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-479-0708

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #: Dilution Factor:	10/25/07 11:30 10/30/07 7303328	Work Order #: Date Received: Analysis Date:	10/30/07	Matri	ix:	SO
% Moisture:		Method:	SW846 8270	C .		
			REPORTING			
PARAMETER		RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene		ND	380	ug/kg	1.5	
		PERCENT	RECOVERY		•	
SURROGATE		RECOVERY	LIMITS			
Nitrobenzene-d5		61	(24 - 112)			
2-Fluorobiphenyl		53	(34 - 110)			
Terphenyl-d14		85	(41 - 119)			
Phenol-d5		62	(28 - 110)			
		58	(26 - 110)			
2-Fluorophenol		JŲ	(= ,			

Client Sample ID: SB-480-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300180-011 Date Sampled: 10/25/07 13:5 Prep Date: 10/30/07 Prep Batch #: 7303328 Dilution Factor: 1		10/30/07	Matri	x: SO
% Moisture: 11	Method:	SW846 8270	C	
		REPORTING		•
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a) pyrene	ND	370 -	ug/kg	1.5
•	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	45	(24 - 112)		
2-Fluorobiphenyl	47	(34 - 110)		
Terphenyl-d14	86	(41 - 119)		•
Phenol-d5	50	(28 - 110)		
2-Fluorophenol	46	(26 - 110)		
2,4,6-Tribromophenol	68	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-480-0203

GC/MS Semivolatiles

	10/25/07 13:52 10/30/07	Work Order #: Date Received: Analysis Date:	10/30/07	Matrix	: SO
Dilution Factor:					
% Moisture:	11	Method:	SW846 8270	C	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a) pyrene		ND	370	ug/kg	1.5
Domes (a) Pirons				5, 5	
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		57	(24 - 112)		
2-Fluorobiphenyl		59	(34 - 110)		
Terphenyl-d14		92	(41 - 119)		
Phenol-d5		54	(28 - 110)		
2-Fluorophenol		54	(26 - 110)		
2,4,6-Tribromophe	enol	68	(10 - 118)		

Results and reporting limits have been adjusted for dry weight.

NOTE(S):

Client Sample ID: SB-480-0304

GC/MS Semivolatiles

Lot-Sample #: A7J300180-01 Date Sampled: 10/25/07 13: Prep Date: 10/31/07 Prep Batch #: 7304047 Dilution Factor: 1		10/30/07	Matr	rix: SO
% Moisture: 12	Method:	SW846 8270	C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	62	(24 - 112)	-	
2-Fluorobiphenyl	62	(34 - 110)		
Terphenyl-d14	80	(41 - 119)		
Phenol-d5	65	(28 - 110)		
2-Fluorophenol	64	(26 - 110)		
2,4,6-Tribromophenol	66	(10 - 118)		

NOTE (S):

Client Sample ID: SB-480-0506

GC/MS Semivolatiles

Lot-Sample #: A Date Sampled: 10 Prep Date: 10 Prep Batch #: 73 Dilution Factor: 1	0/25/07 13:56 0/31/07		10/30/07	Matrix		SO
% Moisture: 10	6	Method:	SW846 8270	C		
PARAMETER		RESULT	REPORTING.	UNITS	MDL	
Benzo(a)pyrene		ND	390	ug/kg	1.5	
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5		73	$\frac{2411113}{(24 - 112)}$			
2-Fluorobiphenyl		72.	(34 - 110)			
Terphenyl-d14		92	(41 - 119)			
Phenol-d5		70	(28 - 110)			
2-Fluorophenol		71	(26 - 110)			
2,4,6-Tribromopheno	ol ,	79	(10 - 118)			
NOTE (S):						

Client Sample ID: SB-480-0708

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #:	10/25/07 13:58 10/31/07		10/30/07	Matrix	: SO
Dilution Factor: % Moisture:	-	Method:	SW846 8270	C.	
o Holocale				-	
			REPORTING	•	
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	390	ug/kg	1.5
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		64	(24 - 112)		
2-Fluorobiphenyl		62	(34 - 110)		
Terphenyl-d14		82	(41 - 119)		
Phenol-d5		65	(28 - 110)		
2-Fluorophenol		65	(26 - 110)	•	
2,4,6-Tribromophe	enol	67	(10 - 118)		

Client Sample ID: SB-481-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300180-016	Work Order #:	J95P61AD	Matri	x SO
Date Sampled: 10/29/07 08:40				
Prep Date: 10/31/07	Analysis Date:			
Prep Batch #: 7304047	<u>-</u>			
Dilution Factor: 1				
% Moisture: 15	Method:	SW846 8270	C,	
		REPORTING		
PARAMETER	RESULT .	LIMIT	UNITS	MDL
Benzo(a)pyrene	31 J	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	43	(24 - 112)		
2-Fluorobiphenyl	54	(34 - 110)		
Terphenyl-d14	70	(41 - 119)		
Phenol-d5	50	(28 - 110)		
2-Fluorophenol	45	(26 - 110)		
2,4,6-Tribromophenol	61	(10 - 118)		
NOTE(S):				

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Client Sample ID: SB-481-0203

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #: Dilution Factor:	10/29/07 08:42 10/31/07 7304047		10/30/07	Matrix	: SO
% Moisture:	14	Method:	SW846 8270	C	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	380	ug/kg	1.5
SURROGATE		PERCENT RECOVERY	ŖECOVERY LIMITS		
Nitrobenzene-d5		61	(24 - 112)		
2-Fluorobiphenyl		62	(34 - 110)		
Terphenyl-d14		85	(41 - 119)		
Phenol-d5		67	(28 - 110)		
2-Fluorophenol		66	(26 - 110)		
2,4,6-Tribromopher	nol	73	(10 - 118)		

NOTE (S):

Client Sample ID: SB-481-0304

GC/MS Semivolatiles

Lot-Sample #: A7J300180-018 Date Sampled: 10/29/07 08:4 Prep Date: 10/31/07 Prep Batch #: 7304047 Dilution Factor: 1	4 Date Received: Analysis Date:	10/30/07		ix: SO
% Moisture: 16	Method	SW846 8270)C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	10 J	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Nitrobenzene-d5	66	(24 - 112)		
2-Fluorobiphenyl	65	(34 - 110)		
Terphenyl-d14	85	(41 - 119)		
Phenol-d5	72	(28 - 110)		
2-Fluorophenol	71	(26 - 110)		
2,4,6-Tribromophenol	73	(10 - 118)		

NOTE (S):

 $[\]boldsymbol{J}$ - Estimated result. Result is less than RL.

Client Sample ID: SB-481-0506

GC/MS Semivolatiles

Lot-Sample #: A7J300180-019 Date Sampled: 10/29/07 08:46 Prep Date: 10/31/07 Prep Batch #: 7304047 Dilution Factor: 1		10/30/07	Matrix	.	SO
% Moisture: 18	Method:	SW846 8270	С		
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
Benzo(a) pyrene	ND	400	ug/kg	1.6	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		·	
Nitrobenzene-d5	68	(24 - 112)			
2-Fluorobiphenyl	66	(34 - 110)			
Terphenyl-d14	86	(41 - 119)			
Phenol-d5	71	(28 - 110)			
2-Fluorophenol	71	(26 - 110)			
2,4,6-Tribromophenol	72	(10 - 118).			
NOTE(S):					

Client Sample ID: SB-481-0708

GC/MS Semivolatiles

Lot-Sample #: A				Matrix	: SO
Date Sampled: 1					
Prep Date: 1		Analysis Date:	11/01/0/		
Prep Batch #: 7					
Dilution Factor: 1					
% Moisture: 1	17	Method:	SW846 8270	C	
			REPORTING ·		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	400	ug/kg	1.6
		•			
•		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		73	(24 - 112)		
2-Fluorobiphenyl	•	71	(34 - 110)		
Terphenyl-d14		90	(41 - 119)		•
Phenol-d5		78	(28 - 110)		
2-Fluorophenol		79	(26 - 110)		
2,4,6-Tribromophen	nol	80	(10 - 118)		

NOTE(S):

APPENDIX C SUPPORT DOCUMENTATION

HOLDTIME

SDG: 7J30180

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP EXTR	EXTR_ANL	SMP ANL
HG	MG/KG	SB-480-0506	A7J300180014	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	·MG/KG	SB-478-0304	A7J300180003	NM.	10/25/2007	10/31/2007	10/31/2007	6	. 0	6
HG	MG/KG	SB-478-0506	A7J300180004	NM	10/25/2007	10/31/2007	10/31/2007	6	0 .	6
HG	MG/KG	SB-478-0708	A7J300180005	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-479-0203	A7J300180007	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-479-0506	A7J300180009	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-479-0708	A7J300180010	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-480-0102	A7J300180011	NM	10/25/2007	10/31/2007	10/31/2007	6	. 0	6
HG	MG/KG	SB-478-0203	A7J300180002	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-480-0304	A7J300180013	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-479-0102	A7J300180006	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-480-0708	A7J300180015	NM .	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-481-0102	A7J300180016	NM	10/29/2007	10/31/2007	10/31/2007	2	0 -	2
HG	MG/KG	SB-481-0203	A7J300180017	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-481-0304	A7J300180018	NM	10/29/2007	10/31/2007	10/31/2007	2	. 0	2
						10/01/2007	10/01/2007	۷	U	

Monday November 26: 2007

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR ANL	SMP ANL
HG	MG/KG	SB-481-0506	A7J300180019	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-481-0708	A7J300180020	NM	10/29/2007	10/31/2007	10/31/2007	2	0 .	2
HG	MG/KG	SB-478-0102	A7J300180001	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-480-0203	A7J300180012	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-479-0304	A7J300180008	NM	10/25/2007	10/31/2007	10/31/2007	6	. 0	6
PCS	%	SB-480-0304	A7J300180013	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-481-0506	A7J300180019	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	. %	SB-481-0708	A7J300180020	NM	10/29/2007	11/6/2007	11/8/2007	8	2	10
PCS	%	SB-481-0304	A7J300180018	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-481-0203	A7J300180017	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-481-0102	A7J300180016	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-480-0506	A7J300180014	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-478-0102	A7J300180001	NM	10/25/2007	11/6/2007	11/7/2007	12	1 .	13
PCS	%	SB-480-0203	A7J300180012	NM .	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-480-0102	A7J300180011	NM	10/25/2007	11/6/2007	11/7/2007	12	. 1	13
PCS	%	SB-478-0304	A7J300180003	NM ⁻	10/25/2007	11/6/2007	11/7/2007	, 12	1	13
PCS	%	SB-480-0708	A7J300180015	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-478-0203	A7J300180002	NM .	10/25/2007	11/6/2007	11/7/2007	12	1	13

Monday November 26, 2007

SORT	UNITS	NSAMPLE	LAD ID							• .
PCS	%		LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
103	70	SB-479-0708	A7J300180010	NM ·	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-478-0506	A7J300180004	NM	10/25/2007	11/6/2007	11/7/2007	12	1 -	13
PCS	.%	SB-478-0708	A7J300180005	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-479-0102	A7J300180006	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-479-0203	A7J300180007	NM	10/25/2007	11/6/2007	11/7/2007	12	. 1	.13
PCS	%	SB-479-0304	A7J300180008	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-479-0506	A7J300180009	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
os	%	SB-481-0708	A7J300180020	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	%	SB-479-0506	A7J300180009	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	%	SB-478-0203	A7J300180002	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS [.]	%	SB-478-0304	A7J300180003	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS ⁻	%	SB-478-0506	A7J300180004	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	% .	SB-478-0708	A7J300180005	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	%	SB-479-0102	A7J300180006	NM	10/25/2007	10/30/2007	11/9/2007	5	10	15
OS	%	SB-479-0203	A7J300180007	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	%	SB-479-0304	A7J300180008	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
os	%	SB-478-0102	A7J300180001	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	%	SB-481-0506	A7J300180019	NM .	10/29/2007	10/31/2007	11/1/2007	2	1	3

SORT	UNITS	NSAMPLE	LAB ID	QC_TYPE	SAMP_DATE	EVID DATE				
os	%	SB-480-0102	A7J300180011	NM	10/25/2007	EXTR DATE	ANAL_DATE	SMP_EXTR	EXTR ANL	SMP_ANL
os	%	SB-480-0203	A7J300180012	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
os	%	SB-480-0304	A7J300180013	NM	10/25/2007	10/31/2007	11/8/2007	5	9	14 .
os	%	SB-480-0506	A7J300180014	NM	10/25/2007	10/31/2007	11/1/2007 11/1/2007	6	1	7
OS	%	SB-480-0708	A7J300180015	NM	10/25/2007	10/31/2007	11/1/2007	6	1	7
OS	%	SB-481-0102	A7J300180016	NM	10/29/2007	10/31/2007	11/1/2007	6	1	7
os	%	SB-481-0203	A7J300180017	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	%	SB-481-0304	A7J300180018	NM	10/29/2007	10/31/2007	11/1/2007	2	1	. 3
OS	%	SB-479-0708	A7J300180010	NM	10/25/2007	10/30/2007	11/8/2007	. 5	9	3
OS	UG/KG	SB-480-0304	A7J300180013	NM	10/25/2007	10/31/2007	11/1/2007	6	1	14
OS	UG/KG	SB-480-0506	A7J300180014	NM .	10/25/2007	10/31/2007	11/1/2007	6	1	· 7
os	UG/KG	SB-480-0708	A7J300180015	NM	10/25/2007	10/31/2007	11/1/2007	6	. 1	. 7
OS	UG/KG	SB-481-0102	A7J300180016	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	UG/KG	SB-481-0203	A7J300180017	NM	10/29/2007	10/31/2007	11/1/2007	2	' '- 1	3
OS	UG/KG	SB-481-0304	A7J300180018	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	UG/KG	SB-480-0203	A7J300180012	NM .	10/25/2007	10/30/2007	11/8/2007	5.	9	14
OS	UG/KG	SB-481-0708	A7J300180020	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	UG/KG	SB-479-0102 26, 2907	A7J300180006	NM	10/25/2007	10/30/2007	11/9/2007	. 5	10	15

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EVTD AND	CAAD AAU
OS	UG/KG	SB-481-0506	A7J300180019	NM	10/29/2007	10/31/2007	11/1/2007	2	EXTR ANL	SMP_ANL 3
os	UG/KG	SB-480-0102	A7J300180011	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	UG/KG	SB-479-0708	A7J300180010	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	UG/KG	SB-479-0506	A7J300180009	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
os	UG/KG	SB-478-0102	A7J300180001	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14.
os .	UG/KG	SB-479-0203	A7J300180007	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
os	UG/KG	SB-478-0708	A7J300180005	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	UG/KG	SB-478-0506	A7J300180004	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	UG/KG	SB-478-0304	A7J300180003	NM ·	10/25/2007	10/30/2007	11/8/2007	5		14
OS	UG/KG	SB-478-0203	A7J300180002	NM ·	-10/25/2007	10/30/2007	11/8/2007	 5	9	14
os	UG/KG	SB-479-0304	A7J300180008	NM	10/25/2007	10/30/2007	11/8/2007	. 5	9	14
			*							

Chain of Custody Record

Severn Trent Laboratories, Inc.

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Chain of Custody Record



Severn Trent Laboratories, Inc.

STL-4124 (0901) Client																		,					
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DISTRIBUTION: WHITE - Returned to Client with Report; C	CANARY - Stays wi	th the Sampi	e; PIN	K - Fiel	d Cop	у			·				.										
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CASE NARRATIVE

7J30180

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc. from the LMC MR Site, project number 112IC00885. The samples were received October 30, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J300180.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 2.7, 3.3, and 4.1°C.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride, Acetone, 2-Butanone	Phthalate Esters		Copper, Iron, Zinc, Lead

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica North Canton (formerly STL North Canton) Certifications and Approvals

California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),

Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), OhioVAP (#CL0024), West Virginia (#210), Wisconsin (#999518190),NAVY, ARMY, USDA Soil Permit,

N:\QAQC\Customer Service\Narrative - Combined RCRA CWA 061807.doc

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J30180

Lot #: A7J300180

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
		======	,	======		======	======	=======
01	SB-478-0102	61	62	90	64	62	70	00
02	SB-478-0203	65	62	89	64	62	68	00
03	SB-478-0304	65	63	86	66	61	. 71	00
04	SB-478-0506	59	53	83	60	59	63	00
05	SB-478-0708	51	49	70	48	45	38	00
06	SB-479-0102	53	55	82	58	-54	66	00
07	SB-479-0203	71	64	84	63	63	71	00
80	SB-479-0304	64	59	90	64	60	62	00
. 09	SB-479-0506	58	54	81	59	57	67	00
. 10	SB-479-0708	61	53	85	62	58	61	00
11	SB-480-0102	45	47	86	50 .	46	-68	00
12	SB-480-0203	57	59	92	54	54	68	00
13	SB-480-0304	62	62	80	65	64	_66	00
14	SB-480-0506	73	72	92	70	71	79	00
15	SB-480-0708	64	62	82	65	65	67	00
16	SB-481-0102	43	54	70	50	45	61	00
17	SB-481-0203	61	62	85	67	66	73	00
18	SB-481-0304	66	65	_85	72	71	73	00
19	SB-481-0506	68	_66	86	71	_71	72	00
20	SB-481-0708	73	71	90	78	79	80	00
21	METHOD BLK. J95V71AA	76	_75	88	74	_73	61	00
22	METHOD BLK. J97GM1AA	76	76	95	78	80	71	00
23	LCS J95V71AC	64	65	88	55	53	71	00
24	LCS J97GM1AC	82	80	92	81	83	82	00
25	SB-478-0102 D	67	67	89	65	62	71	00
26	SB-481-0506 D	69	70	90	76	73	86	00 -
27	SB-478-0102 S	59	69	92	58	55	73	00

FORM II

[#] Column to be used to flag recovery values

^{*} Values outside of required QC Limits

D System monitoring Compound diluted out

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J30180

Lot #: A7J300180

Extraction: XXA13QL01

CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
	======	======	======	======	======	======	======
01 SB-481-0506 S	64	_67	83	_71	67	79	00

TES .	QC LIMITS
= Nitrobenzene-d5	(24-112)
= 2-Fluorobiphenyl	(34-110)
= Terphenyl-d14	(41-119)
= Phenol-d5	(28-110)
= 2-Fluorophenol	(26-110)
= 2,4,6-Tribromophenol	(10-118)
	= Nitrobenzene-d5 = 2-Fluorobiphenyl = Terphenyl-d14 = Phenol-d5 = 2-Fluorophenol

FORM II

[#] Column to be used to flag recovery values

^{*} Values outside of required QC Limits

D System monitoring Compound diluted out

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number: 7J30180

Lab File ID: J97GM1AA.

Lot Number: A7J300180

Date Analyzed: 11/01/07

Time Analyzed: 06:49

Matrix: SOLID

Date Extracted:10/31/07

GC Column: DB-5.625 ID: .18

Extraction Method: 3550B

Instrument ID: AG2

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS , MSD:

) [SAMPLE	LAB	DATE	TIME
	CLIENT ID.	WORK ORDER #	FILE ID	ANALYZED	ANALYZED
i		_=============		========	========
01	SB-480-0304	J95P11AD	J95P11AD.	11/01/07	07:24
02	SB-480-0506	J95P21AD	J95P21AD.	11/01/07	07:41
03	SB-480-0708	J95P41AD	J95P41AD.	11/01/07	08:15
04	SB-481-0102	J95P61AD	J95P61AD.	11/01/07	07:58
05	SB-481-0203	J95P71AD	J95P71AD.	11/01/07	10:50
06	SB-481-0304	J95P91AD	J95P91AD.	11/01/07	11:07
,	SB-481-0506	J95QC1AF	J95QC1AF.	11/01/07	11:24
08	SB-481-0506	J95QC1AG S	J95QC1AG.	11/01/07	11:41
!	SB-481-0506	J95QC1AH D	J95QC1AH.	11/01/07	11:58
	SB-481-0708	J95QF1AD	J95QF1AD.	11/01/07	10:33
	CHECK SAMPLE	J97GM1AC C	J97GM1AC.	11/01/07	07:07
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SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number: 7J30180

Lab File ID: J95V71AA.

Lot Number: A7J300180

Date Analyzed: 11/01/07

Time Analyzed: 15:42

Matrix: SOLID

. . .

GC Column: DB-5.625 ID: .32

Date Extracted:10/30/07

Extraction Method: 3550B

Instrument ID: HP7

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS, MSD:

CLIENT ID. WORK ORDER # FILE ID ANALYZED ANALYZ	TIME ALYZED ====== 40 00
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01 SB-478-0102 J95K01AD J95K01AD. 11/08/07 16	00
	00
	2.0
04 SB-478-0203 J95K61AD J95K61AD. 11/08/07 17:	40
05 SB-478-0304 J95K71AD J95K71AD. 11/08/07 18:	
06 SB-478-0506 J95K91AD J95K91AD. 11/08/07 18:	
07 SB-478-0708 J95LA1AD J95LA1AD. 11/08/07 18:	
08 SB-479-0102 J95LC1AD J95LC1AD. 11/09/07 13:	
09 SB-479-0203 J95LE1AD J95LE1AD. 11/08/07 20:	
10 SB-479-0304 J95LH1AD J95LH1AD. 11/08/07 19:	
11 SB-479-0506 J95LJ1AD J95LJ1AD. 11/08/07 19:	
12 SB-479-0708 J95LM1AD J95LM1AD. 11/08/07 20:	
13 SB-480-0102 J95LN1AD J95LN1AD. 11/08/07 18:	
14 SB-480-0203 J95LT1AD J95LT1AD. 11/08/07 19:	
15 CHECK SAMPLE J95V71AC C J95V71AC. 11/01/07 16:	
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COMMENTS:				
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		FORM IV		

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30180

Lab File ID: 2DF1029 DFTPP Injection Date: 10/29/07

Instrument ID: A4AG2 DFTPP Injection Time: 0704

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	34.6 0.6 (1.5)1 40.0 0.1 (0.4)1 49.9 0.4 100.0 6.4 25.2 3.4 11.5 82.3 15.3 (18.6)2
	1-Value is % of mass 69 2-Value is % of mass 69	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
01 02 03 04 05 06 07 08 09 10	SAMPLE NO. SSTD009 SSTD008 SSTD007 SSTD006 SSTD005	1	· ·		
12 13 14 15 16 17 18 19 20 21 22					

page 1 of 1

FORM V SV

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30180

Lab File ID: 2DF1101 DFTPP Injection Date: 11/01/07

Instrument ID: A4AG2 DFTPP Injection Time: 0618

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	35.9 0.6 (1.6)1 41.0 0.2 (0.5)1 50.5 0.3 100.0 6.5 25.2 3.4 11.2 79.6 14.9 (18.8)2
	1-Value is % of mass 69 2-Value is % of mass	1

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

					
	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	==========	 	=============		
01	SSTD006	L6	2SMH1101	11/01/07	0629
02	J97GMBLK	J97GMLAA	J97GMLAA	11/01/07	0649
03	J97GMCHK	J97GMLAC	J97GMLAC	11/01/07	0707
04	SB-480-0304	J95P11AD	J95P11AD	11/01/07	0724
05	SB-480-0506	J95P21AD	J95P21AD	11/01/07	0741
-06	SB-481-0102	J95P61AD	J95P61AD	11/01/07	0758
07	SB-480-0708	J95P41AD	J95P41AD	11/01/07	0815
80	SB-481-0708	J95QF1AD	J95QF1AD	11/01/07	1033
09	SB-481-0203	J95P71AD	J95P71AD	11/01/07	1050
10	SB-481-0304	J95P91AD	J95P91AD	11/01/07	1107
11	SB-481-0506	J95QC1AF	J95QC1AF	11/01/07	1124
12	SB-481-0506	J95QC1AG	J95QC1AG	11/01/07	1141
13	SB-481-0506	J95QC1AH	J95QC1AH	11/01/07	1158
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FORM V SV

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30180

Lab File ID: 7DF1026 DFTPP Injection Date: 10/26/07

Instrument ID: A4HP7 DFTPP Injection Time: 1549

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 40.0 - 100.0% of mass 198 17.0 - 23.0% of mass 442	50.4 0.8 (1.2)1 63.5 0.3 (0.5)1 55.9 0.4 100.0 6.5 22.9 2.6 9.6 69.0 13.1 (18.9)2
	1-Value is % of mass 69 2-Value is % of mass	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
				=========	
01	SSTD005	L5	7SMM1026	10/26/07	1609
02	SSTD004	L4	7SM1026	10/26/07	1629
03	SSTD003	L3	7SML1026	10/26/07	1649
04	SSTD002	L2	7SL1026	10/26/07	1709
05	SSTD001	L1	7SLL1026	10/26/07	1729
06	SSTD009	L9	7HHH1026	10/26/07	1750
07	SSTD008	L8	7SHH1026	10/26/07	1810
08	SSTD007	L7	7SH1026	10/26/07	1830
09	SSTD006	L6	7SMH1026	10/26/07	1850
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FORM V SV

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.:

SAS No.:

SDG No.: 7J30180

Lab File ID: 7DF1101

DFTPP Injection Date: 11/01/07

Instrument ID: A4HP7

DFTPP Injection Time: 1027

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 40.0 - 100.0% of mass 198 17.0 - 23.0% of mass 442	48.9 1.1 (1.8)1 62.7 0.2 (0.4)1 53.9 0.7 100.0 6.6 24.1 2.7 10.2 73.5 14.1 (19.1)2
11	1-Value is % of mass 69 2-Value is % of mass	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 02 03 04 05	SSTD006 J95V7BLK J95V7CHK	L6 J95V71AA J95V71AC	7SMH1101 J95V71AA J95V71AC	11/01/07 11/01/07 11/01/07	1046 1542 1601
06 07 08 09					
11 12 13 14 15					
16 17 18 19					
20 21 22					

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FORM V SV

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.:

SAS No.:

SDG No.: 7J30180

Lab File ID: 7DF1107

DFTPP Injection Date: 11/07/07

Instrument ID: A4HP7

DFTPP Injection Time: 1215

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
=====		=======================================
51	30.0 - 60.0% of mass 198	56.0
68	Less than 2.0% of mass 69	0.5 (0.8)1
69	Mass 69 relative abundance	67.7
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	54.1
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	6.7
275	10.0 - 30.0% of mass 198	24.4
365	Greater than 1.0% of mass 198	3.3
441	Present, but less than mass 443	11.4
442	40.0 - 100.0% of mass 198	78.6
443	17.0 - 23.0% of mass 442	14.8 (18.8)2

1-Value is % of mass 69 2-Value is % of mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
07	======================================	====================================	7SMM1107	11/07/07	1247
01	SSTD005	L5 L4	7SM1107	11/07/07	1307
02 03	SSTD004 SSTD003	L3	7SML107	11/07/07	1326
04	SSTD003	L2	7SL1107	11/07/07	1346
05	SSTD002	L1	7SLL1107	11/07/07	1406
06	SSTD001	L9	7HHH1107	11/07/07	1426
07	SSTD008	L8	7SHH1107	11/07/07	1446
08	SSTD007	L7	7SH1107	11/07/07	1506
09	SSTD006	L6	7SMH1107	11/07/07	1526
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page 1 of 1

FORM V SV

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.:

SAS No.:

SDG No.: 7J30180

Lab File ID: 7DF1108

DFTPP Injection Date: 11/08/07

Instrument ID: A4HP7 DFTPP Injection Time: 0903

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 40.0 - 100.0% of mass 198 17.0 - 23.0% of mass 442	42.0 0.5 (0.9)1 53.7 0.3 (0.5)1 51.5 0.2 100.0 6.4 22.8 2.6 9.8 69.2 13.2 (19.1)2
l	1-Value is % of mass 69 2-Value is % of mass	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB		LAB	DATE	TIME
SA	MPLE NO.	SAMPLE	ID	FILE ID	ANALYZED	ANALYZED
===:	===== = =	_	=====	========	========	=======
01 SST	D006	L6		7SMH1108	11/08/07	0923
02 SB-	478-0102	J95K01AD		J95K01AD	11/08/07	1640
03 SB-	478-0102	J95K01AE		J95K01AE	11/08/07	1700
04 SB-	478-0102	J95K01AF		J95K01AF	11/08/07	1720
05 SB-	478-0203	J95K61AD		J95K61AD	11/08/07	1740
06 SB-	478-0304	J95K71AD		J95K71AD	11/08/07	1800
07 SB-	478-0506	J95K91AD		J95K91AD	11/08/07	1819
08 SB-	478-0708	J95LA1AD		J95LA1AD	11/08/07	1839
09 SB-	480-0102	J95LN1AD		J95LN1AD	11/08/07	1859
10 SB-	480-0203	J95LT1AD		J95LT1AD	11/08/07	1919
11 SB-4	479-0304	J95LH1AD		J95LH1AD	11/08/07	1938
12 SB-4	479-0506	J95LJ1AD		J95LJ1AD	11/08/07	1958
13 SB-	479-0708	J95LM1AD		J95LM1AD	11/08/07	2018
14 SB-4	479-0203	J95LE1AD		J95LE1AD	11/08/07	2038
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page 1 of 1

FORM V SV

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.:

SAS No.:

SDG No.: 7J30180

Lab File ID: 7DF1109

DFTPP Injection Date: 11/09/07

Instrument ID: A4HP7

DFTPP Injection Time: 0852

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
=====	100	59.0
51	30.0 - 60.0% of mass 198	
68	Less than 2.0% of mass 69	1.4 (1.9)1
69	Mass 69 relative abundance	74.8
70	Less than 2.0% of mass 69	0.3 (0.4)1
127	40.0 - 60.0% of mass 198	57.3
197	Less than 1.0% of mass 198	0.8
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	22.3
365	Greater than 1.0% of mass 198	2.6
441	Present, but less than mass 443	7.6
442	40.0 - 100.0% of mass 198	52.7
443	17.0 - 23.0% of mass 442	10.7 (20.3)2
		, ,
l	1-Value is % of mass 69 2-Value is % of mass 69	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

		•			
	EPA	LAB	LAB	DATE	TIME
S	AMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	========			========	========
01 SS	TD006	L6	7SMH1109	11/09/07	0911
	-479-0102	J95LC1AD	J95LC1AD	11/09/07	1328
02 55	-4/J-UIUZ	DESTICIAN	O J J H CLAD	11/05/07	1320
			· · · · · · · · · · · · · · · · · · ·		
04					
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page 1 of 1

FORM V SV

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 29-OCT-2007 07:15 : 29-OCT-2007 09:38 End Cal Date

: ISTD Quant Method : Disabled Origin Target Version : 4.14 : HP RTE Integrator

: \\cansvr11\dd\chem\MSS\a4ag2.i\71029A.b\8270p.m : 29-Oct-2007 10:31 a4ag2.i Method file

Last Edit

: Average Curve Type

	0.05000	0.25000	0.50000	1.000	2.500	5.000		-
Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	RRF	% RSD
	 7.500	10.000	12.500					
	Level 7 	Level 8	Level 9		 	 =======		
144 Hexachlorophene	+++++ +++++	+++++	+++++	+++++	, +++++ 	 +++++ 	 .+++++	++++
145 Hexachlorophene product	 +++++	+++++	+++++	 +++++ 	 +++++ 	 +++++ 	 +++++	++++
146 Benzo(a)pyrene	 1.19388 1.10598	0.91500 1.11559	0.94599		0.99585	 1.06396 	1.06425	10.275
148 3-Methylcholanthrene	 +++++ +++++	+++++ +++++	 +++++ +++++	 +++++ 	 +++++ 	 +++++ 	++++	+++++
149 Indeno(1,2,3-cd)pyrene	1.22899		1.38394	<u>'</u>	1	İ	 1.17860	9.699
150 Dibenz(a,h)anthracene	1.02002		0.89445	<u>'</u>	0.96776	1.01881	1.00440 	10.044
151 Benzo(g,h,i)perylene	1.00163		1.14812	<u>'</u>	 0.95685 	 1.00796 	1	
199 3-Picoline	+++++	+++++	 +++++ +++++	 +++++ 	 +++++ 		 +++++	+++++
200 N,N-Dimethylacetamide	+++++	+++++	 +++++ +++++	 ++++ 		 +++++ 		 +++++
201 Quinoline	 +++++ +++++	 +++++ +++++	 +++++ +++++	 +++++ 	 +++++ 	 +++++ 	 +++++	 +++++
202 Diphenyl	++++	+++++	 ,+++++ +++++	 ++++	 +++++] +++++ 	 +++++	 +++++
	++++	+++++ 	+++++ 	 	1	 		, ,,,,,

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 26-OCT-2007 16:09 End Cal Date : 26-OCT-2007 18:50
Quant Method : ISTD

: Disabled Örigin Target Version : 4.14

Integrator : HP RTE

Method file : \\cansvr11\\dd\chem\MSS\a4hp7.i\\71026a.b\\8270P.m

Last Edit : 27-Oct-2007 08:58 ulmanm Method file Last Edit Curve Type

: Average

									-
Compound	0.05000 Level 1	0.25000 Level 2	0.50000 Level 3	1.000 Level 4	2.500 Level 5	5.000 Level 6	 RRF	% RSD	
•			-						
	7.500	10.000	12.500	!			j		
	Level 7	Level 8	Level 9	 	 	 === =====	 		_
144 Hexachlorophene	======= +++++	======================================	+++++	+++++	+++++	+++++	 		
144 Hexaciitotophene	1 +++++	++++	+++++	 			+++++	++++	
			 	, 					-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	++++	+++++			
	+++++	+++++	+++++	ŀ	•		+++++	+++++	
									-
146 Benzo(a)pyrene	1.17968	0.97166	1.01188 1.25556	•	1.09953	1.12316 	 1.11108	7.898	Ω
•	1.13493	1.16596	1.25556	! !	 	 	1.11100 		•
148 3-Methylcholanthrene	+++++	+++++	+++++	1 +++++	++++	+++++			
2 Pacing Lond Land and	+++++	+++++	+++++]	+++++	+++++	
	j								-
149 Indeno(1,2,3-cd)pyrene	1.23781	1.06242	1.07379	1.12596	1.20599	1.23476			
	1.22933	1.27705	1.37576			<u> </u>	1.20254	8.349	9
									-
L50 Dibenz(a,h)anthracene	1.02771	•	0.86017	•	0.95752	0.97952	 0.96494	8.618	g
	0.98402	1.01/04 	1.10090	l 	 	! 	0.50454 		_
L51 Benzo(g,h,i)perylene	1.07704	'		0.97952	1.02707	1.01343	, 1		
101 20110 (g,u,u,ge_12eme	1.01579	1.05027	1.13828	I	j	I	1.01365	7.332	2
					1				-
230 2-Chloroacetophenone	+++++	+++++	+++++	+++++	+++++	+++++] .	· .	
	+++++	+++++	+++++		!	ļ	+++++	+++++	
						[-
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++ 	 +++++	+++++	
	+++++	+++++ 	+++++	l I	l 	ı 1	1		
200 N.N-Dimethylacetamide	1 +++++	+++++	++++	++++	! +++++	, +++++ .	}		
N, N Dimeni jacobamia	+++++	+++++	++++			j	++++	++++	
									-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++]		
	1 +++++	1 +++++	+++++	1	1	ſ	+++++	+++++	
	1	,	1 *****	1	!				

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 07-NOV-2007 12:47 End Cal Date : 07-NOV-2007 15:26

Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE

Method file : \\cansvr11\dd\chem\MSS\a4hp7.i\71107a.b\8270P.m

Last Edit : 07-Nov-2007 15:38 gruberj

Curve Type : Average

Compound	0.05000	0.25000 Level 2	0.50000 Level 3	1.000 Level 4	2.500 Level 5	5.000 Level 6	 RRF	% RSD	1
		 10.000 Level 8	12.500 Level 9	 		 	 	 - -	
144 Hexachlorophene	=====================================	=====================================	+++++ +++++	+++++		+++++	++++		=
145 Hexachlorophene product	+++++	+++++ +++++	+++++	 +++++ 	 +++++ 	 +++++ 	++++	 - +++++	-
146 Benzo(a)pyrene	1.18237 1.17759	0.99856			 1.04982 	 1.16117 	1.13006	 11.024	4
148 3-Methylcholanthrene	+++++	 +++++ +++++	+++++	 +++++ 	 	 +++++ 	+++++	 +++++	-
149 Indeno(1,2,3-cd)pyrene	1.29621		1.47927	İ	 1.15932 	 1.27464 	1.23140	11.010	0
150 Dibenz(a,h)anthracene	 0.95210 1.04151			<u>,</u>	 0.92137 	 1.03277 	0.99035	10.885	5
151 Benzo(g,h,i)perylene	1.13679		1.19892		 0.96555 	1.03355	1.02940	9.320	0
230 2-Chloroacetophenone	+++++	+++++	+++++	+++++	 +++++ 	 +++++ . 	+++++		-
199 3-Picoline	+++++	+++++	+++++	 +++++ 	 +++++ 	 +++++ 	+++++		-
200 N,N-Dimethylacetamide	+++++	 +++++ .+++++	+++++	+++++	 +++++ 	 +++++ 	++++	+++++	-
201 Quinoline		 +++++ +++++	+++++	 +++++	 +++++		 +++++	 +++++	-

Data File: \\cansvr11\dd\chem\MSS\a4ag2.i\71029A.b\ICVTCL.D

Report Date: 31-Oct-2007 13:40

STL North Canton

Page 3

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i Injection Date: 29-OCT-2007 09:55

Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007 Init. Cal. Times: 07:15 09:38 Quant Type: ISTD

Lab File ID: ICVTCL.D Analysis Type:

Lab Sample ID: ICVTCL Quant Type: ISTD Method: \\cansvr11\\dd\chem\MSS\a4ag2.i\71029A.b\8270p.m

1	1	1	1	CCAL MIN	I	MAX	
COMPOUND	RRF	/ AMOUNT	RF5	RRF5 RRF %	D / %DRIFT %D	/ %DRIFT	CURVE TYPE
	==== ===		====== =	-			
146 Benzo(a)pyrene	1	1.06425	1.06595	1.06595 0.010	-0.15952	20.000001	Averaged
149 Indeno(1,2,3-cd)pyrene	1	1.17860	1.19840	1.19840 0.010	-1.68001	100000.05	Averaged
150 Dibenz(a,h)anthracene	1	1.00440	1.026131	1.02613 0.010	-2.16310	50.00000	Averaged
151 Benzo(g,h,i)perylene	i	0.996291	1.02560	1.02560 0.010	-2.94146	50.000001	Averaged
\$ 154 Nitrobenzene-d5	1	0.303291	0.31342	0.31342 0.010	-3.34090	50.000001	Averaged
\$ 155 2-Fluorobiphenyl	1	1.19472	1.24940	1.24940 0.010	-4.576421	50.000001	Averaged
\$ 156 Terphenyl-d14	1	0.82049	0.85940	0.85940 0.010	-4.741531	50.000001	Averaged
\$ 157 Phenol-d5	ı	1.50322	1.50799	1.50799 0.010	-0.31754	50.00000	Averaged
\$ 158 2-Fluorophenol	ı	1.14183	1.17848	1.17848 0.010	-3.20947	50.000001	Averaged
\$ 159 2,4,6-Tribromophenol	1	0.15946	0.17206	0.17206 0.010	-7.90069	50.000001	Averaged
\$ 186 2-Chlorophenol-d4	ı	1.29469	1.29546	1.29546 0.010	-0.05975]	50.000001	Averaged
\$ 187 1,2-Dichlorobenzene-d4	1	0.82582	0.836921	0.83692 0.010	-1.34346	50.000001	Averaged
IM 195 Cresols, total	1	2.47068	2.504991	2.50499 0.010	-1.38839	50.00000	Averaged
101 Diphenylamine	1	0.51815	0.52590	0.52590 0.010	-1.49725	50.000001	Averaged
1		1			1	1	1

Data File: \\cansvr11\dd\chem\MSS\a4ag2.i\71101A.b\2SMH1101.D Page 3 Report Date: 01-Nov-2007 07:43

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i

Injection Date: 01-NOV-2007 06:29

Lab File ID: 2SMH1101.D

Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007 Init. Cal. Times: 07:15 09:38

Quant Type: ISTD

Analysis Type:

Lab Sample ID: L6

Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71101A.b\8270p.m

	1	1	CCAL	MIN	1	MAX	
COMPOUND	RRF / AMOUNT	r RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
]	×					
146 Benzo(a)pyrene	1.0642	1.06822	1.06822	0.010	-0.37280	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.1786	1.20289	1.20289	0.010	-2.06112	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.0044	1.01650	1.01650	0.010	-1.20498	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.9962	1.01545	1.01545	0.010	-1.92338	50.00000	Averaged
\$ 154 Nitrobenzene-d5	0.3032	0.32761	0.32761	0.010	-8.01921	50.00000	Averaged
\$ 155 2-Fluorobiphenyl	1.1947	2 1.23157	1.23157	0.010	-3.08401	50.00000	Averaged
\$ 156 Terphenyl-d14	0.8204	0.85715	0.85715	0.010	-4.46707	50.00000	Averaged
\$ 157 Phenol-d5	1.5032	1.45362	1.45362	0.010	3.29964	50.00000	Averaged
\$ 158 2-Fluorophenol	1.1418	1.06093	1.06093	0.010	7.08531	50.00000	Averaged
\$ 159 2,4,6-Tribromophenol	0.1594	0.16631	0.16631	0.010	-4.29608	50.00000	Averaged
\$ 186 2-Chlorophenol-d4	1.29469	1.28163	1.28163	0.010	1.00803	50.00000	Averaged
\$ 187 1,2-Dichlorobenzene-d4	0.82582	0.84673	0.84673	0.010	-2.53202	50.00000	Averaged
M 195 Cresols, total	2.47068	2.54962	2.54962	0.010	-3.19496	50.00000	Averaged
101 Diphenylamine	0.51819	0.52771	0.52771	0.010	-1.84488	50.00000	Averaged
		.		l		l	[

Data File: \\cansvr11\dd\chem\MSS\a4hp7.i\71026a.b\ICVTCL.D

Report Date: 27-Oct-2007 09:23

Page 3

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 26-OCT-2007 19:10
Lab File ID: ICVTCL.D Init. Cal. Date(s): 26-OCT-2007 26-OCT-2007
Analysis Type: Init. Cal. Times: 16:09 18:50
Lab Sample ID: icvtcl Quant Type: ISTD
Method: \\cansvr11\\dd\chem\MSS\a4hp7.i\\71026a.b\\8270p.m

1	1	. 1	1	CCAL MIN	1	MAX	1
COMPOUND	RRF	/ AMOUNT	RF5	RRF5 RRF %	D / %DRIFT(%D	/ %DRIFT	CURVE TYPE
		======= ==	-	====== ==== ==== ==	======= ==	======	
142 Benzo(k)fluoranthene	1	1.23514	1.24352	1.24352 0.010	-0.67844	50.000001	Averaged!
146 Benzo(a)pyrene	1	1.11108	1.099881	1.09988 0.010	1.00818	20.000001	Averaged
[149 Indeno(1,2,3-cd)pyrene	I	1.20254!	1.20684	1.20684 0.010	-0.35780	50.000001	Averaged!
150 Dibenz(a,h)anthracene	F	0.96494	0.96783	0.96783 0.010	-0.29970	50.000001	Averaged
151 Benzo(g,h,i)perylene	1	1.01365	1.00657	1.00657[0.010]	0.69806	50.000001	Averaged
198 1,4-Dioxane	1	0.61560	0.56917	0.56917 0.010	7.541821	50.000001	Averaged
\$ 154 Nitrobenzene-d5	1	0.49422	0.47455	0.47455 0.010	3.97951	50.000001	Averaged!
\$ 155 2-Fluorobiphenyl	1	1.18482	1.15622	1.15622 0.010	2.41377	50.00000	Averaged
\$ 156 Terphenyl-d14	1	0.83872	0.82434	0.82434 0.010	1.71412	50.000001	Averaged
\$ 157 Phenol-d5	i	2.11606	2.10526	2.10526 0.010	0.51082	50.000001	Averaged
\$ 158 2-Fluorophenol	ı	1.40529	1.45395	1.45395 0.010	-3.462691	50.000001	Averaged
\$ 159 2,4,6-Tribromophenol	ı	0.12914	0.12743	0.12743 0.010	1.32220	50.000001	Averaged
\$ 186 2-Chlorophenol-d4	1	1.29270	1.25441	1.25441 0.010	2.96186	50.00000	Averaged
\$ 187 1,2-Dichlorobenzene-d4	1	0.79872	0.82063	0.82063 0.010	-2.742981	50.000001	Averaged
M 195 Cresols, total	1	3.14307	3.15047	3.15047 0.010	-0.23558	50.000001	Averaged
101 Diphenylamine	1	0.48469	0.48104	0.48104 0.010	0.75302	50.000001	Averaged
	I	II				1	

Data File: \\cansvr11\dd\chem\MSS\a4hp7.i\71101a.b\7SMH1101.D Page 3

Report Date: 01-Nov-2007 14:04

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i

Injection Date: 01-NOV-2007 10:46

Lab File ID: 7SMH1101.D

Init. Cal. Date(s): 26-OCT-2007 01-NOV-2007 Init. Cal. Times: 16:09 13:27

Analysis Type:

Lab Sample ID: L6

Quant Type: ISTD

Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71101a.b\8270p.m

	I I	!	CCAL	MIN		MAX .	ļ
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
	-	=======================================		=====	=======		
142 Benzo(k) fluoranthene	1.23514	1.27062	1.27062	0.010	-2.87230	50.00000	Averaged
146 Benzo(a) pyrene	1.11108	1.17721	1.17721	0.010	-5.95193	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20254	1.26178	1.26178	0.010	-4.92637	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.96494	1.01673	1.01673	0.010	~5.36764	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01365	1.05699	1.05699	0.010	-4.27634	50.00000	Averaged
198 1,4-Dioxane	0.61560	0.64624	0.64624	0.010	-4.97657	50.00000	Averaged
\$ 154 Nitrobenzene-d5	0.49422	0.53647	0.53647	0.010	-8.54928	50.00000	Averaged
\$ 155 2-Fluorobiphenyl	1.18482	1.23548	1.23548	0.010	-4.27555	50.00000	Averaged
\$ 156 Terphenyl-d14	0.83872	0.88687	0.88687	0.010	-5.74191	50.00000	Averaged
\$ 157 Phenol-d5	2.11606	2.26742	2.26742	0.010	-7.15250	50.00000	Averaged
\$ 158 2-Fluorophenol	1.40529]	1.48807	1.48807	0.010	-5.89094	50.00000	Averaged
\$ 159 2,4,6-Tribromophenol	0.12914]	0.14094	0.14094	0.010	-9.13861	50.00000	Averaged
\$ 186 2-Chlorophenol-d4	1.29270	1.36922	1.36922	0.010	-5.91997	50.00000	Averaged
\$ 187 1,2-Dichlorobenzene-d4	0.79872	0.86972	0.86972	0.010	-8.88924	50.00000	Averaged
M 195 Cresols, total	3.14307	3.30923	3.30923	0.010	-5.28663	50.00000	Averaged
101 Diphenylamine	0.48469	0.49903	0.49903	0.010	-2.95925	50.00000	Averaged
1	_			l	l	l	ll

Data File: \\cansvr11\dd\chem\MSS\a4hp7.i\71107a.b\ICVTCL.D

Report Date: 07-Nov-2007 16:02

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STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i

Injection Date: 07-NOV-2007 15:46

Lab File ID: ICVTCL.D Analysis Type:

Init. Cal. Date(s): 07-NOV-2007 07-NOV-2007 Init. Cal. Times: 12:47 15:26

Quant Type: ISTD

Lab Sample ID: icvtcl

Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71107a.b\8270p.m

l	I	. 1	1	CCAL	MIN	. 1	MAX [
I COMPOUND	RRF	/ AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE!
		====== =	-	.=======	== ====	=======================================		=======================================
142 Benzo(k)fluoranthene	1	1.24866	1.26024	1.260	24 0.010	-0.92782	50.000001	Averaged
146 Benzo(a)pyrene	1	1.13006	1.10529	1.105	29 0.010	2.19135	20.00000	Averaged
1149 Indeno(1,2,3-cd)pyrene	1	1.23140	1.20373	1.203	73 0.010	2.24673	50.000001	Averaged
150 Dibenz(a,h)anthracene	1	0.99035	0.969601	0.969	60 0.010	2.09520	50.00000	Averaged
151 Benzo(g,h,i)perylene	1	1.029401	0.985291	0.985	29 0.010	4.285461	50.00000	Averaged
198 1,4-Dioxane	1	0.67627	0.61307	0.613	07 0.010	9.345231	50.00000	Averaged
\$ 154 Nitrobenzene-d5	· 1	0.55818	0.52998	0.529	98 0.010	5.05056	50.000001	Averaged
\$ 155 2-Fluorobiphenyl	1	1.24188	1.20909	1.209	09 0.010	2.64072	50.00000	Averaged
\$ 156 Terphenyl-d14	1	0.86739	0.87164	0.871	64 0.010	-0.48916	50.000001	Averaged
\$ 157 Phenol-d5	1	2.12392	2.108991	2.108	9910.010	0.70304	50.000001	Averaged!
\$ 158 2-Fluorophenol	1	1.38120	1.38285	1.382	85 0.010	-0.11940	50.000001	Averaged
\$ 159 2,4,6-Tribromophenol	1	5.000001	5.11017	0.147	36 0.010	-2.20337	0.000e+0001	Quadratic
\$ 186 2-Chlorophenol-d4	1 .	1.24733	1.25997	1.259	97 0.010	-1.01296	50.000001	Averaged
\$ 187 1,2-Dichlorobenzene-d4	1	0.813691	0.824221	0.824	22 0.010	-1.29408	50.000001	Averaged
M 195 Cresols, total	1	3.028421	3.05616	3.056	16 0.010	-0.91612	50.000001	Averagedi
101 Diphenylamine	I	0.49817	0.48717	0.487	17 0.010	2.20866	50.000001	Averaged
1	1	1	I		- i - I	1	F	ı

Data File: \\cansvr11\dd\chem\MSS\a4hp7.i\71108a.b\7SMH1108.D Page 3

Report Date: 08-Nov-2007 09:39

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i

Injection Date: 08-NOV-2007 09:23
Init. Cal. Date(s): 07-NOV-2007 07-NOV-2007
Init. Cal. Times: 12:47 15:26
Quant Type: ISTD Lab File ID: 7SMH1108.D

Analysis Type:

Lab Sample ID: L6

Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71108a.b\8270p.m

•	<u> </u>	i	CCAL	MIN	1	MAX	
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
=======================================				~===			========
142 Benzo(k) fluoranthene	1.24866	1.31935	1.31935	0.010	-5.66162	50.00000	Averaged
146 Benzo(a)pyrene	1.13006	1.18484	1.18484	0.010	-4.84787	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.23140	1.30663	1.30663	0.010	-6.10940	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.99035	1.03831	1.03831	0.010	-4.84308	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.02940	1.06229	1.06229	0.010	-3.19500	50.00000	Averaged
198 1,4-Dioxane	0.67627	0.56016	0.56016	0.010	17.16931	50.00000	Averaged
\$ 154 Nitrobenzene-d5	0.55818	0.56063	0.56063	0.010	-0.43886	50.00000	Averaged
\$ 155 2-Fluorobiphenyl	1.24188	1.22273	1.22273	0.010	1.54194	50.00000	Averaged
\$ 156 Terphenyl-d14	0.86739	0.94430	0.94430	0.010	-8.86684	50.00000	Averaged
\$ 157 Phenol-d5	2.12392	2.11479	2.11479	0.010	0.43005	50.00000	Averaged
\$ 158 2-Fluorophenol	1.38120	1.35964	1.35964	0.010	1.56117	50.00000	Averaged
\$ 159 2,4,6-Tribromophenol	5.00000	5.20584	0.15044	0.010	-4.11684	0.000e+000	Quadratic
\$ 186 2-Chlorophenol-d4	1.24733	1.25040	1.25040	0.010	-0.24620	50.00000	Averaged
\$ 187 1,2-Dichlorobenzene-d4	0.81369	0.83862	0.83862	0.010	-3.06421	50.00000	Averaged
M 195 Cresols, total	3.02842	3.09461	3.09461	0.010	-2.18561	50.00000	Averaged
101 Diphenylamine	0.49817	0.47492	0.47492	0.010	4.66673	50.00000	Averaged
				i		l	1

Data File: \\cansvr11\dd\chem\MSS\a4hp7.i\71109a.b\7SMH1109.D Page 3

Report Date: 09-Nov-2007 09:32

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Injection Date: 09-NOV-2007 09:11 Instrument ID: a4hp7.i

Init. Cal. Date(s): 07-NOV-2007 07-NOV-2007 Init. Cal. Times: 12:47 15:26 Quant Type: ISTD Lab File ID: 7SMH1109.D Analysis Type:

Lab Sample ID: L6 Quant Type: ISTD Method: \cansvr11\dd\chem\MSS\a4hp7.i\71109a.b\8270p.m

	l	1	CCAL	MIN	[MAX	
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
	== ==========		==========				======
142 Benzo(k) fluoranthene	1.24866	1.40668	1.40668	0.010	-12.65528	50.00000	Averaged
146 Benzo(a)pyrene	1.13006	1.21815	1.21815	0.010	~7.79497	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.23140	1.34947	1.34947	0.010	-9.58880	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.99035	1.07923	1.07923	0.010	-8.97467	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.02940	1.09891	1.09891	0.010	-6.75282	50.00000	Averaged
198 1,4-Dioxane	0.67627	0.62150	0.62150	0.010	8.09837	50.00000	Averaged
\$ 154 Nitrobenzene-d5	0.55818	0.60127	0.60127	0.010	-7.72081	50.00000	Averaged
\$ 155 2-Fluorobiphenyl	1.24188	1.25928	1.25928	0.010	-1.40074	50.00000	Averaged
\$ 156 Terphenyl-d14	0.86739	0.93509	0.93509	0.010	-7.80431	50.00000	Averaged
\$ 157 Phenol-d5	2.12392	2.22737	2.22737	0.010	-4.87082	50.00000	Averaged
\$ 158 2-Fluorophenol	1.38120	1.43750	1.43750	0.010	-4.07630	50.00000	Averaged
\$ 159 2,4,6~Tribromophenol	5.00000	5.30170	0.15354	0.010	-6.03400	0.000e+000	Quadratic
\$ 186 2-Chlorophenol-d4	1.24733	1.35022	1.35022	0.010	-8.24826	50.00000	Averaged
\$ 187 1,2-Dichlorobenzene-d4	0.81369	0.86676	0.86676	0.010	-6.52295	50.00000	Averaged
M 195 Cresols, total	3.02842	3.20510	3.20510	0.010	-5.83423	50.00000	Averaged
101 Diphenylamine	0.49817	0.46316	0.46316	0.010	7.02849	50.00000	Averaged
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8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30180

Lab File ID (Standard): 2SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4AG2 Time Analyzed: 0629

		IS1 (DCB)		IS2 (NPT)		IS3 (ANT)	
	•	AREA #	RT	AREA #	RT	AREA #	RT
		711C1C1 TF		232422))		1111111 11	
	10 HOLD CITE	204046	3.60	864274	4.50	441616	5.77
	12 HOUR STD	204046			4.50	441010	
	=========	=========	=====	=======================================		========	=====
	UPPER LIMIT	408092	4.10	1728548	5.00	883232	6.27
	=========	========	=====	========	======		=====
	LOWER LIMIT	102023	3.10	432137	4.00	220808	5.27
	=========	========	=====	=======	======	========	=====
	EPA SAMPLE		•	•			
	NO.						
	=========						=====
01	J97GMBLK	246137	3.60	1080106	4.50	550595	5.77
•	J97GMCHK	344049	3.60	1479819	4.50	749213	5.77
02					1		5.77
03	SB-480-0304	320648	3.60	1410747	4.50	725988	1
04	SB-480-0506	273927	3.60	1153064	4.50	593243	5.76
05	SB-481-0102	316589	3.60	1380381	4.50	710664	5.77
06	SB-480-0708	383425	3.60	1636256	4.50	841051	5.77
07	SB-481-0708	262622	3.60	1184958	4.50	661427	5.77
08	SB-481-0203	189596	3.60	886781	4.50	491877	5.77
09	SB-481-0304	202135	3.60	937656	4.50	523662	5.77
10	SB-481-0506	266039	3.60	1183672	4.50	641555	5.77
11	SB-481-0506	229959	3.60	1088321	4.50	596749	5.77
12	SB-481-0506	248527	3.60	1180028	4.50	655414	5.77
13	PD-40T-0200	240327	3.00	1100020	4. 50	033474	5.77
14	<u> </u>						·
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هنا هنا	l				·	·	

IS1 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = +100%

IS2 (NPT) = Naphthalene-d8

of internal standard area.

IS3 (ANT) = Acenaphthene-d10

LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30180

Lab File ID (Standard): 2SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4AG2 Time Analyzed: 0629

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	754632	6.85	692263	8.82	680042	10.30
	UPPER LIMIT	1509264	7.35	1384526	9.32	1360084	10.80
	LOWER LIMIT	377316	6.35	346132	8.32	340021	9.80
	EPA SAMPLE NO.		===	:			
01 02 03 04 05 06 07 08 9 01 11 11 11 11 11 11 11 11 11 11 11 11	SB-481-0102 SB-480-0708 SB-481-0708	955175 1285219 1241013 1008272 1184880 1425902 1212943 911676 896435 1131464 1093920 1187626	6.86 6.85 6.85 6.85 6.87 6.86 6.86 6.87	860143 1193967 1144195 902050 1097006 1297291 1151239 845526 851847 1062713 1072399 1100081	8.83 8.82 8.82 8.82 8.82 8.84 8.84 8.84 8.84	839074 1154303 1105793 876660 1091845 1276535 1144958 835497 862816 1049859 1047183 1070376	10.31 10.30 10.30 10.30 10.30 10.32 10.32 10.32 10.32

IS4 (PHN) = Phenanthrene-d10

UPPER LIMIT = +100%

IS5 (CRY) = Chrysene-dl2

of internal standard area.

IS6 (PRY) = Perylene-d12 LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab File ID (Standard): 7SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4HP7 Time Analyzed: 1046

	IS1 (DCB)		IS2 (NPT)		IS3 (ANT)	
	AREA #	RT	AREA #	RT	AREA #	RT
12 HOUR STD	167773	3.37	729144	4.26	378796	5.52
========	========	=====		=====	=======================================	======
UPPER LIMIT	335546	3.87	1458288	4.76	757592	6.02
LOWER LIMIT	83887	2.87	364572	3.76	189398	5.02
EPA SAMPLE NO.		=====	=== =====	=====	========	
01 J95V7BLK	145099	3.36	640939	4.25	320214	5.51
02 J95V7CHK	99361	3.36	411473	4.25	213486	5.51
03 04					,	
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17 18						
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20						
22						

IS1 (DCB) = 1,4-Dichlorobenzene-d4 UPPER

UPPER LIMIT = +100%

IS2 (NPT) = Naphthalene-d8 of interiors (ANT) = Acenaphthene-d10 LOWER LI

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30180

Lab File ID (Standard): 7SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4HP7 Time Analyzed: 1046

	I 	TCA (DIDI)	•	TOE (CDV)		TCC (DDV)	
		IS4 (PHN)	70.00	IS5 (CRY)	RT	IS6 (PRY)	ъщ
		AREA #	RT	AREA #	RT	AREA #	RT
	=========		======	=======================================	======		=====
	12 HOUR STD	681769	6.60	563610	8.56	506098	9.89
	=========		=====	========	=====	========	======
	UPPER LIMIT	1363538	7.10	1127220	9.06	1012196	10.39
	=========	=======	=====		=====	========	=====
	LOWER LIMIT	340885	6.10	281805	8.06	253049	9.39
	========	=======	=====	========	=====	========	== ===
	EPA SAMPLE	**					
	NO.						
			=====		=====		
01	J95V7BLK	565424	6.59	515266	8.53	458800	9.86
02	J95V7CHK	371978	6.59	333365	8.54	287450	9.86
03	095V/CHK	3/13/6	0.55	333303	0.04	207430	5.00
04							
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21				<u> </u>			
22							

IS4 (PHN) = Phenanthrene-d10 IS5 (CRY) = Chrysene-d12

= Perylene-d12

UPPER LIMIT = +100%

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

IS6

(PRY)

FORM VIII SV-2

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30180

Lab File ID (Standard): 7SMH1108 Date Analyzed: 11/08/07

Time Analyzed: 0923 Instrument ID: A4HP7

		IS1 (DCB)		IS2 (NPT)		IS3 (ANT)	
		AREA #	RT	AREA #	RT	AREA #	RT
	=========	=============	=====	=======================================	=====	========	=====
	12 HOUR STD	152896	3.52	629787	4.42	340264	5.69
	========	=======	=====	=======	=====	========	======
	UPPER LIMIT	305792	4.02	1259574	4.92	680528	6.19
	TOTAL TAKE	76440	2 00	214004	2 02	170132	5.19
	LOWER LIMIT	76448	3.02	314894	3.92	1/0132	5.19
	EPA SAMPLE						
	NO.						
	=======================================	========	=====	=======	=====	=======	======
01	SB-478-0102	99055	3.52	453795	4.42	238603	5.69
02	SB-478-0102	74571*	3.53	296126*	4.42	158581*	5.69
03	SB-478-0102	128445	3.52	547058	4.42	291738	5.69
04	SB-478-0203	137522	3.52	596870	4.42	323247	5.69
05	SB-478-0304	109009	3.53	474821	4.42	258898	5.69
06	SB-478-0506	118322	3.52	526245	4.42	282129	5.69
07	SB-478-0708	146440	3.52	631287	4.42	326630	5.69
80	SB-480-0102	130784	3.52	584706	4.42	316170	5.69
09	SB-480-0203	99754	3.52	426973	4.42	223822	5.69
10	SB-479-0304	86103	3.52	392604	4.42	218664	5.69
11	SB-479-0506	131318	3.52	553730	4.42	304267	5.69
12	SB-479-0708	94542	3.52	414919	4.42	231599	5.69
13	SB-479-0203	131703	3.53	527315	4.42	287391	5.69
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IS1 (NPT) = Naphthalene-d8

IS2 IS3 (ANT) = Acenaphthene-d10 of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab File ID (Standard): 7SMH1108 Date Analyzed: 11/08/07

Instrument ID: A4HP7 Time Analyzed: 0923

		IS4 (PHN)		IS5 (CRY)		IS6 (PRY)	
		AREA	# RT	AREA #	RT	AREA #	RT
12 HOUR	STD	617724	6.78	496170	8.75	447105	10.20
UPPER I		1235448	7.28	992340	9.25	894210	10.70
LOWER I	TMIT	308862	6.28	248085	8.25	223553	9.70
EPA SAM							
01 SB-478-0 02 SB-478-0 03 SB-478-0 04 SB-478-0 05 SB-478-0 06 SB-478-0 07 SB-478-0 09 SB-480-0 10 SB-479-0 11 SB-479-0 12 SB-479-0 13 SB-479-0 14 15 16 17 18 19 20 21 22	9102 9102 9102 9203 9304 9506 9708 9102 9203 9304 9506	433365 272955 513785 594535 477889 518342 596654 575238 377588 388103 558066 405939 528498	6.78 6.78 6.78 6.78 6.78 6.78 6.78 6.78	376833 210556* 405517 480971 410960 440886 507778 481386 286811 320362 452214 344317 444750	8.74 8.75 8.75 8.75 8.73 8.74 8.74 8.74 8.74 8.74	333776 194651* 382775 458270 371516 411090 462296 438042 303077 302248 436587 332400 428000	10.20 10.21 10.21 10.19 10.20 10.20 10.20 10.20 10.20

IS4 (PHN) = Phenanthrene-d10

UPPER LIMIT = +100% of internal standard area.

IS5 (CRY) = Chrysene-dl2 IS6 (PRY) = Perylene-dl2

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

SDG No.: 7J30180 SAS No.: Case No.: Lab Code: TALCAN

Lab File ID (Standard): 7SMH1109 Date Analyzed: 11/09/07

Time Analyzed: 0911 Instrument ID: A4HP7

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
		ACTIC #	======	==========	=====	=======================================	=====
	12 HOUR STD	122523	3.47	513214	4.36	278167	5.63
	UPPER LIMIT	245046	3.97	1026428	4.86	556334	6.13
	LOWER LIMIT	61262	2.97	256607	3.86	139084	5.13
	EPA SAMPLE NO.		=====				
01	======================================	126461	3.46	56 7 537	4.36	292701	5.63
02 03 04							
05 06							
07 08							
09 10							
11 12							
13 14							
15 16							
17 18							
19 20							
21 22							

= 1,4-Dichlorobenzene-d4 IS1 (DCB)

UPPER LIMIT = +100%

= Naphthalene-d8 IS2 (NPT) = Acenaphthene-d10 IS3 (ANT)

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

1/87 Rev.

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30180

Lab File ID (Standard): 7SMH1109 Date Analyzed: 11/09/07

Instrument ID: A4HP7 Time Analyzed: 0911

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	516630	6.71	422017	8.68	376366	10.09
	UPPER LIMIT	1033260	7.21	844034	9.18	752732	10.59
	LOWER LIMIT	258315	6.21	211009	8.18	188183	9.59
	EPA SAMPLE NO.		-				
01 02 03 04 05 06	SB-479-0102	542638	6.71	432255	8.67	415692	10.09
07 08 09 10 11							
13 14 15 16							
18 19 20 21 22							

IS4 (PHN) = Phenanthrene-d10

UPPER LIMIT = +100%

IS5 (CRY) = Chrysene-d12 IS6 (PRY) = Perylene-d12 of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

1/87 Rev.

SAMPLE CALC

SAMPLE ID: SB-449-0102

COMPOUND: BAP

2

IS AREA 415692 DILUTION COMPOUND OF INTEREST AREA IS AMOUNT (NG) Final Extract Volume (UL) AVE RRF PERCENT SOLIDS AMOUNT INJECTED (UL) CONCENTRATION PPB 23270

2000

0.88

Sample Amount (g)

30.01

1.1301

Tetra Tech NUS, Inc

Client Sample ID: SB-479-0102

GC/MS Semivolatiles

	10/25/07 11:22	Work Order #: Date Received: Analysis Date:	10/30/07	Matri	x:	SO
Prep Batch #:		•				
Dilution Factor:	1	<pre>Initial Wgt/Vol:</pre>	30.01 g	Final	Wgt/Vol:	2 mL
% Moisture:	12	Method:	SW846 8270	С .		
·	•		REPORTING			
PARAMETER		RESULT	LIMIT	UNITS		
LAVAMETEV		1120022				
Benzo(a)pyrene		15 J	380	ug/kg	_	
		15 J			-	
			380 RECOVERY		-	
		15 J			-	
Benzo(a)pyrene		15 J PERCENT	RECOVERY		<u>-</u>	
Benzo(a)pyrene SURROGATE		15 J PERCENT RECOVERY	RECOVERY LIMITS		<u>-</u>	
Benzo(a)pyrene SURROGATE Nitrobenzene-d5		PERCENT RECOVERY 53	RECOVERY LIMITS (24 - 112)		<u>-</u>	
SURROGATE Nitrobenzene-d5 2-Fluorobiphenyl		PERCENT RECOVERY 53 55	RECOVERY <u>LIMITS</u> (24 - 112) (34 - 110)		<u>-</u>	
SURROGATE Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14		PERCENT RECOVERY 53 55 82	RECOVERY LIMITS (24 - 112) (34 - 110) (41 - 119)		<u>-</u>	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Data File: \\cansvrl1\dd\chem\MSS\a4hp7.i\71109a.b\J95LC1AD.D Page 1

Report Date: 13-Nov-2007 09:54

TestAmerica North Canton

Semivolatile REPORT SW-846 Method 8270 Data file : \\cansvr11\dd\chem\MSS\a4hp7.i\71109a.b\J95LC1AD.D Lab Smp Id: j95lc1ad Client Smp ID: SB-479-0102 Inj Date : 09-NOV-2007 13:28 Operator : 001710 Inst ID: a4hp7.i Smp Info : j951c1ad,71109a.b,8270p,bap.sub Misc Info : Comment Method : \\cansvr11\dd\chem\MSS\a4hp7.i\71109a.b\8270P.m Meth Date: 13-Nov-2007 09:52 gruberj Quant Type: ISTD Cal Date : 07-NOV-2007 15:26 Cal File: 7SMH1107.D Als bottle: 13 Dil Factor: 1.00000 Integrator: HP RTE Compound Sublist: bap.sub Target Version: 4.14

Processing Host: CANPMSSV01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws *) * CpndVariable

Name ·	Value	Description
DF Uf Vt Vi Ws Cpnd Variable	1.000 2000.000	Dilution Factor ng unit correction factor Volume of final extract (uL)(1000 low, 2 Volume injected (uL) Weight of sample extracted (g) Local Compound Variable

						CONCENTRA	TIONS
	QUANT SIG					ON-COLUMN	FINAL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(NG)	(ug/kg)
	====	====	=======	=======	======	======	======
* 1 1,4-Dichlorobenzene-d4	152	3.464	3.466	(1.000)	126461	2.00000	(Q)
* 2 Naphthalene-d8	136	4.357	4.359	(1.000)	567537	2.00000	(2)
* 3 Acenaphthene-d10	164	5.625	5.626	(1.000)	292701	2.00000	
* 4 Phenanthrene-d10	188	6.710	6.712	(1.000)	542638	2.00000	
* 5 Chrysene-dl2	240	8.673	8.680	(1.000)	432255	2.00000	•
* 6 Perylene-d12	264	10.085	10.092	(1.000)	415692	2.00000	
146 Benzo(a)pyrene	252	10.016	10.028	(0.993)	23270	0.09907	13.205
\$ 154 Nitrobenzene-d5	82	3.843	3.845	(0.882)	419069	2.64576	352.65
\$ 155 2-Fluorobiphenyl	172	5.116	5.118	(0.910)	496356	2.73099	364.01
\$ 156 Terphenyl-d14	244	7.850	7.851		765195	4.08175	544.05
\$ 157 Phenol-d5	99	3.175	3.171		580236	4.32056	575.88
\$ 158 2-Fluorophenol	112	2.608	2.594		355588	4.07159	542.70
\$ 159 2,4,6-Tribromophenol	330	6.197	6.199		103778	4.93715	658.07
\$ 186 2-Chlorophenol-d4	132	3.314	3.310 (347944	4.41165	
\$ 187 1,2-Dichlorobenzene-d4	152	3.571	3.578 (,	100079	1.94518	588.02 259.27

QC Flag Legend



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

M.MARTIN

DATE:

DECEMBER 13, 2007

FROM:

TERRI L. SOLOMON

COPIES:

DV FILE

SUBJECT:

INORGANIC DATA VALIDATION - MERCURY, PERCENT SOLIDS

LOCKHEED MARTIN MIDDLE RIVER

SAMPLE DELIVERY GROUP (SDG) - 7J30180

SAMPLES:

20/Soils/

SB-478-0102	SB-478-0203	SB-478-0304
SB-478-0506	SB-478-0708	SB-479-0102
SB-479-0203	SB-479-0304	SB-479-0506
SB-479-0708	SB-480-0102	SB-480-0203
SB-480-0304	SB-480-0506	SB-480-0708
SB-481-0102	SB-481-0203	SB-481-0304
SD: 491 0506	CD 401 0700	

Overview

The sample set for Lockheed Martin Middle River, SDG 7J30180, consists of eighteen (18) soil environmental samples. No field duplicate pairs were included within this SDG.

All samples were analyzed for mercury and percent solids. The samples were collected by Tetra Tech NUS on October 25 and 29, 2007 and analyzed by Test America. Mercury analyses were conducted using SW-846 method 7471A. Percent solid analyses were conducted using MCAWW method 160.3 MOD.

The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding times, initial and continuing calibration verification results, laboratory method / preparation blank results, matrix spike / matrix spike duplicate recoveries, laboratory duplicate results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

TO: M. MARTIN - PAGE 2
DATE: DECEMBER 13, 2007

Major Problems - None.

Minor Problems - None.

Notes - None.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993.

The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech NUS Terri L. Solomon

Environmental Scientist

Tetra Tech NVS 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 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 DOT 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

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: M

nsample	SB-478-0102	nsample	SB-478-0203	nsample	SB-478-0304
samp_date	10/25/2007	samp_date	10/25/2007	samp_date	10/25/2007
lab_id	A7J300180001	lab_id	A7J300180002	lab_id	A7J300180003
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	90.3	Pct_Solids	88.0	Pct_Solids	85.0
DUP_OF:		DUP_OF:		DUP OF:	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.018	Ú	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: M

00885

nsample SB-478-0506 samp_date 10/25/2007 lab_id A7J300180004 NM qc_type units MG/KG

Pct_Solids DUP_OF:

nsample samp_date lab_id qc_type units

10/25/2007 A7J300180005 NM MG/KG Pct_Solids 84.0

DUP_OF:

nsample samp_date lab_id qc_type

units

10/25/2007 A7J300180006 NM MG/KG

Pct_Solids 88.0 DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

87.0

Parameter	Result	.Val Qual	Qual Code
MERCURY	0.02	Ü	

SB-478-0708

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U.	

SB-479-0102

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: M

nsample SB-479-0203 nsample SB-479-0304 nsample SB-479-0506 samp_date 10/25/2007 samp_date 10/25/2007 10/25/2007 samp_date lab_id lab_id A7J300180007 A7J300180008 lab_id A7J300180009 qc_type NM NM qc_type qc_type NM units MG/KG units MG/KG MG/KG units Pct_Solids 86.0 Pct_Solids 84.0 Pct_Solids 85.0 DUP_OF: DUP_OF: DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

10/25/2007

A7J300180010

qc_type units

lab_id

NM. MG/KG 86.0

Pct_Solids DUP_OF:

SB-479-0708

nsample samp_date lab_id qc_type

NM

units Pct_Solids DUP_OF:

SB-480-0102

10/25/2007 A7J300180011

MG/KG

89.0

nsample

samp_date lab_id qc_type

10/25/2007 A7J300180012 NM

MG/KG Pct_Solids 89.0

DUP_OF:

units

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Re	esult	Val Qual	Qual Code
MERCURY	0	.019	U	

SB-480-0203

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-480-0304

10/25/2007

lab_id qc_type A7J300180013 NM

units

Pct_Solids DUP_OF:

MG/KG

88.0

nsample

qc_type

Pct_Solids

units

samp_date lab_id

10/25/2007 A7J300180014 NM

SB-480-0506

MG/KG 84.0

DUP_OF:

nsample

samp_date

lab_id qc_type units

Pct_Solids

86.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

SB-480-0708

A7J300180015

10/25/2007

NM

MG/KG

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: M

SB-481-0102 nsample nsample SB-481-0203 SB-481-0304 nsample samp_date 10/29/2007 10/29/2007 samp_date samp_date 10/29/2007 lab_id A7J300180016 lab_id A7J300180017 lab_id A7J300180018 qc_type NM qc_type NM qc_type NM units MG/KG MG/KG units MG/KG units Pct_Solids 85.0 Pct_Solids 86.0 Pct_Solids 84.0 DUP_OF: DUP_OF: DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.036		

Parameter	Result	Val Qual	Qual Code
MERCURY	0.21		

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

00885

SDG: 7J30180 MEDIA: SOIL DATA FRACTION: M

nsample

SB-481-0506

nsample

SB-481-0708

samp_date

10/29/2007

samp_date

10/29/2007

lab_id

A7J300180019

lab_id

A7J300180020

qc_type units NM

qc_type

NM

Pct_Solids

MG/KG 82.0

units Pct_Solids MG/KG 83.0

DUP_OF:

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

APPENDIX B RESULTS AS REPORTED BY THE LABORATORY

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95K0

Client ID:

SB-478-0102

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch:_

7304027

Weight:

0.60

Volume:

100

Percent Moisture:

9.67100000

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.018	0.11	0.018	U	1	CVAA	10/31/2007	14:38

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95K6

Client ID:

SB-478-0203

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch:

7304027

Weight:

0.60

Volume:

100

Percent Moisture:

12.333

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	14:39

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95K7

Client ID:

SB-478-0304

Matrix:

Soil

Units:

100

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304027

Weight:

0.60

Volume:

Percent Moisture:

14.853

Element	WL/ Mass	IDL	Report Limit	Conc	O_	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	14:41

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

J95K9 Lab Sample ID:

Client ID:

SB-478-0506

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch:

7304027

Weight:

0.60

Volume:

100

Percent Moisture:

13.256

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	· 1	CVAA	10/31/2007	14:42

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95LA

Client ID:

SB-478-0708

Matrix:

Soil

Units: mg/kg

Prep Date: <u>10/31/2007</u>

Prep Batch: 7304027

Weight:

0.60

Volume: 100

Percent Moisture:

16.241

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	14:43

Metals Data Reporting Form

Sample Results

Lab Sample ID: J95LC **Client ID:**

SB-479-0102

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch:_

7304027

Weight:

0.60

Volume:

100

Percent Moisture: 12.05

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	14:44

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95LE

Client ID:

SB-479-0203

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch: 7304027

Weight:

0.60

Volume:

100

Percent Moisture:

14.051

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	14:46

Result is less than the IDL

Metals Data Reporting Form

Sample Results

J95LH Lab Sample ID:

Client ID:

SB-479-0304

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch:

7304027

Weight:

0.60

Volume:

100

Percent Moisture:

16.168

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	14:47

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

J95LJ Lab Sample ID:

Client ID:

SB-479-0506

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch:__

7304027

Weight:

0.60

Volume:

100

Percent Moisture:

15.361

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	14:50

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95LM

Client ID:

SB-479-0708

Matrix:

Soil

Units: mg/kg **Prep Date:** <u>10/31/2007</u>

Prep Batch:

7304027

Weight:

0.60

Volume:

100

Percent Moisture:

14.105

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	14:51

Metals Data Reporting Form

Sample Results

Lab Sample ID: J95LN Client ID:

SB-480-0102

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304027

Weight:

0.60

Volume:

100

Percent Moisture: 11.096

Element	WL/ Mass	IDL	Report Limit	Conc	Q	_ DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	14:52

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95LT

Client ID:

SB-480-0203

Matrix: Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304027

Weight: 0.60

Volume:

100

Percent Moisture:

10.54

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	14:54

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

J95P1 Lab Sample ID:

Client ID:

SB-480-0304

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304027

Weight: 0.60

Volume:

100

Percent Moisture: 11.896

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	14:55

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95P2

Client ID:

SB-480-0506

Matrix:

Soil

Units:

mg/kg

Prep Date: __10/31/2007

Prep Batch: 7304027

Weight:

0.60

Volume:

100

Percent Moisture:

15.934

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	14:56

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95P4

Client ID:

SB-480-0708

Matrix:

Soil

Units:

mg/kg

100

Prep Date: 10/31/2007

Prep Batch: 7304027

Weight: 0.60

Volume:

Percent Moisture: 14.415

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	14:57

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95P6

Client ID:

SB-481-0102

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch:

7304027

Weight:

0.60

100 Volume:

Percent Moisture:

15.014

WL/ Report Anal Anal <u>Instr</u> DF Element Mass <u>IDL</u> Limit Conc Date Time 10/31/2007 Mercury 253.7 0.020 0.12 0.036 14:59

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95P7

Client ID:

SB-481-0203

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch:_ 7304027

Weight:

0.60

Volume: 100 Percent Moisture:

14.2

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.21		1	CVAA	10/31/2007	15:00

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95P9

Client ID:

SB-481-0304

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304027

Weight:

0.60

Volume:

100

Percent Moisture:

15.729

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:01

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95QC

Client ID:

SB-481-0506

Matrix:

Soil

Units: mg/kg

Prep Date: <u>10/31/2007</u>

Prep Batch:

7304027

Weight:

0.60

Volume:

100

Percent Moisture:

17.758

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U .	1	CVAA	10/31/2007	15:05

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95QF

Client ID:

SB-481-0708

Matrix:

Soil

Units: mg/kg

100

Prep Date: 10/31/2007

Prep Batch:

7304027

Weight:

0.60

Volume:

Percent Moisture:

17.436

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:10

Comments: Lot #: A7J300180 Sample #: 20

U Result is less than the IDL

Client Sample ID: SB-478-0102

General Chemistry

Lot-Sample #...: A7J300180-001 Work Order #...: J95K0 Matrix.....: S0

Date Sampled...: 10/25/07 10:45 Date Received..: 10/30/07

% Moisture....: 9.7

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 90.3
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-478-0203

General Chemistry

Lot-Sample #...: A7J300180-002 Work Order #...: J95K6

Matrix..... SO

Date Sampled...: 10/25/07 10:47 Date Received..: 10/30/07

% Moisture....: 12

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 87.7
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-478-0304

General Chemistry

Lot-Sample #...: A7J300180-003 Work Order #...: J95K7 Matrix...... S0

Date Sampled...: 10/25/07 10:49 Date Received..: 10/30/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 85.1
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-478-0506

General Chemistry

Lot-Sample #...: A7J300180-004 Work Order #...: J95K9 Matrix.....: SO

Date Sampled...: 10/25/07 10:51 Date Received..: 10/30/07

% Moisture....: 13

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 86.7
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-478-0708

General Chemistry

Lot-Sample #...: A7J300180-005 Work Order #...: J95LA Matrix.....: S0

Date Sampled...: 10/25/07 10:53 Date Received..: 10/30/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 83.8
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-479-0102

General Chemistry

Lot-Sample #...: A7J300180-006 Work Order #...: J95LC Matrix.....: S0

Date Sampled...: 10/25/07 11:22 Date Received..: 10/30/07

% **Moisture....:** 12

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 88.0
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-479-0203

General Chemistry

Lot-Sample #...: A7J300180-007 Work Order #...: J95LE Matrix.....: S0

Date Sampled...: 10/25/07 11:24 Date Received..: 10/30/07

% Moisture....: 14

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 85.9
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-479-0304

General Chemistry

Lot-Sample #...: A7J300180-008 Work Order #...: J95LH Matrix.....: S0

Date Sampled...: 10/25/07 11:26 Date Received..: 10/30/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 83.8
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-479-0506

General Chemistry

Lot-Sample #...: A7J300180-009 Work Order #...: J95LJ Matrix.....: S0

Date Sampled...: 10/25/07 11:28 Date Received..: 10/30/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 84.6
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-479-0708

General Chemistry

Lot-Sample #...: A7J300180-010 Work Order #...: J95LM Matrix.....: S0

Date Sampled...: 10/25/07 11:30 Date Received..: 10/30/07

% Moisture....: 14

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 85.9
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-480-0102

General Chemistry

Lot-Sample #...: A7J300180-011 Work Order #...: J95LN Matrix.....: S0

Date Sampled...: 10/25/07 13:50 Date Received..: 10/30/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 88.9
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-480-0203

General Chemistry

Lot-Sample #...: A7J300180-012 Work Order #...: J95LT Matrix.....: S0

Date Sampled...: 10/25/07 13:52 Date Received..: 10/30/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 89.5
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-480-0304

General Chemistry

Lot-Sample #...: A7J300180-013 Work Order #...: J95P1 Matrix.....: S0

Date Sampled...: 10/25/07 13:54 Date Received..: 10/30/07

% Moisture....: 12

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 88.1
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-480-0506

General Chemistry

Lot-Sample #...: A7J300180-014 Work Order #...: J95P2 Matrix.....: S0

Date Sampled...: 10/25/07 13:56 Date Received..: 10/30/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 84.1
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-480-0708

General Chemistry

Lot-Sample #...: A7J300180-015 Work Order #...: J95P4 Matrix.....: S0

Date Sampled...: 10/25/07 13:58 Date Received..: 10/30/07

% Moisture....: 14

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 85.6
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-481-0102

General Chemistry

Lot-Sample #...: A7J300180-016 Work Order #...: J95P6 Matrix.....: S0

Date Sampled...: 10/29/07 08:40 Date Received..: 10/30/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 85.0
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-481-0203

General Chemistry

Lot-Sample #...: A7J300180-017 Work Order #...: J95P7 Matrix.....: S0

Date Sampled...: 10/29/07 08:42 Date Received..: 10/30/07

% Moisture....: 14

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 85.8
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-481-0304

General Chemistry

Lot-Sample #...: A7J300180-018 Work Order #...: J95P9 Matrix.....: S0

Date Sampled...: 10/29/07 08:44 Date Received..: 10/30/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 84.3
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-481-0506

General Chemistry

Lot-Sample #...: A7J300180-019 Work Order #...: J95QC Matrix.....: S0

Date Sampled...: 10/29/07 08:46 Date Received..: 10/30/07

% Moisture....: 18

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 82.2
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310054

Client Sample ID: SB-481-0708

General Chemistry

Lot-Sample #...: A7J300180-020 Work Order #...: J95QF Matrix.....: S0

Date Sampled...: 10/29/07 08:48 Date Received..: 10/30/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 82.6
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/08/07
 7310054

APPENDIX C SUPPORT DOCUMENTATION



ANALYTICAL REPORT

PROJECT NO. 112IC00885

LMC MR

Lot #: A7J300180 SDG #: 7J30180

Michael Martin

Tetra Tech NUS Inc 20251 Century Blvd Suite 200 Germantown, MD 20874

TESTAMERICA LABORATORIES, INC.

Patrick J. O'Meara
Project Manager

November 19, 2007

CASE NARRATIVE

7J30180

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc. from the LMC MR Site, project number 112IC00885. The samples were received October 30, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J300180.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 2.7, 3.3, and 4.1°C.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

ANALYTICAL METHODS SUMMARY

7J30180

PARAMETE	ER .	ANALYTICAL METHOD
Semivola	in Solid Waste (Manual Cold-Vapor) atile Organic Compounds by GC/MS esidue as Percent Solids	SW846 7471A SW846 8270C MCAWW 160.3 MOD
Referenc	ces:	
MCAWW	"Methods for Chemical Analysis of Wat EPA-600/4-79-020, March 1983 and subs	·
SW846	"Test Methods for Evaluating Solid Wa Methods", Third Edition, November 198	· •

Chain of Custody Record

Severn Trent Laboratories, Inc.

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Chain of Custody Record



Severn Trent Laboratories, Inc.

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НС	G MG/KG	SB-478-0304	A7J300180003	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	G MG/KG	SB-478-0506	A7J300180004	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	G MG/KG	SB-478-0708	A7J300180005	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-479-0203	A7J300180007	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-479-0506	A7J300180009	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
НG	MG/KG	SB-479-0708	A7J300180010	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-480-0102	A7J300180011	NM	10/25/2007	10/31/2007	10/31/2007	6	. 0	. 6
HG	MG/KG	SB-478-0203	A7J300180002	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
HG	MG/KG	SB-480-0304	A7J300180013	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
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HG	MG/KG	SB-481-0203	A7J300180017	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
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Monday, November 26, 2007

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	HĠ	MG/KG	SB-481-0708	A7J300180020	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
	HG	MG/KG	SB-478-0102	A7J300180001	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
	HG	MG/KG	SB-480-0203	A7J300180012	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6.
	HG	MG/KG	SB-479-0304	A7J300180008	NM	10/25/2007	10/31/2007	10/31/2007	6	0	6
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	PCS	%	SB-481-0304	A7J300180018	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
	PCS	%	SB-481-0203	A7J300180017	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
	PCS	%	SB-481-0102	A7J300180016	NM	10/29/2007	11/6/2007	11/7/2007	. 8	1	9
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	PCS	%	SB-480-0203	A7J300180012	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
	PCS	%	SB-480-0102	A7J300180011	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
	PCS	%	SB-478-0304	A7J300180003	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
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Monday, November 26, 2007

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP EXTR	EXTR_ANL	SMP_ANL
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PCS	%	SB-478-0506	A7J300180004	NM	10/25/2007	11/6/2007	11/7/2007	12	. 1	13
PCS	%	SB-478-0708	A7J300180005	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-479-0102	A7J300180006	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-479-0203	A7J300180007	NM	10/25/2007	11/6/2007	11/7/2007	12	1	13
PCS	%	SB-479-0304	A7J300180008	NM	10/25/2007	11/6/2007	11/7/2007	12	, 1	13
PCS	%	SB-479-0506	A7J300180009	NM .	10/25/2007	11/6/2007	11/7/2007	12	1	13
OS	%	SB-481-0708	A7J300180020	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	%	SB-479-0506	A7J300180009	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
os	%	SB-478-0203	A7J300180002	NM .	10/25/2007	10/30/2007	11/8/2007	5	9	14
os	%	SB-478-0304	A7J300180003	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
os	%	SB-478-0506	A7J300180004	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
OS	%	SB-478-0708	A7J300180005	NM	10/25/2007	10/30/2007	11/8/2007	5	. 9	14
os	%	SB-479-0102	A7J300180006	NM	10/25/2007	10/30/2007	11/9/2007	5	10	15
os	%	SB-479-0203	A7J300180007	NM	10/25/2007	10/30/2007	11/8/2007	5	9	. 14
os	%	SB-479-0304	A7J300180008	NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
os	%	SB-478-0102	A7J300180001	. NM	10/25/2007	10/30/2007	11/8/2007	5	9	14
os	%	SB-481-0506	A7J300180019	NM	10/29/2007	10/31/2007	11/1/2007	2	. 1	3

Monday, November 26, 2007

Metals Data Reporting Form

Initial Calib	bration \	/erificat	tion Stan	dard								
Instrument:	CV	'AA	_				Units:	1	ıg/L	_		
Chart Numb	oer: <u>hg</u>	11031a. _F	orn_				Accepta	ıble Ra	nge: 9	0% - 1	10%	
Standard So	ource:		Ultra				Standar	d ID:	·			
Element	WL/ Mass	True Conc	Ck5IC 10/31/2 10:19 /	007	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7			101.0								

Metals Data Reporting Form

Continuing	Calibra	tion Ve	rification					<u> </u>	_			
Instrument:	CV	AA	- ,				Units: _	<u> </u>	ıg/L	_		
Chart Numb	er: hg	11031a.p	orn_				Acceptal	ole Ra	inge: <u>80</u>	<u>% - 12</u>	20%	
Standard So	urce:		Ultra				Standard	l ID: ˌ				
			Ck2CC 10/31/2 10:23 A	007	Ck2CC 10/31/20 10:38 A	007	Ck2CC` 10/31/20 10:52 A	07	Ck2CC 10/31/20 11:07 A	07	Ck2CC 10/31/20 11:21 A	007
Element	WL/ Mass	True Conc	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
	252.7	5.0	5.27	7 105 5	5 32	106.5	5.42	108.4	5.47	109.3	5.41	108.2

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ____CVAA ____ Units: ug/L

Chart Number: hg11031a.prn Acceptable Range: 80% - 120%

Standard Source: Ultra Standard ID:

			Ck2C0	007	Ck2CC 10/31/20	07	Ck2CC		Ck2CC	007	Ck2CC	007
	$\mathbf{w}_{\mathbf{L}'}$	· 	11:35 A		11:49 A		11:53 A		12:03 P		12:07 P	
Element	Mass	True Conc	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Form d	% Dan
Element	171455	Cone	roullu	Rec	rouna	Rec	round	Rec	rouna	Rec	Found	Rec
Mercury	253.7	5.0	5.48	109.5	5.42	108.3	5.45	109.1	5.44	108.7	5.37	107.3

Metals Data Reporting Form

Continuing Calibration Verification **Instrument:** CVAA Units: ug/L Chart Number: hg11031a.pm Acceptable Range: 80% - 120% Standard Source: Ultra Standard ID: Ck2CCV Ck2CCV Ck2CCV Ck2CCV Ck2CCV 10/31/2007 10/31/2007 10/31/2007 10/31/2007 10/31/2007 2:07 PM 2:18 PM 2:34 PM 1:39 PM 1:52 PM WL/ True % Conc Rec Rec Rec Rec Found Rec Element Mass Found Found Found **Found**

5.22 104.4

5.05 101.1

5.49 **109.7**

5.10 **102.0**

5.42 108.3

Mercury

253.7

5.0

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA

Units: ug/L

Chart Number: hg11031a.pm

Acceptable Range: 80% - 120%

Standard Source: Ultra

Standard ID:

			Ck2CC 10/31/20		Ck2CC 10/31/20		Ck2CC 10/31/20					
			2:48 PI	M	3:02 PN	Л	3:17 PN	M				
	WL/	True		%		%		%		%		%
Element	Mass	Conc	Found	Rec	Found	Rec	Found	Rec	Found	Rec	Found	Rec
Mercury	253.7	5.0	5.36	107.3	5.42	108.3	5.44	108.9				

Contract	Required	l Detect	ion Limi	t Stan								
Instrumen	nt:	CVAA					Units:		ug/L			
Chart Nur	nber: <u>l</u>	ng11031a	.prn				Accep	table F	Range:	50% -	150%	
Standard S	Source: _		Ultr	a	_	Stand	ard ID	•				
Element	WL/ Mass	True Conc	Ck3CRA\ 10/31/20 10:22 A	007	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Managemen	252.7	0.2	0.17	92 A	· .		· · ·					

Initial Calib	ration B	lank R	esults									
Instrument:	CV	AA .	_				Units: _		ug/L	_		٠
Chart Number	er: <u>hgl</u>	1031a.p	orn									
Standard Sou	ırce:						Standar	d ID:				_
Element	WL/ Mass	Report Limit	Found	Q	Found	Q	Found	Q	Found	· Q	Found	Q
Mercury	253.7	0.6	0.1	Ū								

U Result is less than the IDL

Continuing	Calibra	tion B	lank Res	ults										
Instrument:	CA	/AA			·		Units:		ug/L					
Chart Number: hg11031a.prn														
Standard Source: Standard ID:														
			Ck1CC	CB	Ck1CC	СВ	Ck1CC	В	Ck1C	СВ	Ck1CC	B		
			10/31/20	007	10/31/20	007	10/31/20	07	10/31/2	.007	10/31/20	07 .		
			10:24 A	AM	10:39 A	M	10:53 A	M	11:08 /	AM	11:22 A	M		
	WL/	Report												
Element	Mass	Limit	Found	Q.	Found	Q	Found	Q	Found	O	Found	Q		
Mercury	253.7	0.6	0.1	U	0.1	U	-0.1	В	0.	l U	-0.1	В		

Continuing	, Calibra	tion B	lank Resi	ults								
Instrument:	C\	/AA					Units:		ug/L			
Chart Numl	ber: hg	;11031a	.prn									
Standard So	ource: _					_	Standa	rd ID):			_
	Ck1CCB 10/31/200 11:36 AM			007	Ck1CC 10/31/20 11:50 A	007	Ck1CC 10/31/20 11:54 A	07	Ck1C 10/31/2 12:04	2007	Ck1CC 10/31/20 12:08 P	007
Element	WL/ Mass	Report Limit	Found	o	Found	Q	Found	Q	Found	Q_	Found	o
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	-0.	1 B	-0.1	В

Metals Data Reporting Form

Continuing Calibration Blank Results **Instrument:** CVAA Units: ug/L Chart Number: hg11031a.pm Standard Source: Standard ID: Ck1CCB Ck1CCB Ck1CCB Ck1CCB Ck1CCB 10/31/2007 10/31/2007 10/31/2007 10/31/2007 10/31/2007 1:53 PM 2:08 PM 2:20 PM_ 2:35 PM 1:40 PM WL/ Report Found Limit Found Found Found Element Mass Found 0.1 U -0.1 0.1 0.1 U U Mercury 253.7 0.1 В

U Result is less than the IDL

Continuing	g Calibra	ation B	lank Resi	ılts								
Instrument:	:	VAA .					Units:		ug/L			
Chart Num	ber: h	g11031a	.prn									
Standard So	ource: _					_	Standa	rd IE):			<u> </u>
			Ck1CC 10/31/20 2:49 PM	007	Ck1CC 10/31/20 3:04 PI	007	Ck1CC 10/31/20 3:18 PN	07		:		
Element	WL/ Mass	Report Limit	Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	ΤΪ	0.1	H	-0.1	R				

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID:

J97FQB

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304027

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	. IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.017	0.10	0.017	U	1	CVAA	0/31/2007	14:36

Comments: Lot #: A7J300180

METHOD BLANK REPORT

General Chemistry

Client Lot #...: 7J30180

Matrix..... SOLID

		REPORTING	3		PREPARATION-	PREP
PARAMETER	RESULT	LIMIT	UNITS	METHOD	ANALYSIS DATE	BATCH #
Percent Solids		Work Order	#: KAQ4T1AA	MB Lot-Sample #:	A7K060000-054	
	ND	10.0	9	MCAWW 160.3 MOD	11/06-11/08/07	7310054
		Dilution Fact	or: 1		•	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: J95QCS

Original Sample ID: J95QC Client ID: SB-481-0506S

Matrix: Soil Units: mg/kg Prep Date: 10/31/2007 Prep Batch: 7304027

Weight: 0.60 Volume: 100 Percent Moisture: 17.758

	WL/	os		MS		Spike	%	os	MS		OS Anal	OS Anal	MS Anal	MS Anal
Element	Mass	Conc	Q	Conc	Q	Level	Rec	DF	DF	Instr	Date	Time	Date	Time
Mercury	253.7	0.020	U	0.21		0.2027	105.0	1	1	CVAA	10/31/2007	15:05	10/31/2007	15:08

Comments: Lot #: A7J300180 Sample #: 19

5.21.0

N Spike recovery failed

Form 5A Equivalent

NC Percent recovery was not calculated

- * Duplicate analysis RPD was not within limits
- E Serial dilution percent difference not within limits

Metals Data Reporting Form

Matrix Spike Duplicate Sample Results

Spike Sample ID:

J95QCD

Original Sample ID:

J95QC

Client ID:

SB-481-0506D

Matrix: Soil

Units:

mg/kg

Prep Date: __10/31/2007

Prep Batch:

7304027

Weight: 0.60

Volume:

100

Percent Moisture:

17.758

Element	WL/ Mass	OS Conc	O	MSD Conc	Q	Spike Level	% Rec	OS DF	MSD DF	Instr	OS Anal Date	OS Anal Time	MSD Anal Date	MSD Anal Time
Mercury	253.7	0.020	U	0.23		0.2027	113.9	1	1	CVAA	10/31/2007	15:05	10/31/2007	15:09

Comments: Lot #: A7J300180 Sample #: 19

5.21.0

N Spike recovery failed

Form 5A Equivalent

NC Percent recovery was not calculated

- Duplicate analysis RPD was not within limits
- Serial dilution percent difference not within limits
- Result is less than the IDL

Metals Data Reporting Form

Matrix Spike Duplicate RPD Report

Matrix Spike Duplicate Sample ID: J95QCD

Matrix Spike Sample ID: J95QCS Client ID: SB-481-0506D

Matrix: Soil Units: mg/kg Prep Date: 10/31/2007 Prep Batch: 7304027

 Weight:
 0.60
 Volume:
 100
 Percent Moisture:
 17.758

										MS	MS	MSD	MSD
	WL/	MS		MSD		%	MS	MSD		Anal	Anal	Anal	Anal
Element	Mass	Conc	Q	Conc	Q	RPD	DF	DF	Instr	Date	Time	Date	Time

Comments: Lot #: A7J300180 Sample #: 19

5.21.0

N Spike recovery failed

Form 6 Equivalent

NC Percent recovery was not calculated

- * Duplicate analysis RPD was not within limits
- E Serial dilution percent difference not within limits
- U Result is less than the IDL

Metals Data Reporting Form

Sample Duplicate RPD Report

Duplicate Sample ID: J95QCX

Original Sample ID: J95QC Client ID: SB-481-0506X

Matrix: Soil Units: mg/kg Prep Date: 10/31/2007 Prep Batch: 7304027

 Weight:
 0.60
 Volume:
 100
 Percent Moisture:
 17.758

Element	WL/ Mass	OS Conc	Q	Dupe Conc	Q	% RPD	OS DF	Dupe DF	Instr	OS Anal Date	OS Anal Time	Dupe Anal Date	Dupe Anal Time
Mercury	253.7	0.020	IJ	0.020	II		1	1	CVAA	0/31/200	15:05	10/31/2007	15:07

^{*} Duplicate analysis RPD was not within limits

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J300180

Work Order #...: J95QC-SMP

Matrix..... SO

J95QC-DUP

Date Sampled...: 10/29/07 08:46 Date Received..: 10/30/07

% Moisture....: 18

	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	UNITS	RPD	LIMIT	METHOD	ANALYSIS DATE	BATCH #
Percent Solids				***************************************	SD Lot-Sample #:	A7J300180-019	
82.2	80.2	%	2.5	(0-20)	MCAWW 160.3 MOD	11/06-11/07/07	7310054

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J300180

Work Order #...: J95QF-SMP

Matrix....: SO

J95QF-DUP

Date Sampled...: 10/29/07 08:48 Date Received..: 10/30/07

% Moisture....: 17

0 HOLDCUIC							
	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	UNITS	RPD	LIMIT	METHOD	ANALYSIS DATE	BATCH #
Percent Solids					SD Lot-Sample #:	A7J300180-020	
82.6	82.8	%	0.28	(0-20)	MCAWW 160.3 MOD	11/06-11/08/07	7310054

Dilution Factor: 1

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID:

J97FQC

Matrix:

Soil

Units: mg/kg

Prep Date: <u>10/31/2007</u>

Prep Batch: 7304027

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.83	0.85	102.3		81-123	1	CVAA	0/31/2001	14:37

Metals Data Reporting Form

Instrument Dete	ction Limi	ts
-----------------	------------	----

Instrument: CVAA Units: ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Mercury	253.700	0.6	0.10	2/1/2007

Batch Number:

7304027

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:

Lisa McGall
(e-Signature)

Prep Date:

10/31/07

			Frep Date.	10/31/07			
Lot	Work Order		Due Date:	11/13/07	ICP Weight	ICPMS Weight	Hg Weight
A7J310000 Solid	J97FQ	В	Due Date: SDG:				<u>0.60 g</u>
A7J310000 Solid	J97FQ	С	Due Date: SDG:				<u>0.60 g</u>
A7J300180 Solid	J95K0 Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95K6 Total	·	Due Date: 11/13/07 SDG: 7J30180			•	<u>0.60 g</u>
A7J300180 Solid	J95K7 Total		Due Date: 11/13/07 SDG: 7J30180	•			<u>0.60 g</u>
A7J300180 Solid	J95K9 Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95LA Total		Due Date: 11/13/07 SDG: 7J30180			-	<u>0.60 g</u>
A7J300180 Solid	J95LC Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95LE Total		Due Date: 11/13/07 SDG: 7J30180			·	<u>0.60 g</u>
A7J300180 Solid	J95LH Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95LJ Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95LM Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95LN Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95LT Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95P1 Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95P2 Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95P4 Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95P6 Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95P7 Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95P9 Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95QC Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95QC Total	S	Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>

Batch Number:

7304027

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:

Lisa McGall (e-Signature)

Prep Date:

SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG

10/31/07

Lot	Work Orde	er	Due Date:	11/13/07	ICP Weight	ICPMS Weight	Hg Weight
A7J300180 Solid	J95QC Total	D	Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95QC Total	X	Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
A7J300180 Solid	J95QF Total		Due Date: 11/13/07 SDG: 7J30180				<u>0.60 g</u>
	MS/MSD	AND PD	ECK STANDARD ON BATCH S ON BATCH S ADDED		x x		

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

Matrix Spike Information:

J95QC

Hg

Check Sample Information:

J97FQ

.Hg

Prep Method(s): SW846 7471A

: Instrument Upload Run Log - Page 1:
: Started Thu Nov 1 05:59:43 2007 by LISTM :
: Data File: UPL\$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
		1	21 000 2007	10.12.42			H1
	STD1REP1	1	31-OCT-2007				H1
	STD2REP1	1	31-OCT-2007				H1
	STD3REP1	1	31-OCT-2007				
	STD4REP1	1	31-OCT-2007				H1
	STD5REP1	1	31-OCT-2007				H1.
	STD6REP1	1	31-OCT-2007				H1
	CK5ICV	1	31-OCT-2007				H1
	CK4ICB	1	31-OCT-2007			•	H1
	CK3CRA\MRL		31-OCT-2007				H1
	CK2CCV	1	31-OCT-2007				H1
11	CK1CCB	1	31-OCT-2007				H1.
	J924PB	1	31-OCT-2007			A7J290000	H1
13	J924PC	1	31-OCT-2007			A7J290000	H1.
14	J9XCT	1	31-OCT-2007			A7J260162	H1
15	J9XCTS	1	31-OCT-2007	10:29:36	7302033	A7J260162	Hl
16	J9XCTD	1	31-OCT-2007	10:30:51	7302033	A7J260162	H1.
17	J9XCTL	1	31-OCT-2007	10:32:10			H1
18	J902F	1	31-OCT-2007				H1
19	Ј9033	1	31-OCT-2007	10:34:43	7302033	A7J260345	H1
20	Ј9035	1.	31-OCT-2007	10:35:49	7302033	A7J260345	H1
21	J9038	1	31-OCT-2007	10:37:05	7302033	A7J260345	H1
22	CK2CCV	1	31-OCT-2007	10:38:10			H1
23	CK1CCB	1	31-OCT-2007	10:39:14			H1
24	J903P	1	31-OCT-2007	10:40:22	7302033	A7J260345	H1
25	J903W	1	31-OCT-2007	10:41:32	7302033	A7J260345	H1
26	J904E	1	31-OCT-2007	10:42:46	7302033	A7J260345	Hl
27	J924RB	1	31-OCT-2007	10:43:52	7302034	A7J290000	Hl
28	J924RC	1	31-OCT-2007	10:45:21	7302034	A7J290000	H1
29	J90M9	1	31-OCT-2007	10:46:47	73.02034	7J26310	H1
30	J90N0	1	31-OCT-2007	10:47:53	7302034	7J26310	H1
	J90N1	1	31-OCT-2007	10:49:20	7302034	7J26310	H1
32	J90N3	1	31-OCT-2007	10:50:25	7302034	7J26310	Hl
33	J90N4	1	31-OCT-2007	10:51:31	7302034	7J26310	Hl
	CK2CCV	1	31-OCT-2007	10:52:47			H1
	CK1CCB		31-OCT-2007	10:53:56		•	H1
	J90N6	1	31-OCT-2007		7302034	7J26310	H1
		1	31-OCT-2007	10:56:43	7302034	7J26310	H1
	J90N7X	1	31-OCT-2007	10:57:48	7302034	7J26310	Hl
	J90N7S	1	31-OCT-2007			7J26310	H1
	J90ND	1 .	31-OCT-2007			7J26310	H1
	J90NE	1	31-OCT-2007				Hl
	J90NF	1	31-OCT-2007				H1.
	J90NH	1	31-OCT-2007				H1
	J90NJ	1	31-OCT-2007				H1
**	0,000	-					

----- (continued) -----

Instrument Upload Run Log - Page 2:
Started Thu Nov 1 05:59:44 2007 by LISTM:
Data File: UPL\$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1:

#			Date	Time	Batch	Lot	Instrument
45	J90NK	1	31-OCT-2007	11:06:08	7302034	.7J26310	H1
	CK2CCV	1					H1
	CK1CCB	1.	31-OCT-2007	11:08:36		•	H1
	J90NL	1	31-OCT-2007 31-OCT-2007 31-OCT-2007 31-OCT-2007	11:09:51	7302034	7J26310	Hl
	J90NN	1	31-OCT-2007	11:10:58	7302034	7J26310	H1
	J90NP	1	31-OCT-2007	11:12:17	7302034	7J26310	Hl
	J90NQ	1	31-OCT-2007	11:13:25	7302034	7J26310	H1
	J90NV	1	31-OCT-2007	11:14:32	7302034	7J26310	H1
53	J90NW	1 .	31-OCT-2007	11:15:39	7302034	7J26310	Hl
54		1	31-OCT-2007	11:16:44	7302034	7J26310	H1
	J924VB	1	31-OCT-2007	11:17:49	7302035	A7J290000	H1
	J924VC		31-OCT-2007	11:18:59	7302035	A7J290000	H1
57	J90W8	1	31-OCT-2007	11:20:05	7302035	7J26337	H1
58	CK2CCV	1	31-OCT-2007	11:21:21			H1
59	CK1CCB	1	31-OCT-2007	11:22:32			Hl .
60	J90W9	1	31-OCT-2007	11:23:37	7302035	7J26337	H1
61	J90X1	1	31-OCT-2007	11:24:45	7302035	7J26337	H1
	J90X3	1	31-OCT-2007	11:26:06	7302035	7J26337	H1
63	J90X5	1	31-OCT-2007	11:27:24	7302035	7 J 26337	H1
64	J90X6		31-OCT-2007			7J26337	Hl
65	J90X6X		31-OCT-2007			7Ј26337	H1
66	J90X6S	1	31-OCT-2007	11:30:42	7302035	7J26337	Hl
67	J90XA	1	31-OCT-2007	11:31:49	7302035	7J26337	H1
68	J90XC		31-OCT-2007				H1
69	J90XD	1	31-OCT-2007	11:34:02	7302035	7J26337	H1
70	CK2CCV	1	31-OCT-2007	11:35:07			Hl
71	CK1CCB	1	31-OCT-2007	11:36:15			Hl
72	J90XE		31-OCT-2007				Hl
73	J90XF		31-OCT-2007				H1
74	J90XG	1	31-OCT-2007	11:39:38	7302035		H1.
75	J90XH	1	31-OCT-2007	11:40:46	7302035	7J26337	H1.
76	J90XK		31-OCT-2007				H1
	J90XL		31-OCT-2007				H1
		1	31-OCT-2007	11:44:10	7302035	7J26337	H1
	J90XP	1	31-OCT-2007	11:45:29	7302035	7J26337	H1
80	J90XT		31-OCT-2007				H1 ·
	J90XV	1	31-OCT-2007		7302035	7J26337	H1
	CK2CCV	1	31-OCT-2007				H1
	CK1CCB	1	31-OCT-2007		maaaaa=		H1
	J90XX	1	31-OCT-2007		7302035	7J26337	H1
	CK2CCV	1 .	31-OCT-2007				H1
	CK1CCB	1 .	31-OCT-2007				H1
	CK2CCV	1	31-OCT-2007				H1
88	CK1CCB	1	31-OCT-2007	12:04:20			H1

: Instrument Upload Run Log - Page 3:
: Started Thu Nov 1 05:59:44 2007 by LISTM :
: Data File: UPL\$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1 :

#	WorkOrder	Dilution	Date	Time			Instrument
00	J924RC	1	31-OCT-2007				
	CK2CCV		31-OCT-2007			11,023000	H1
	CK1CCB	1	31-OCT-2007	12:08:05			H1
	CK2CCV		31-OCT-2007				H1
	CK1CCB		31-OCT-2007				H1
	J97FJB					A7J310000	H1
	J97FJC	1	31-OCT-2007				H1
	J9597		31-OCT-2007				H1
	J9597S		31-OCT-2007				H1
	J9597D		31-OCT-2007				H1
	J97FLB	1	31-OCT-2007				H1
	J97FLC	1	31-OCT-2007			A7J310000	H1
			31-OCT-2007			7J30211	H1
	J95T0 J95T1 J95T2	1	31-OCT-2007			7J30211	H1
	J95T2	1	31-OCT-2007				Hl
	CK2CCV	1	31-OCT-2007				H1
	CK1CCB	1	31-OCT-2007				H1
	J95T3		31-OCT-2007			7J30211	H1
	J95T4		31-OCT-2007			7J30211	H1
	J95T6	1	31-OCT-2007	13:57:24	7304025	7J30211	H1
	J95T7		31-OCT-2007			7J30211	H1
	J95T7X		31-OCT-2007				H1
	J95T7S	1	31-OCT-2007	14:00:51	7304025		H1
112	J95 T J	1	31-OCT-2007	14:01:55	7304025	7J30211	H1
113	J95TK	1	31-OCT-2007	14:03:10	7304025		H1
114	J95TK J95TL J95 T M	1	31-OCT-2007	14:04:46	7304025	7J30211	H1
115	J95TM	1	31-OCT-2007	14:06:12	7304025	7J30211	H1
116	CK2CCV	1	31-OCT-2007				H1
117	CK1CCB	1	31-OCT-2007	14:08:34			H1
118	J95TN	1	31-OCT-2007	14:09:45	7304025	7J30211	H1
119	J95TR		31-OCT-2007			7J30211	H1
120	J95TT	1	31-OCT-2007	14:11:57	7304025	7J30211	H1 .
	J95TV	1	31-OCT-2007	14:13:11	7304025	7J30211	H1
`122	J95TW	1	31-OCT-2007 31-OCT-2007 31-OCT-2007	14:14:18	7304025	7J30211	H1
123	J95TX	1	31-OCT-2007	14:15:24	7304025	7J30211	H1
124	J95VG	ì	31-OCT-2007	14:16:31	7304025	7J30211	H1
125	J95VJ	1	31-OCT-2007		7304025	7J30211	H1
126	CK2CCV	1	31-OCT-2007	14:18:57			Hl
127	CK1CCB	1	31-OCT-2007		•		H1
128	CK2CCV	1	31-OCT-2007	•			H1
129	CK1CCB	1	31-OCT-2007				H1
	J97FQB	1	31-OCT-2007			A7J310000	Hl
131	J97FQC	1	31-OCT-2007			À7J310000	H1
132	J95K0	1	31-OCT-2007	14:38:39	7304027	7J30180	Hl

----- (continued) -----

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: Instrument Upload Run Log - Page 4:
: Started Thu Nov 1 05:59:44 2007 by LISTM :
: Data File: UPL$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1 :
```

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
133	J95K6	1	31-OCT-2007	14:39:44	7304027	7J30180	н1
134	J95K7	1	31-OCT-2007	14:41:01	7304027	7J30180	H1
	J95K9	1	31-OCT-2007	14:42:06	7304027	7J30180	H1
136	J95LA	1	31-OCT-2007	14:43:20	7304027	7J30180	H1
137	J95LC	1	31-OCT-2007	14:44:41	7304027	7J30180	H1
	J95LE	1	31-OCT-2007	14:46:01	7304027	7J30180	H1
	J95LH	1	31-OCT-2007	14:47:19	7304027	7J30180	H1
	CK2CCV	1	31-OCT-2007	14:48:24			H1
	CK1CCB	1	31-OCT-2007	14:49:30			H1
142	J95LJ	1	31-OCT-2007	14:50:38	7304027	7J30180	H1
143	J95LM	1	31-OCT-2007	14:51:44	7304027	7J30180	H1
144	J95LN	1	31-OCT-2007	14:52:48	7304027	7J30180	H1
	J95LT	1	31-OCT-2007	14:54:16	7304027	7J30180	H1
		1	31-OCT-2007	14:55:24	7304027	7J30180	H1
147	J95P2	1	31-OCT-2007	14:56:29	7304027	7J30180	H1
	J95P4	1 1 1	31-OCT-2007	14:57:47	7304027	7J30180	Hl
149	J95P6	1	31-OCT-2007	14:59:12	7304027	7J30180	H1
	J95P7	1	31-OCT-2007	15:00:18	7304027	7J30180	H1
151	J95P9	1	31-OCT-2007	15:01:46	7304027	7J30180	H1.
152	CK2CCV	1	31-OCT-2007	15:02:52			H1
153	CK1CCB	1	31-OCT-2007	15:04:41			H1
	J95QC	1	31-OCT-2007	15:05:47	7304027	7J30180	H1
	J95QCX	1	31-OCT-2007	15:07:13	7304027	7J30180	H1
	J95QCS	1	31-OCT-2007	15:08:20	7304027	7J30180	H1
	J95QCD	1	31-OCT-2007	15:09:31	7304027	7J30180	H1
158	J95QF	1	31-OCT-2007	15:10:47	7304027	7J30180	H1
159	J97FNB	1	31-OCT-2007	15:11:52	7304026	A7J310000	Hl
160	J97FNC	1	31-OCT-2007	15:12:56	7304026	A7J310000	H1
	J95Q8		31-OCT-2007	15:14:03	7304026	7J30202	H1
162	J95R0	1	31-OCT-2007	15:15:09	7304026	7J30202	H1
163	J95R1	1	31-OCT-2007	15:16:15	7304026	7J30202	H1
164	CK2CCV	1	31-OCT-2007	15:17:24			H1
165	CK1CCB	1	31-OCT-2007	15:18:30			H1
166	J95R2	1	31-OCT-2007	15:19:38	7304026	7J30202	H1
167	J95R4	1 .	31-OCT-2007	15:20:45	7304026	7J30202	Hl
168	J95R4X	1	31-OCT-2007	15:22:02	7304026	7J30202	H1
169	J95R4S	1	31-OCT-2007	15:23:08	7304026	7J30202	H1
	J95R5	1	31-OCT-2007	15:24:12	7304026	7J30202	H1
171	J95RD	1	31-OCT-2007	15:25:17	7304026	7J30202	H1
172	J95RE	1	31-OCT-2007	15:26:26	7304026	7J30202	H1
173	J95RG	1	31-OCT-2007	15:27:32	7304026	7J30202	H1
	J95RH	1	31-OCT-2007	15:28:39	7304026	7J30202	Hl
175	J95RK	1	31-OCT-2007	15:29:47	7304026	7J30202	H1
	CK2CCV	1	31-OCT-2007	15:30:54			Hl
			,	•		•	

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: Instrument Upload Run Log - Page 5:
: Started Thu Nov 1 05:59:44 2007 by LISTM :
: Data File: UPL\$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
177	CK1CCB	1	31-OCT-2007	15:32:00			H1
178	J95RL	1	31-OCT-2007	15:33:05	7304026	7Ј30202	H1
179	J95RM	1	31-OCT-2007	15:34:23	7304026	7J30202	Hl
180	J95RN	1	31-OCT-2007	15:35:31	7304026	7J30202	H1
181	J95RP	1	31-OCT-2007	15:36:42	7304026	7J30202	H1
182	J95RQ	1	31-OCT-2007	15:37:59	7304026	7J30202	H1
183	J95RR	1	31-OCT-2007	15:39:17	7304026	7J30202	H1
184	J95RT	1	31-OCT-2007	15:40:42	7304026	7J30202	H1
185	J95RV	1	31-OCT-2007	15:41:58	7304026	7J30202	Hl
186	J95RW	1	31-OCT-2007	15:43:05	7304026	7J30202	H1
187	CRA	1	31-OCT-2007	15:44:12			H1
188	CK2CCV	1	31-OCT-2007	15:45:19			H1
189	CK1CCB	1	31-OCT-2007	15:46:24			Hl

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Folder: HG11031A

14:47:19 31 Oct 2007

Protocol: HGPPB

		Pro			•					
Line Cond	c. Units	SD/RSD	1	2	3	4		5		· · · · · · · · · · · · · · · · · · ·
*** Sample	1D: J95LH	SOLID .0000 % -	_	138	14:47:19	31	Oct	2007	HG	
Line `Flag	%Rev. Fo	Ck2CCV und True .363 5.000	Units		SD/RSD	31	0ct	2007	HG	
*** Check S Line Flag lg	Standard: 1 Found Rang 0891	Ck1CCB e(+/-) Units 2000 ppb	Seq:	140 D/RSD .0000	14:49:30 %	31	Oct	2007	HG	
*** Sample	ID: J95LJ	SOLID -	_	141	14:50:38	31	Oct	2007	HG	
	1D: J95LM	SOLID .0000 % -		142	14:51:44	31	Oct	2007	HG	
*** Sample	ID: J95LN	SOLID	_	143	14:52:48	31	Oct	2007	HG	
*** Sample	ID: J95LT	SOLID .0000 % -		144	14:54:16	31	Oct	2007	HG	
*** Sample	1D: J95P1	SOLID .0000 % -		145	14:55:24	31	Oct	2007	HG	
*** Sample		SOLID .0000 % -	_	146	14:56:29	31	Oct	2007	HG	
*** Sample	1D: J95P4	SOLID .0000 % -	Seq:	147	14:57:47	31	Oct	2007	HG	
*** Sample		SOLID	Seq:	148	14:59:12	31	Oct	2007	HG	
	1D: J95P7	SOLID	Seq:	149	15:00:18	31	Oct	2007	HG	٠.
	SAMPle	SB-1	, =				\wedge	21	4	mal

Sheet1

·-·		TestAmerica, North Canton				
		Percent To	tal Solid/P	ercent Mois	ture Logshe	et
Analysis	TS			Batch	7310054	
Prep Date	11/6/2007	Time In	7:00	Analyst	NAP	
·		_				
Anal date	11/7/2007	Time Out	8:00	RL	10	
Sample	Tare	Wet	Dry		Result MS	comments
ID	wt	wt	wt	%	%	
BLK B	4.6622	4.7446	4.7325	2.75	ND	
J95K0	4.6622	9.8903	9.3847	90.329	9.671	
J95K6	4.6622	17.9748	16.3330		12.333	
J95K7	4.6622	20.5381	18.1800		14.853	
J95K9	4.6622	16.1963	14.6673		13.256	
J95LA	4.6622	12.8870	11.5512		16.241	
J95LC	4.6622	20.5091	18.5995		12.050	
J95LE	4.6622	17.3791	15.5922			
J95LH	4.6622	28.0676	24.2834		16.168	
J95LJ	4.6622	21.0734	18.5524			
J95LM	4.6622	17.7630	15.9151	85.895		
J95LN	4.6622	22.5275	20.5451	88.904		
J95LT	4.6622	15.9572	14.7667			
J95P1	4.6622	18.6227	16.9620	1		
J95P2	4.6622	24.2039	21.0902			
J95P4	4.6622	14.6781	13.2343			
J95P6	4.6622	24.7862	21.7648			
J95P7	4.6622	17.1964				
J95P9	4.6622	19.1906				
J95QC	4.6622	15.0730	13.2242			
J95QCX	4.6622	18.2507	15.5620			
J95QF	4.6622	17.7122	15.4368			
J95QFX	4.6622	14.2033	12.5618	82.795	17.205	

Sample SB-478-0102 Percent solids 90.3 9.8903-9.3847 (100)-100 9.8903-4.6622 (100)-100



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

M. MARTIN

DATE:

DECEMBER 11, 2007

FROM:

ROBERT JUPIN

COPIES:

DV FILE

SUBJECT:

ORGANIC DATA VALIDATION - BENZO(a)PYRENE

LOCKHEED MIDDLE RIVER COMPLEX

SAMPLE DELIVERY GROUP (SDG): 7J30202

SAMPLES:

20/Soil/

SB-482-0102	SB-482-0203	SB-482-0304	SB-482-0506	SB-482-0708
SB-483-0102	SB-483-0203	SB-483-0304	SB-483-0506	SB-483-0708
SB-484-0102	SB-484-0203	SB-484-0304	SB-484-0506	SB-484-0708
SB-485-0102	SB-485-0203	SB-485-0304	SB-485-0506	SB-485-0708

Overview

The sample set for SDG 7J30202 Lockheed MRC, consists of twenty (20) soil environmental samples.

All soil samples were analyzed for benzo(a)pyrene. The samples were collected by TetraTech NUS on October 29, 2007 and analyzed by Test America Laboratories, Inc. Analyses were conducted using SW-846 Method 8270C.

The findings in this report are based upon a general review of all available data including: data completeness, GC/MS tuning, holding times, initial/continuing calibrations, laboratory method/preparation and field quality control blank results, surrogate spike/internal standard recoveries, laboratory control sample (LCS)/blank spike results, matrix spike/matrix spike duplicate results, analyte quantitation, and detection limits,. Areas of concern are listed below.

Major Problems

None.

Minor Problems

Positive results reported below the detection limit have been qualified as estimated, "J".

<u>Notes</u>

The matrix spike sample was not spiked for benzo(a)pyrene therefore, no evaluation of the matrix spike could be performed.

Executive Summary

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (9/94) as modified by Region III.

Tetra Tech SS Robert J. Jupin

Risk Assessment Specialist/Environmental Scientist

Tetra Tech NUS Joseph A. Samchuck

Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Support Documentation

Data Qualifier Key:

- U Value is a nondetect as reported by the laboratory.
- J Positive result is considered estimated, "J", as a result of technical noncompliances.

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

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 be any number of issues; e.g. poor 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

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date SB-482-0102 10/29/2007

nsample samp_date SB-482-0203 10/29/2007

nsample samp_date lab_id

SB-482-0304 10/29/2007 A7J300202003

lab_id qc_type units

A7J300202001 NM UG/KG

lab_id qc_type units Pct_Solids

A7J300202002 NM UG/KG 83.0

qc_type units

NM UG/KG

85.0

Pct_Solids DUP_OF:

78.0

DUP_OF:

Pct_Solids

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	13	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

lab_id

units

qc_type

Pct_Solids

DUP_OF:

SB-482-0506 10/29/2007

A7J300202004

NM UG/KG 84.0

nsample samp_date lab_id

10/29/2007 A7J300202005

SB-482-0708

NM UG/KG 83.0

nsample samp_date lab_id

qc_type

units

SB-483-0102 10/29/2007 A7J300202006

NM UG/KG

Pct_Solids 86.0 DUP_OF:

Pct_Solids DUP_OF:

qc_type

units

Val Qual Parameter Result Qual Code BENZO(A)PYRENE 1.5 U

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	32	J	Р

00885

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

SB-483-0203 10/29/2007 nsample samp_date lab_id SB-483-0304 10/29/2007 nsample samp_date SB-483-0506 10/29/2007

lab_id
qc_type
units

A7J300202007 NM

qc_type units A7J300202008 NM UG/KG

82.0

lab_id qc_type units A7J300202009 NM UG/KG

83.0

Pct_Solids DUP_OF:

UG/KG 83.0

Pct_Solids DUP_OF:

Pct_Solids

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	28	J	P.

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	Ū	

00885

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

SB-483-0708 10/29/2007 nsample samp_date lab_id SB-484-0102 10/29/2007 A7J300202011 nsample samp_date lab_id SB-484-0203 10/29/2007 A7J300202012

lab_id qc_type units Pct_Solids A7J300202010 NM UG/KG 83.0 lab_id
qc_type
units
Pct_Solids
DUP_OF:

NM UG/KG 83.0 ab_id
qc_type
units
Pct_Solids

DUP_OF:

NM UG/KG 86.0

DUP_OF:

 Parameter
 Result
 Val Qual Code

 BENZO(A)PYRENE
 1.6
 U

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	21	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date lab_id SB-484-0304 10/29/2007 A7J300202013 nsample samp_date lab_id qc_type units

DUP_OF:

SB-484-0506 10/29/2007 A7J300202014

NM

nsample samp_date lab_id qc_type units SB-484-0708 10/29/2007 A7J300202015 NM

qc_type units Pct_Solids

UG/KG 83.0

MM

units UG/KG Pct_Solids 86.0

units
Pct_Solids
DUP_OF:

UG/KG 84.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	_

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

lab_id

units

qc_type

Pct_Solids

DUP_OF:

SB-485-0102 10/29/2007

A7J300202016

NM UG/KG

88.0

nsample samp_date

DUP_OF:

lab_id qc_type units Pct_Solids SB-485-0203 10/29/2007 A7J300202017

NM UG/KG

89.0

nsample

samp_date lab_id

10/29/2007 A7J300202018

SB-485-0304

NM UG/KG 84.0

Pct_Solids DUP_OF:

qc_type

units

Val Qual Parameter Qual Code Result 10 BENZO(A)PYRENE Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	43	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

00885

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: OS

nsample

SB-485-0506

nsample samp_date SB-485-0708

samp_date lab_id

10/29/2007

10/29/2007 A7J300202020

qc_type

A7J300202019 NM

lab_id

units

qc_type units

NM UG/KG

Pct_Solids DUP_OF:

UG/KG 85.0

Pct_Solids 85.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	U	

APPENDIX B RESULTS AS REPORTED BY THE LABORATORY

Client Sample ID: SB-482-0102

GC/MS Semivolatiles

Lot-Sample #: A7J3 Date Sampled: 10/2 Prep Date: 10/3 Prep Batch #: 7304 Dilution Factor: 1	9/07 09:30 Date Rec 1/07 Analysis		7	crix	: SO
% Moisture: 22	Method	: SW846 8	3270C		
PARAMETER	RESULT	REPORTI LIMIT	ING UNITS	MDL	
Benzo(a)pyrene	13 J	420	ug/kg	1.7	
SURROGATE	PERCENT RECOVERY	RECOVER LIMITS	RY		
Nitrobenzene-d5	61	(24 - 1	12)		
2-Fluorobiphenyl	65	(34 - 1	110)		
Terphenyl-d14	84	(41 - 1	L19)		
Phenol-d5	66	(28 - 1	110)		
2-Fluorophenol	73	(26 - 1	L10)		
2,4,6-Tribromophenol	73	(10 - 1	118)		

J Estimated result. Result is less than RL.

Client Sample ID: SB-482-0203

GC/MS Semivolatiles

Lot-Sample #: A7J300202-0 Date Sampled: 10/29/07 09 Prep Date: 10/31/07 Prep Batch #: 7304048 Dilution Factor: 1 % Moisture: 17		: 10/30/07 : 11/06/07		x:	SO
o Horsture 17	Hethou	. 5W040 02/			
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	400	ug/kg	1.6	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS	_		
Nitrobenzene-d5	58	(24 - 112)			
2-Fluorobiphenyl	66	(34 - 110)			
Terphenyl-d14	89	(41 - 119)			
Phenol-d5	63	(28 - 110)			
2-Fluorophenol	70	(26 - 110)			
2,4,6-Tribromophenol	77	(10 - 118)			
NOTE (S):	· · · · · · · · · · · · · · · · · · ·				

Client Sample ID: SB-482-0304

GC/MS Semivolatiles

-	10/29/07 09:34 10/31/07 7304048 1	Work Order #: Date Received: Analysis Date: Method:	10/30/07 11/06/07		: SO
6 MOISture:	12	method	5W040 02/00	-	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	390	ug/kg	1.5
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		7.0	(24 - 112)		
2-Fluorobiphenyl		68	(34 - 110)		
Terphenyl-d14		93	(41 - 119)		
Phenol-d5		62	(28 - 110)		
2-Fluorophenol		70	(26 - 110)		
2,4,6-Tribromophe	enol	72	(10 - 118)		
NOTE (S):				· · · · · · · · · · · · · · · · · · ·	

Client Sample ID: SB-482-0506

GC/MS Semivolatiles

Lot-Sample #: A7J300202- Date Sampled: 10/29/07 0 Prep Date: 10/31/07 Prep Batch #: 7304048 Dilution Factor: 1		: 10/30/07	Matr	ix	: SO
% Moisture: 16	Method	: SW846 8270)C		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	390	ug/kg	1.5	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	61	(24 - 112)	_		
2-Fluorobiphenyl	61	(34 - 110)			
Terphenyl-d14	84	(41 - 119)			
Phenol-d5	54	(28 - 110)			
2-Fluorophenol	56	(26 - 110)			
2,4,6-Tribromophenol	70	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-482-0708

GC/MS Semivolatiles

· -	10/29/07 09:38	Date Received:	10/30/07	Matrix	so
Prep Date:		Analysis Date:	11/06/07		
Prep Batch #: Dilution Factor:					
% Moisture:		Method:	SW846 8270	C	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	400	ug/kg	1.6
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		59	(24 - 112)		
2-Fluorobiphenyl		61	(34 - 110)		
Terphenyl-d14		75	(41 - 119)		
Phenol-d5		59	(28 - 110)		
2-Fluorophenol		58	(26 - 110)		
2,4,6-Tribromophe	enol	39	(10 - 118)		
NOTE (S):					

Client Sample ID: SB-483-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300202-0 Date Sampled: 10/29/07 10 Prep Date: 10/31/07 Prep Batch #: 7304048 Dilution Factor: 1		.: 10/30/07	Matr	i x	.: SO
% Moisture: 14	Method	.: SW846 8270)C		
		REPORTING		•	•
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a) pyrene	32 J	380	ug/kg	1.5	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	61	(24 - 112)	_		
2-Fluorobiphenyl	63.	(34 - 110)			
Terphenyl-d14	47	(41 - 119)			
Phenol-d5	68	(28 - 110)			
2-Fluorophenol	53	(26 - 110)			
2,4,6-Tribromophenol	71	(10 - 118)			
NOTE (S):					

J Estimated result. Result is less than RL.

Client Sample ID: SB-483-0203

GC/MS Semivolatiles

		Ç .			
Lot-Sample #:	A7J300202-007	Work Order #:	J95RL1AD	Matrix	so
Date Sampled:	10/29/07 10:12	Date Received:	10/30/07		
Prep Date:	10/31/07	Analysis Date:	11/06/07		
Prep Batch #:	7304048				
Dilution Factor:	1				
% Moisture:	17	Method:	SW846 8270	C	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	\mathtt{MDL}
Benzo (a) pyrene		28 Ј	400	ug/kg	1.6
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		60	(24 - 112)		
2-Fluorobiphenyl		69	(34 - 110)		
Terphenyl-d14		77	(41 - 119)		
Phenol-d5		58	(28 - 110)		
2-Fluorophenol		64	(26 - 110)		
2,4,6-Tribromophe	enol	77	(10 - 118)		
NOTE (S):					

J Estimated result. Result is less than RL.

Client Sample ID: SB-483-0304

GC/MS Semivolatiles

Lot-Sample #: A7J300202-008 Date Sampled: 10/29/07 10:1- Prep Date: 10/31/07 Prep Batch #: 7304048		10/30/07	Matrix	K:	SO
Dilution Factor: 1			•		
% Moisture: 18	Method:	SW846 8270	C ·		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	<u> </u>
Benzo(a)pyrene	ND	400	ug/kg	1.6	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	59	(24 - 112)	•		
2-Fluorobiphenyl	58	(34 - 110)			
Terphenyl-d14	84	(41 - 119)			
Phenol-d5	64	(28 - 110)			
2-Fluorophenol	59	(26 - 110)			
2,4,6-Tribromophenol	75	(10 - 118)			
NOTE (S):					

Client Sample ID: SB-483-0506

GC/MS Semivolatiles

Lot-Sample #: Date Sampled: Prep Date: Prep Batch #: Dilution Factor:	10/29/07 10:16 10/31/07 7304048	Work Order #: Date Received: Analysis Date:	10/30/07	Matrix	: SO
% Moisture:	_	Method:	SW846 8270	С	
PARAMETER		RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene		ND	400	ug/kg	1.6
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5		65	(24 - 112)		
2-Fluorobiphenyl		63	(34 - 110)		
Terphenyl-d14		90	(41 - 119)		
Phenol-d5		67	(28 - 110)		
2-Fluorophenol		71	(26 - 110)		
2,4,6-Tribromophe	enol	67	(10 - 118)		
NOTE (S):	·				

Client Sample ID: SB-483-0708

GC/MS Semivolatiles

Lot-Sample #: A7J Date Sampled: 10/ Prep Date: 10/ Prep Batch #: 730	/29/07 10:18 Date /31/07 Anal	Order #: Received: ysis Date:	10/30/07	Matrix		: SO
Dilution Factor: 1 % Moisture: 17	Meth	od:	SW846 8270			
			REPORTING			
PARAMETER	RESU	LT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND		400	ug/kg	1.6	
SURROGATE	PERC RECC		RECOVERY LIMITS			
Nitrobenzene-d5	64		(24 - 112)			
2-Fluorobiphenyl	68		(34 - 110)			
Terphenyl-d14	81		(41 - 119)			
Phenol-d5	68		(28 - 110)			
2-Fluorophenol	68		(26 - 110)			
2,4,6-Tribromophenol	. 52		(10 - 118)			
NOTE (S):						

Client Sample ID: SB-484-0102

GC/MS Semivolatiles

Lot-Sample #: A7J30 Date Sampled: 10/29 Prep Date: 10/31 Prep Batch #: 73040 Dilution Factor: 1	/07 10:50 Date Ro /07 Analys	rder #: J95RQ eceived: 10/30 is Date: 11/06	0/07	rix: 5	50
% Moisture: 17	Method	SW846	5 8270C		
PARAMETER	RESULT	REPOF LIMIT		MDL_	
Benzo(a)pyrene	21 J	400	ug/kg	1.6	
SURROGATE	PERCEN' RECOVE				
Nitrobenzene-d5	70	(24 -	- 112)		
2-Fluorobiphenyl	74	(34 -	- 110)	e .	
Terphenyl-d14	87	(41 -	- 119)		
Phenol-d5	72	(28 -	- 110)		
2-Fluorophenol	81	(26 -	- 110)		
2,4,6-Tribromophenol	85	(10 -	- 118)		
NOTE (S):					

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Client Sample ID: SB-484-0203

GC/MS Semivolatiles

•	10/29/07 10:52 10/31/07 7304048 1	Work Order #: Date Received: Analysis Date: Method	10/30/07 11/06/07		:	: SO
		46				
			REPORTING			
PARAMETER		RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene		ND	380	ug/kg	1.5	
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5		71	(24 - 112)			
2-Fluorobiphenyl		68	(34 - 110)		•	
Terphenyl-d14		80	(41 - 119)			
Phenol-d5		61	(28 - 110)			
2-Fluorophenol		66	(26 - 110)			
2,4,6-Tribromophe	enol	78	(10 - 118)			

Results and reporting limits have been adjusted for dry weight.

NOTE(S):

Client Sample ID: SB-484-0304

GC/MS Semivolatiles

Lot-Sample #: A7J3002 Date Sampled: 10/29/0 Prep Date: 10/31/0 Prep Batch #: 7304048 Dilution Factor: 1	D7 10:54 Date Received Analysis Date	: 10/30/07	: 10/30/07				
% Moisture: 17	Method	: SW846 8270	C				
		REPORTING					
PARAMETER	RESULT	LIMIT	UNITS	MDL			
Benzo(a)pyrene	ND	400	ug/kg	1.6			
0.000.000.000	PERCENT	RECOVERY					
SURROGATE	RECOVERY	LIMITS					
Nitrobenzene-d5	54	(24 - 112)					
2-Fluorobiphenyl	63	(34 - 110)					
Terphenyl-d14	85	(41 - 119)					
Phenol-d5	54	(28 - 110)					
2-Fluorophenol	52	(26 - 110)					
2,4,6-Tribromophenol	71 , -	(10 - 118)					
NOTE (S):							

Client Sample ID: SB-484-0506

GC/MS Semivolatiles

Lot-Sample #: A7J300202-014 Date Sampled: 10/29/07 10:56 Prep Date: 10/31/07 Prep Batch #: 7304048 Dilution Factor: 1		10/30/07	Matrix	so
% Moisture: 14	Method:	SW846 8270	C ,	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	54	(24 - 112)		
2-Fluorobiphenyl	53	(34 - 110)		
Terphenyl-d14	80	(41 - 119)		
Phenol-d5	49	(28 - 110)		
0 =1 11 1	56	(26 - 110)		
2-Fluorophenol		(10 - 118)		

Client Sample ID: SB-484-0708

GC/MS Semivolatiles

Lot-Sample #: A7J300202-01 Date Sampled: 10/29/07 10: Prep Date: 10/31/07 Prep Batch #: 7304048 Dilution Factor: 1		: 10/30/07	Matrix	so
% Moisture: 16	Method	: SW846 8270)C	
		REPORTING	ı	
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	40	(24 - 112)		
2-Fluorobiphenyl	48	(34 - 110)		
Terphenyl-d14	76	(41 - 119)		
Phenol-d5	47	(28 - 110)		
2-Fluorophenol	48	(26 - 110)		
2,4,6-Tribromophenol	37	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-485-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300202-03 Date Sampled: 10/29/07 11: Prep Date: 10/31/07 Prep Batch #: 7304048 Dilution Factor: 1 % Moisture: 12		: 10/30/07 : 11/06/07		rix so		
		REPORTING				
PARAMETER	RESULT	LIMIT	UNITS	MDL	·	
Benzo(a)pyrene	10 J	380	ug/kg	1.5		
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS				
Nitrobenzene-d5	69	(24 - 112)	•			
2-Fluorobiphenyl	72	(34 - 110)				
Terphenyl-d14	99	(41 - 119)				
Phenol-d5	70	(28 - 110)				
2-Fluorophenol	69	(26 - 110)				
2,4,6-Tribromophenol	84	(10 - 118)				
NOTE (S):						

J Estimated result. Result is less than RL.

Client Sample ID: SB-485-0203

GC/MS Semivolatiles

Lot-Sample #: A7J300202- Date Sampled: 10/29/07 1 Prep Date: 10/31/07 Prep Batch #: 7304048 Dilution Factor: 1		.: 10/30/07	Matr	ix	: SO
% Moisture: 11	Method	.: SW846 82700			
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	<u> </u>
Benzo(a) pyrene	43 J	370	ug/kg	1.5	
	PERCENT	RECOVERY			
CLIDDOCATE	RECOVERY	LIMITS			
SURROGATE					
Nitrobenzene-d5	68	(24 - 112)			
2-Fluorobiphenyl	71	(34 - 110)			
Terphenyl-d14	93	(41 - 119)			
Phenol-d5	59	(28 - 110)			
2-Fluorophenol	71	(26 - 110)			
2,4,6-Tribromophenol	75	(10 - 118)			
NOME (C)					
NOTE (S):					

 $[\]label{eq:continuous} \textbf{J} \quad \text{Estimated result. Result is less than RL}.$

Client Sample ID: SB-485-0304

GC/MS Semivolatiles

Lot-Sample #: A7J300202-01 Date Sampled: 10/29/07 11: Prep Date: 10/31/07 Prep Batch #: 7304048 Dilution Factor: 1		: 10/30/07	Matr	ix	.: SO
% Moisture: 16	Method:	: SW846 8270	C		
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	· · · · · · · · · · · · · · · · · · ·
Benzo(a)pyrene	ND	390	ug/kg	1.5	
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS			
Nitrobenzene-d5	57	(24 - 112)		* * * * * * * * * * * * * * * * * * * *	
2-Fluorobiphenyl	64	(34 - 110)			
Terphenyl-d14	77	(41 - 119)			
Phenol-d5	67	(28 - 110)			
2-Fluorophenol	67	(26 - 110)			
2,4,6-Tribromophenol	74	(10 - 118)			

Results and reporting limits have been adjusted for dry weight.

NOTE (S):

Client Sample ID: SB-485-0506

GC/MS Semivolatiles

Lot-Sample #: A7J300202-0 Date Sampled: 10/29/07 11 Prep Date: 10/31/07 Prep Batch #: 7304048 Dilution Factor: 1 % Moisture: 15		: 10/30/07 : 11/06/07		ix	.: SO
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	390	ug/kg	1.5	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS	_		
Nitrobenzene-d5	61	(24 - 112)	-		
2-Fluorobiphenyl	59	(34 - 110)			
Terphenyl-d14	79	(41 - 119)			
Phenol-d5	61	(28 - 110)			
2-Fluorophenol	63	(26 - 110)	i i		
2,4,6-Tribromophenol	69	(10 - 118)			
NOTE (S):				·	

Client Sample ID: SB-485-0708

GC/MS Semivolatiles

	10/29/07 11:38 10/31/07 7304048	Work Order #: Date Received: Analysis Date:	10/30/07	Matrix: SO			
% Moisture:	15	Method:	SW846 8270	С			
PARAMETER		RESULT	REPORTING LIMIT	UNITS	MDL		
Benzo(a)pyrene		ND	390	ug/kg	1.5		
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS				
Nitrobenzene-d5		72	$\frac{24-112}{(24-112)}$				
2-Fluorobiphenyl		58	(34 - 110)		•		
Terphenyl-d14		85	(41 - 119)				
Phenol-d5		64	(28 - 110)				
2-Fluorophenol		69	(26 - 110)				
2,4,6-Tribromophe	enol	65	(10 - 118)				
NOTE (S):							

APPENDIX C SUPPORT DOCUMENTATION

HOLDTIME

SDG 7J30202

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-484-0506	A7J300202014	NM	.10/29/2007	10/31/2007	10/31/2007	2	0	2
HG .	MG/KG	SB-482-0304	A7J300202003	NM .	10/29/2007	10/31/2007	10/31/2007	2	0 -	2
HG	MG/KG	SB-482-0506	A7J300202004	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-482-0708	A7J300202005	NM	10/29/2007	10/31/2007	10/31/2007	2	v + 0	2
HG	MG/KG	SB-483-0203	A7J300202007	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-483-0506	A7J300202009	NM ·	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-483-0708	A7J300202010	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-484-0102	A7J300202011	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-482-0203	A7J300202002	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-484-0304	A7J300202013	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-483-0102	A7J300202006	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-484-0708	A7J300202015	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-485-0102	A7J300202016	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-485-0203	A7J300202017	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-485-0304	A7J300202018	NM	10/29/2007	10/31/2007	10/31/2007	2		2 .

Monday, November 26, 2007

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-485-0506	A7J300202019	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-485-0708	 A7J300202020	NM	10/29/2007	10/31/2007	10/31/2007	2	0	. 2
HG	MG/KG	SB-482-0102	A7J300202001	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-484-0203	A7J300202012	NM.	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-483-0304	A7J300202008	NM .	10/29/2007	10/31/2007	10/31/2007	2	0	2
PCS	%	SB-484-0304	A7J300202013	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-485-0506	A7J300202019	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-485-0708	A7J300202020	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-485-0304	A7J300202018	NM -	10/29/2007	11/6/2007	11/7/2007	8	1 ,	9
PCS	%	SB-485-0203	A7J300202017	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-485-0102	A7J300202016	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-484-0506	A7J300202014	NM	10/29/2007	11/6/2007	11/7/2007	8	i i	9
PCS	%	SB-482-0102	A7J300202001	NM	10/29/2007	11/6/2007	11/7/2007	8	. 1	9
PCS	%	SB-484-0203	A7J300202012	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-484-0102	A7J300202011	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-482-0304	A7J300202003	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-484-0708	A7J300202015	NM	10/29/2007	11/6/2007	11/7/2007	8	1	. 9
PCS	%	SB-482-0203	A7J300202002	NM	10/29/2007	11/6/2007	11/7/2007	8	1	. 9

Moretry November 26 2007

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-483-0708	A7J300202010	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-482-0506	A7J300202004	NM	10/29/2007	11/6/2007	11/7/2007		1 .	9
PCS	%	SB-482-0708	A7J300202005	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-483-0102	A7J300202006	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-483-0203	A7J300202007	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-483-0304	A7J300202008	NM	10/29/2007	11/6/2007	11/7/2007	8	1 .	9
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os	%	SB-483-0506	A7J300202009	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	%	SB-482-0203	A7J300202002	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	%	SB-482-0304	A7J300202003	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	%	SB-482-0506	A7J300202004	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	%	SB-482-0708	A7J300202005	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	%	SB-483-0102	A7J300202006	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os -	%	SB-483-0203	A7J300202007	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	%	SB-483-0304	A7J300202008	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	%	SB-482-0102	A7J300202001	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	%	SB-485-0506	A7J300202019	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8

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os	%	SB-484-0102	A7J300202011	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
OS .	%	SB-484-0203	A7J300202012	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
os	%	SB-484-0304	A7J300202013	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
os	%	SB-484-0506	A7J300202014	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
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os	%	SB-485-0102	A7J300202016	NM	10/29/2007	10/31/2007	11/6/2007	2	6	. 8				
os	%	SB-485-0203	A7J300202017	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
os	%	SB-485-0304	A7J300202018	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
os	%	SB-483-0708	A7J300202010	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
OS	UG/KG	SB-484-0304	A7J300202013	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
os	UG/KG	SB-484-0506	A7J300202014	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
os	UG/KG	SB-484-0708	A7J300202015	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
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os	UG/KG	SB-485-0203	A7J300202017	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8				
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os	UG/KG	SB-483-0102	A7J300202006	ΝM	10/29/2007	10/31/2007	11/6/2007	2	6	8				

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
os	UG/KG	SB-485-0506	A7J300202019	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	UG/KG	SB-484-0102	A7J300202011	NM .	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	UG/KG	SB-483-0708	A7J300202010	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	UG/KG	SB-483-0506	A7J300202009	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
OS	UG/KG	SB-482-0102	A7J300202001	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	UG/KG	SB-483-0203	A7J300202007	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
OS	UG/KG	SB-482-0708	A7J300202005	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
os	UG/KG	SB-482-0506	A7J300202004	NM.	10/29/2007	10/31/2007	11/6/2007	2	6	8
OS	UG/KG	SB-482-0304	A7J300202003	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
OS	UG/KG	SB-482-0203	A7J300202002	NM	10/29/2007	10/31/2007	11/6/2007	2	6	. 8
os	UG/KG	SB-483-0304	A7J300202008	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8.

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CASE NARRATIVE

7J30202

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc. from the LMC MR Site, project number 112IC0098. The samples were received October 30, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J300202.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL OC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 2.7, 3.3, and 4.1°C.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for SB-485-0506 had RPD's outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

OC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	
		Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica North Canton (formerly STL North Canton) Certifications and Approvals:

California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),

Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), OhioVAP (#CL0024), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY, USDA Soil Permit,

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SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J30202

Lot #: A7J300202

Extraction: XXA13QL01

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	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
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01	SB-482-0102	61	_65	84	66	_73	73	00
02	SB-482-0203	58	66	89	63	70	77	00
	SB-482-0304	70	68	93	_62	_70	72	00
04	SB-482-0506	61	61	84	_54	56	70	00
05	SB-482-0708	59	_61	75	59	58	39	00
06	SB-483-0102	61	63	47	_68	_53	71	00
07	SB-483-0203	60	69	77	58	64	77	00
80	SB-483-0304	59	58	84	64	59	75	00
09	SB-483-0506	65	63	90	67	71	67	00
10	SB-483-0708	64	68	81	_68	68	_52	00
11	SB-484-0102	70	74	87	72	81	85	_00
12	SB-484-0203	71	68	80	61	66	78	00
13	SB-484-0304	54	63	_85	54	52	71	00
14	SB-484-0506	54	53	0	49	_56	42	00
15	SB-484-0708	40	48	76	47	48	37	00
16	SB-485-0102	69	72	99 .	70	69	84	00
17	SB-485-0203	68	71	93	_59	71	75	00
18	SB-485-0304	57	64	77	_67	67	74	00
19	SB-485-0506	61	59	79	61	63	69	00
20	SB-485-0708	72	58	85	64	69	65	00
21	METHOD BLK. J97GN1AA	60	69	86	62	62	54	00
22	LCS J97GN1AC	71	70	85	73	75	67	00
23	SB-485-0506 D	67	68	83	65	66	74	00 .
24	SB-485-0506 S	57	64	81	58	51	73	00

SURROGA	TES	QC LIMITS
SRG01	= Nitrobenzene-d5	(24-112)
SRG02	= 2-Fluorobiphenyl	(34-110)
SRG03	= Terphenyl-d14	(41-119)
SRG04	= Phenol-d5	(28-110)
SRG05	= 2-Fluorophenol	(26-110)
SRG06	= 2,4,6-Tribromophenol	(10-118)

FORM II

[#] Column to be used to flag recovery values

^{*} Values outside of required QC Limits

D System monitoring Compound diluted out

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO. J97GN1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J30202

Lab File ID: J97GN1AA.

Lot Number: A7J300202

Date Analyzed: 11/06/07

Time Analyzed: 12:25

Matrix: SOLID

Date Extracted:10/31/07

GC Column: DB 5.625 ID: .00

Extraction Method: 3550B

Instrument ID: HP8

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS , MSD:

•		SAMPLE	LAB	DATE	TIME
	CLIENT ID.	WORK ORDER #	FILE ID	ANALYZED	ANALYZED
		=============	=========	=======	========
01	SB-482-0102	J95Q81AD	J95Q81AD.	11/06/07	17:05
02	SB-482-0203	J95RD1AD	J95RD1AD.	11/06/07	17:23
03	SB-482-0304	J95RE1AD	J95RE1AD.	11/06/07	17:42
04	SB-482-0506	J95RG1AD	J95RG1AD.	11/06/07	18:01
05	SB-482-0708	J95RH1AD	J95RH1AD.	11/06/07	18:19
06	SB-483-0102	J95RK1AD	J95RK1AD.	11/06/07	18:56
07	SB-483-0203	J95RL1AD	J95RL1AD.	11/06/07	19:15
08	SB-483-0304	J95RM1AD	J95RM1AD.	11/06/07	19:34
09	SB-483-0506	J95RN1AD	J95RN1AD.	11/06/07	19:52
10	SB-483-0708	J95RP1AD	J95RP1AD.	11/06/07	20:11
11	SB-484-0102	J95RQ1AD	J95RQ1AD.	11/06/07	20:29
12	SB-484-0203	J95RR1AD	J95RR1AD.	11/06/07	20:48
13	SB-484-0304	J95RT1AD	J95RT1AD.	11/06/07	21:07
	SB-484-0506	J95RV1AD	J95RV1AD.	11/06/07	21:25
15	SB-484-0708	J95RW1AD	J95RW1AD.	11/06/07	21:44
16	SB-485-0102	J95R01AD	J95R01AD.	11/06/07	22:02
17	SB-485-0203	J95R11AD	J95R11AD.	11/06/07	22:21
18	SB-485-0304	J95R21AD	J95R21AD.	11/06/07	22:40
19	SB-485-0506	J95R41AD	J95R41AD.	11/06/07	13:40
20	SB-485-0506	J95R41AM S	J95R41AM.	11/06/07	13:58
21	SB-485-0506	J95R41AN D	J95R41AN.	11/06/07	14:17
22	SB-485-0708	J95R51AD	J95R51AD.	11/06/07	22:58
23	CHECK SAMPLE	J97GN1AC C	J97GN1AC.	11/06/07	12:44
24					
25					[
26		•			
27					
28					
29					
30		·			

COMMENTS:			
			_

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30202

Lab File ID: 8DF1031 DFTPP Injection Date: 10/31/07

Instrument ID: A4HP8 DFTPP Injection Time: 1539

69 Mass 69 relative abundance 47.5 70 Less than 2.0% of mass 69 0.2 (0.1) 127 40.0 - 60.0% of mass 198 48.4 197 Less than 1.0% of mass 198 0.0 198 Base Peak, 100% relative abundance 100.0	m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
275 10.0 - 30.0% of mass 198 26.7 365 Greater than 1.0% of mass 198 3.4 441 Present, but less than mass 443 9.4 442 Greater than 40.0% of mass 198 61.4	51 68 69 70 127 197 198 199 275 365 441	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443	38.7 0.0 (0.0)1 47.5 0.2 (0.5)1 48.4 0.0 100.0 6.8 26.7 3.4 9.4

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	=========		==========	=======	=======
01	SSTD005	L5	8SMM1031	10/31/07	1558
02	SSTD004	L4	8SM1031	10/31/07	1618
03	SSTD003	L3	8SML1031	10/31/07	1637
04	SSTD002	L2	8SL1031	10/31/07	1656
05	SSTD001	Ll	8SLL1031	10/31/07	1716
06	SSTD009	L9	8HHH1031	10/31/07	1735
07	SSTD008	L8	8SHH1031	10/31/07	1754
80	SSTD007	L7	8SH1031	10/31/07	1814
09	SSTD006	L6	8SMH1031	10/31/07	1833
10					
11					
12 13					
14					
15		<u> </u>			
16				<u> </u>	
17					
18			<u> </u>		
19					
20					
21				· · · · · · · · · · · · · · · · · · ·	
22					

page 1 of 1

FORM V SV

1/87 Rev.

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30202

Lab File ID: 8DF1106 DFTPP Injection Date: 11/06/07

Instrument ID: A4HP8 DFTPP Injection Time: 1122

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	34.6 0.0 (0.0)1 44.5 0.3 (0.6)1 46.0 0.0 100.0 6.7 26.5 3.4 10.7 70.1 13.6 (19.4)2
1	1-Value is % of mass 69 2-Value is % of mass 69	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
	==========			=	========
01	SSTD006	L6	8SMH1106	11/06/07	1205
02	J97GNBLK	J97GN1AA	J97GNLAA	11/06/07	1225
03	J97GNCHK	J97GN1AC	J97GN1AC	11/06/07	1244
04	SB-485-0506	J95R41AD	J95R41AD	11/06/07	1340
05	SB-485-0506	J95R41AM	J95R41AM	11/06/07	1358
06	SB-485-0506	J95R41AN	J95R41AN	11/06/07	1417
07	SB-482-0102	J95Q81AD	J95Q81AD	11/06/07	1705
08	SB-482-0203	J95RD1AD	J95RD1AD	11/06/07	1723
09	SB-482-0304	J95RELAD	J95RE1AD	11/06/07	1742
10	SB-482-0506	J95RG1AD	J95RG1AD	11/06/07	1801
11	SB-482-0708	J95RH1AD	J95RH1AD	11/06/07	1819
12	SB-483-0102	J95RK1AD	J95RK1AD	11/06/07	1856
13	SB-483-0203	J95RL1AD	J95RL1AD	11/06/07	1915
14	SB-483-0304	J95RMLAD	J95RMLAD	11/06/07	1934
15	SB-483-0506	J95RN1AD	J95RN1AD	11/06/07	1952
16	SB-483-0708	J95RP1AD	J95RP1AD	11/06/07	2011
17	SB-484-0102	J95RQ1AD	J95RQ1AD	11/06/07	2029
18	SB-484-0203	J95RR1AD	J95RR1AD	11/06/07	2048
19	SB-484-0304	J95RT1AD	J95RT1AD	11/06/07	2107
20	SB-484-0506	J95RV1AD	J95RV1AD	11/06/07	2125
21	SB-484-0708	J95RW1AD	J95RWlAD	11/06/07	2144
22	SB-485-0102	J95R01AD	J95R01AD	11/06/07	2202

page 1 of 2

FORM V SV

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30202

Lab File ID: 8DF1106 DFTPP Injection Date: 11/06/07

Instrument ID: A4HP8 DFTPP Injection Time: 1122

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	34.6 0.0 (0.0)1 44.5 0.3 (0.6)1 46.0 0.0 100.0 6.7 26.5 3.4 10.7 70.1 13.6 (19.4)2
II	1-Value is % of mass 69 2-Value is % of mass	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
				========	
01	SB-485-0203	J95R11AD	J95R11AD	11/06/07	2221
02	l .			17/00/07	
	SB-485-0304	J95R21AD	J95R21AD	11/06/07	2240
03	SB-485-0708	J95R51AD	J95R51AD	11/06/07	2258
04					
05					
06					
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08					
09					
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11	***************************************				
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44					

page 2 of 2

FORM V SV

Report Date : 01-Nov-2007 08:44

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 31-OCT-2007 15:58 End Cal Date : 31-OCT-2007 18:33

: ISTD Quant Method : Disabled Origin Target Version : 4.14 Integrator : HP RTE

: \\cansvr11\dd\chem\MSS\a4hp8.i\71031a.b\8270P.m : 01-Nov-2007 08:44 gruberj : Average Method file

Last Edit

Last Edit Curve Type

	0.05000	0.25000	0.50000	1.000 Level 4	2.500 Level 5	5.000 Level 6	RRF	 % RSD
Compound	Level 1	Level 2	Level 3		Pever 2	 mever p	RRF	i s rust
	7.500	10.000	12.500					·
	Level 7	Level 8	Level 9		******	 =======		****
44 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	l ,	 !	 	+++++	+++++
45 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++		
	1 +++++	+++++	+++++		1	 	+++++	+++++
46 Benzo(a) pyrene	1.00609	0.85680	0.92839	1.01385	1.07984		 	
	1.21126	1.27667	+++++		1		1.06509	13.342
48 3-Methylcholanthrene	+++++	+++++	 +++++	 +++++	++++	+++++		-
	+++++	+++++	+++++	İ			+++++	+++++
49 Indeno (1,2,3-cd) pyrene	1.05215	0.94193	1.02882	 1.10916	 1.16710	1.23713	 	
49 Indeno(1,2,3-cd/pyrene	1.03213	'	1.49504	1.20520	1.20720	 	1.18659	14.808
	-]							
50 Dibenz(a,h)anthracene	0.91651				0.97157 	1.06074	1.01942	!] 16.918
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-		 					
51 Benzo(g,h,i)perylene	1.06388		•		0.96347 	0.98910 	0.99679	 10.714
	-					, 		
32 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++ 	 +++++	 +++++
	-			 	 	 		
33 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++	1	
	-	+++++	+++++ 	 	 	 	+++++	+++++
34 4-Chlorophenol	+++++	++++	, +++++	+++++	+++++	++++		l
	+++++	+++++	+++++ 	 	 	 	+++++ 	+++++
35 2,3-Dichlorophenol	++++	+++++	+++++	+++++	+++++	++++	I	ĺ
	+++++	++++	++++	1	1	1	+++++	+++++

Data File: \\cansvr11\dd\chem\MSS\a4hp8.i\71031a.b\ICVTCL.D Page 3

Report Date: 01-Nov-2007 08:52

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i

Injection Date: 31-OCT-2007 18:53

Lab File ID: ICVTCL.D

Init. Cal. Date(s): 31-OCT-2007 31-OCT-2007 Init. Cal. Times: 15:58 18:33

Analysis Type:

Lab Sample ID: icvtcl

Quant Type: ISTD

Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71031a.b\8270P.m

	1		1	CCAL MIN	MAX
COMPOUND	RRE	/ AMOUNT	RF5	RRF5 RRF %	D / %DRIFT %D / %DRIFT CURVE TYPE
				====== ==== =	======= ====== ======================
142 Benzo(k)fluoranthene	11	1.31598	1.31479	1.31479 0.010	0.09048 50.00000 Averaged
146 Benzo(a)pyrene	1	1.06509	1.14284	1.14284 0.010	-7.30045 20.00000 Averaged
149 Indeno(1,2,3-cd)pyrene	1	1.18659	1.23697	1.23697 0.010	-4.24562 50.00000 Averaged
150 Dibenz(a,h)anthracene	1	5.00000	5.03216	1.05822 0.010	-0.64321 0.000e+000 Quadratic
151 Benzo(g,h,i)perylene	1	0.996791	0.99112	0.99112 0.010	0.56931 50.00000 Averaged
198 1,4-Dioxane	1	0.59367	0.58021	0.58021 0.010	2.26632 50.00000 Averaged
\$ 154 Nitrobenzene-d5	1	0.44581	0.46280	0.46280 0.010	-3.81005 50.00000 Averaged
\$ 155 2-Fluorobiphenyl	1.	1.31614	1.32545	1,32545 0.010	-0.70694 50.00000 Averaged
\$ 156 Terphenyl-d14	1	0.775291	0.809081	0.80908 0.010	-4.35732 50.00000 Averaged
\$ 157 Phenol-d5	1	1.759541	1.73764	1.73764 0.010	1.24445 50.00000 Averaged
\$ 158 2-Fluorophenol	1	1.21919	1.21403	1.21403 0.010	0.42366 50.00000 Averaged
\$ 159 2,4,6-Tribromophenol	1	5.000001	5.06941	0.15059 0.010	-1.38825 0.000e+000 Quadratic
\$ 186 2-Chlorophenol-d4	1	1.22310	1.18894	1.18894 0.010	2.79346 50.00000 Averaged
\$ 187 1,2-Dichlorobenzene-d4	1.	0.82744	0.82746	0.82746 0.010	-0.00269 50.00000 Averaged
M 195 Cresols, total	I.	2.80785	2.76041	2.76041 0.010	1.68951 50.00000 Averaged
101 Diphenylamine	, 1	5.00000	5.20967	0.50019 0.010	-4.19348 0.000e+000 Quadratic
	t	1	1	1 1	1 1

Data File: \\cansvr11\dd\chem\MSS\a4hp8.i\71106a.b\8SMH1106.D Page 3 Report Date: 06-Nov-2007 10:54

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i

Injection Date: 06-NOV-2007 12:05

Lab File ID: 8SMH1106.D Analysis Type:

Init. Cal. Date(s): 31-OCT-2007

Init. Cal. Times: 15:58 18:33

Lab Sample ID: L6 Quant Type: ISTD Method: \\cansvr11\\dd\chem\MSS\a4hp8.i\\71106a.b\\8270p.m

			CCAL	MIN		MAX	
COMPOUND	RRF / AMOUNT	RF5	RRF5	RRF	%D / %DRIFT	%D / %DRIFT	CURVE TYPE
			***		=======		=======
142 Benzo(k) fluoranthene	1.31598	1.23101]	1.23101	0.010	6.45743	50.00000	Average
146 Benzo(a)pyrene	1.06509	1.15900	1.15900	0.010	-8.81757	20.00000	Average
149 Indeno(1,2,3-cd)pyrene	1.18659	1.18830	1.18830	0.010	-0.14448	50.00000	Average
150 Dibenz(a,h)anthracene	5.00000	4.71922	0.98543	0.010	5.61566	0.000e+000	Quadratio
151 Benzo(g,h,i)perylene	0.99679	1.01919	1.01919	0.010	-2.24662	50.00000	Average
198 1,4-Dioxane	0.59367	0.67382	0.67382	0.010	-13.50109	50.00000	Average
\$ 154 Nitrobenzene-d5	0.44581	0.48665	0.48665	0.010	-9.15967	50.00000	Average
\$ 155 2-Fluorobiphenyl	1.31614	1.51931	1.51931	0.010	-15.43641	50.00000	Average
\$ 156 Terphenyl-d14	0.77529	0.79757	0.79757	0.010	-2.87284	50.00000	Average
\$ 157 Phenol-d5	1.75954	1.87936	1.87936	0.010	-6.80992	50.00000	Average
\$ 158 2-Fluorophenol	1.21919	1.35468	1.35468	0.010	-11.11320	50.00000	Average
\$ 159 2,4,6-Tribromophenol	5.00000	5.96692	0.18067	0.010	-19.33841	0.000e+000	Quadrati
\$ 186 2-Chlorophenol-d4	1.22310	1.29540	1.29540	0.010	-5.91108	50.00000	Average
\$ 187 1,2-Dichlorobenzene-d4	0.82744	0.86955	0.86955	0.010	-5.09001	50.00000	Average
M 195 Cresols, total	2.80785	2.74784	2.74784	0.010	2.13732	50.00000	Average
101 Diphenylamine	5.00000	5.27278	0.50701	0.010	-5.45557	0.000e+000	Quadrati

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30202

Lab File ID (Standard): 8SMH1106 Date Analyzed: 11/06/07

Instrument ID: A4HP8 Time Analyzed: 1205

		IS1 (DCB)		IS2 (NPT)		IS3 (ANT)	1
		AREA #	RT	AREA #	RT	AREA #	RT
	=======================================	=======		========	=====	========	======
	12 HOUR STD	189787	3.44	791874	4.33	395805	5.60
		270574	3.94	1583748	4.83	791610	6.10
	UPPER LIMIT	379574	3.94	1583/40	4.03	/91010	======
	LOWER LIMIT	94894	2.94	395937	3.83	197903	5.10
		========	=====	========	=====	========	=====
	EPA SAMPLE						
	NO.				*		
	=========	========	=====	=========	======	========	======
01	J97GNBLK	219733	3.44	898412	4.33	468891	5.60
02	J97GNCHK	166401	3.43	661627	4.33	368190	5.60
03	SB-485-0506	198603	3.43	793012	4.32	456406	5.59
04	SB-485-0506	184817	3.43	723283	4.33	414041	5.59
05	SB-485-0506	150619	3.43	617130	4.33	334031	5.59
06	SB-482-0102	158539	3.43	695601	4.32	381776	5.59
07	SB-482-0203	156905	3.43	659081	4.33	361336	5.59
80	SB-482-0304	156024	3.43	641846	4.33	353634	5.59
09	SB-482-0506	153121	3.43	599284	4.33	326877	5.59
10	SB-482-0708	181488	3.43	680614	4.33	391284	5.59
11	SB-483-0102	117986	3.43	479281	4.33	287758	5.60
12	SB-483-0203	128707	3.43	560207	4.33	307232	5.59
13	SB-483-0304	118746	3.43	510730	4.33	320945	5.60
14	SB-483-0506	116368	3.43	445358	4.33	292093	5.60
15	SB-483-0708	135804	3.44	573 77 8	4.33	335825	5.60
16	SB-484-0102	128855	3.43	584395	4.33	302630	5.60
17	SB-484-0203	143879	3.43	536330	4.33	311066	5.60
18	SB-484-0304	143655	3.43	584185	4.33	314107	5.60
19	SB-484-0506	154026	3.44	582130	4.33	358040	5.60
20	SB-484-0708	134178	3.44	594625	4.33	326295	5.60
21	SB-485-0102	138142	3.43	570722	4.33	348703	5.60
22	SB-485-0203	127413	3.43	510815	4.33	292387	5.60
~~	55 105 0205		0.10				· [
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IS1 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = +100%

IS2 (NPT) = Naphthalene-d8

of internal standard area.

IS3 (ANT) = Acenaphthene-d10 LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 2

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30202

Lab File ID (Standard): 8SMH1106 Date Analyzed: 11/06/07

Instrument ID: A4HP8 Time Analyzed: 1205

IS4 (PHN) AREA # RT AREA	RT ====== 10.12 ====== 10.62 ====== 9.62
AREA # RT AREA # RT AREA # RT AREA # RT 13724	10.12 ====== 10.62 ====== 9.62
12 HOUR STD 823657 6.68 876294 8.71 713724	10.12 ===== 10.62 ===== 9.62
UPPER LIMIT 1647314 7.18 1752588 9.21 1427448 LOWER LIMIT 411829 6.18 438147 8.21 356862 EPA SAMPLE NO. J97GNBLK 871886 6.68 927497 8.66 795934 02 J97GNCHK 665498 6.68 697868 8.68 581546 03 SB-485-0506 889025 6.67 848069 8.65 680248 04 SB-485-0506 804305 6.68 792074 8.68 647651 05 SB-485-0506 620032 6.68 792074 8.68 647651 05 SB-485-0506 620032 6.68 597095 8.66 647651 05 SB-485-0506 620032 6.68 597095 8.66 647651 05 SB-482-0203 677477 6.68 673261 8.66 590613 07 SB-482-0203 677477 6.68 673261 8.66 585445 08 SB-482-0304 700268 6.68 628374 8.65 503149 09 SB-482-0506 596934 6.68 660195 8.66 514392	10.62 ====== 9.62
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05 SB-485-0506 620032 6.68 597095 8.66 455558 06 SB-482-0102 670231 6.68 712929 8.66 590613 07 SB-482-0203 677477 6.68 673261 8.66 585445 08 SB-482-0304 700268 6.68 628374 8.65 503149 09 SB-482-0506 596934 6.68 660195 8.66 514392	10.04
06 SB-482-0102 670231 6.68 712929 8.66 590613 07 SB-482-0203 677477 6.68 673261 8.66 585445 08 SB-482-0304 700268 6.68 628374 8.65 503149 09 SB-482-0506 596934 6.68 660195 8.66 514392	10.08
07 SB-482-0203 677477 6.68 673261 8.66 585445 08 SB-482-0304 700268 6.68 628374 8.65 503149 09 SB-482-0506 596934 6.68 660195 8.66 514392	10.06
08 SB-482-0304 700268 6.68 628374 8.65 503149 09 SB-482-0506 596934 6.68 660195 8.66 514392	10.06
08 SB-482-0304 700268 6.68 628374 8.65 503149 09 SB-482-0506 596934 6.68 660195 8.66 514392	10.05
09 SB-482-0506 596934 6.68 660195 8.66 514392	10.05
	10.06
	10.06
11 SB-483-0102 554375 6.68 972791 8.65 504341	10.05
12 SB-483-0203 645795 6.68 711400 8.67 607147	10.07
13 SB-483-0304 639409 6.68 614939 8.67 559346	10.07
14 SB-483-0506 591145 6.68 532736 8.67 462999	10.07
15 SB-483-0708 692666 6.68 699084 8.66 583540	10.07
16 SB-484-0102 660391 6.68 701597 8.65 612232	10.05
17 SB-484-0203 638556 6.68 663633 8.68 578692	10.08
	10.07
	10.05
15 55 55 55 55 55 55 55	10.05
20 SB-484-0708 741597 6.68 751373 8.66 601942	
21 SB-485-0102 730885 6.68 677774 8.66 583687	10.06
22 SB-485-0203 568614 6.68 559194 8.66 501188	10.05
	l 1

IS4 (PHN) = Phenanthrene-d10 UPPER LIMIT = +100%
IS5 (CRY) = Chrysene-d12 of internal standard area.
IS6 (PRY) = Perylene-d12 LOWER LIMIT = -50%
of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 2

FORM VIII SV-2

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30202

Lab File ID (Standard): 8SMH1106 Date Analyzed: 11/06/07

Instrument ID: A4HP8 Time Analyzed: 1205

		IS1 (DCB)		TOO (NIDER)		TO 2 / 2 2 7 1 7 1 7 1	r
		AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	==========	========	=====	========	=====		=====
	12 HOUR STD	189787	3.44	791874	4.33	395805	5.60
	UPPER LIMIT	379574	3.94	1583748	4.83	791610	6.10
	LOWER LIMIT	94894	2.94	395937	3.83	197903	5.10
	EPA SAMPLE						
0.1	CD 405 0204	100050	=====	========	=====	========	=====
01 02	SB-485-0304 SB-485-0708	120852 138629	3.43 3.43	548938 534667	4.33 4.33	304701 338861	5.60 5.60
03	25-402-0706	130029	3.43	534667	4.33	22000T	5.60
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IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Acenaphthene-d10 = Naphthalene-d8

(ANT)

UPPER LIMIT = +100% of internal standard area. LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 2 of 2

IS3

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.:

SAS No.:

SDG No.: 7J30202

Lab File ID (Standard): 8SMH1106

Date Analyzed: 11/06/07

Instrument ID: A4HP8

Time Analyzed: 1205

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
		AKEA #	1/1		=====	=========	=====
	12 HOUR STD	823657	6.68	876294	8.71	713724	10.12
	UPPER LIMIT	1647314	7.18	1752588	9.21	1427448	10.62
	LOWER LIMIT	411829	6.18	438147	8.21	356862	9.62
	EPA SAMPLE NO.	=========	=====		=====		
	=========	========	=====	=======================================	======	=======================================	=====
01	SB-485-0304 SB-485-0708	717655 726955	6.68 6.68	662446 728883	8.67 8.66	570443 607183	10.07 10.06
03							
04					ļ		
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06 07							
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17 18							
10					[
19 20							
21							
22							

(PHN) = Phenanthrene-d10 IS4 (CRY) = Chrysene-d12IS5 (PRY) = Perylene-d12 IS6

UPPER LIMIT = +100% of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 2 of 2

FORM VIII SV-2

1/87 Rev.

33

SAMPLE CALC

SAMPLE ID: SB-482-0102

COMPOUND: BAP

IS AREA 590613 DILUTION COMPOUND OF INTEREST AREA IS AMOUNT (NG) Final Extract Volume (UL) AVE RRF PERCENT SOLIDS AMOUNT INJECTED (UL) CONCENTRATION PPB

23829

1.0651

2000 Sample Amount (g)

30.12

0.78

0.5

Tetra Tech NUS, Inc

Client Sample ID: SB-482-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300202-003	Work Order #:	J95081AD	Matrix: SO
Date Sampled: 10/29/07 09:3			
Prep Date: 10/31/07	Analysis Date:		
Prep Batch #: 7304048	-		
Dilution Factor: 1	<pre>Initial Wgt/Vol:</pre>	30.12 g	Final Wgt/Vol: 2 mL
% Moisture: 22	Method:	SW846 8270	C
		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
Benzo(a)pyrene	13 J	420	ug/kg
·			
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
Nitrobenzene-d5	61	(24 - 112)	
2-Fluorobiphenyl	65	(34 - 110)	
Terphenyl-d14	84	(41 - 119)	
Phenol-d5	66	(28 - 110)	
2-Fluorophenol	73	(26 - 110)	
2,4,6-Tribromophenol	73	(10 - 118)	
·			
NOTE (S):			

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Data File: \\cansvr11\dd\chem\MSS\a4hp8.i\71106a.b\J95Q81AD.D Page

Report Date: 07-Nov-2007 11:04

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file: \\cansvr11\\dd\chem\MSS\a4hp8.i\\71106a.b\\J95Q81AD.D

Lab Smp Id: j95q81ad Client Smp ID: SB-482-0102

Inj Date : 06-NOV-2007 17:05

Operator: 001710 Inst ID: a4hp8.i

Smp Info : j95q81ad,71106a.b,8270p,bap.sub

Misc Info :

Comment

Method : \\cansvr11\\dd\\chem\\MSS\\a4hp8.i\\71106a.b\\8270P.m Meth Date : 07-Nov-2007 11:02 gruberj Quant Type: ISTD Cal Date : 31-OCT-2007 18:33 Cal File: 8SMH1031.D

Als bottle: 18

Dil Factor: 1.00000

Integrator: HP RTE Compound Sublist: bap.sub

Target Version: 4.14

Processing Host: CANPMSSV01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws *) * CpndVariable

Name	Value	Description
DF Uf Vt Vi Ws Cpnd Variable	1.000	Dilution Factor ng unit correction factor Volume of final extract (uL) (1000 low, 2 Volume injected (uL) Weight of sample extracted (g) Local Compound Variable

					CONCENTRA	TIONS
	QUANT SIG				ON-COLUMN	FINAL
Compounds	MASS	RT	EXP RT REL RT	RESPONSE	(NG)	(ug/kg)
44444444444444444444444444444444444444	====		=======================================			
* 1 1,4-Dichlorobenzene-d4	152	3.434	3.440 (1.000)	158539	2.00000	(Q)
* 2 Naphthalene-d8	136	4.323	4.329 (1.000)	695601	2.00000	
* 3 Acenaphthene-d10	164	5.593	5.599 (1.000)	381776	2.00000	
* 4 Phenanthrene-d10	188	6.675	6.681 (1.000)	670231	2.00000	
* 5 Chrysene-d12	240	8.656	8.710 (1.000)	712929	2.00000	(H)
* 6 Perylene-d12	264	10.056	10.119 (1.000)	590613	2.00000	(H)
146 Benzo(a)pyrene	252	9.988	10.056 (0.993)	23829	0.07576	10.061(H)
\$ 154 Nitrobenzene-d5	82	3.809	3.815 (0.881)	471437	3.04048	403.78
\$ 155 2-Fluorobiphenyl	172	5.088	5.089 (0.910)	810262	3.22510	428.30
\$ 156 Terphenyl-d14	244	7.824	7.849 (0.904)	1157495	4.18828	556.21
\$ 157 Phenol-d5	99	3.145	3.146 (0.916)	686358	4.92092	653.51
\$ 158 2-Fluorophenol	112	2.578	2.569 (0.751)	528033	5.46364	725.58
\$ 159 2,4,6-Tribromophenol	330	6.165	6.171 (1.102)	157719	5.51116	731.89
\$ 186 2-Chlorophenol-d4	132	3.280	3.286 (0.955)	481253	4.96369	659.19
\$ 187 1,2-Dichlorobenzene-d4	152	3.540	3.545 (1.031)	211653	3.22689	428.54

QC Flag Legend



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

M. MARTIN

DATE:

JANUARY 15, 2008

FROM:

MATTHEW D. KRAUS

COPIES:

DV FILE

SUBJECT:

INORGANIC DATA VALIDATION - MERCURY

LOCKHEED MIDDLE RIVER

SDG - 7J30202

SAMPLES:

20/Solid/

SB-482-0102	SB-482-0203	SB-482-0304
SB-482-0506	SB-482-0708	SB-483-0102
SB-483-0203	SB-483-0304	SB-483-0506
SB-483-0708	SB-484-0102	SB-484-0203
SB-484-0304	SB-484-0506	SB-484-0708
SB-485-0102	SB-485-0203	SB-485-0304
SR-485-0506	SR_485_0708	

Overview

The sample set for Lockheed Middle River, SDG 7J30202, consists of twenty soil environmental samples which were all analyzed for mercury and percent solids. The samples were collected from October 29, 2007 and analyzed by TestAmerica Laboratories, Inc. All of the samples were analyzed for mercury in accordance with SW 846 method 7471A and cold vapor atomic absorption (CVAA) methodologies.

Summary

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, initial/continuing calibrations, laboratory method blank results, matrix spike/matrix spike duplicate recoveries, compound quantitation and detection limits. Areas of concern are listed below.

Major Problems

None.

Minor Problems

None.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "Region III Modifications to National Functional Guidelines for Inorganic Data Validation", April 1993. The text of this report has been formulated to address only those problem areas affecting data quality.

TO: MARTIN, M. – PAGE 2 DATE: JANUARY 15, 2008

Tetra Tech NUS Matthew D. Kraus Environmental Chemist

Tetra Tech XUS 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 - Support Documentation

Data Qualifier Key

U - Value is considered non-detected as reported by the laboratory.

J - Positive result is considered estimated, "J", as a result of technical noncompliance.

UJ - Non-detected result is considered estimated, "UJ", as a result of technical noncompliance.

APPENDIX A QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

= Lab Blank Contamination

= Field Blank Contamination

= Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

= GC/MS Tuning Noncompliance

= MS/MSD Recovery Noncompliance

= LCS/LCSD Recovery Noncompliance E

= Lab Duplicate Imprecision

= Field Duplicate Imprecision G

= Holding Time Exceedance H

= ICP Serial Dilution Noncompliance

= GFAA PDS - GFAA MSA's r < 0.995

ICP Interference - includes ICS % R Noncompliance K

L = Instrument Calibration Range Exceedance

Sample Preservation Noncompliance M

= Internal Standard Noncompliance N

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

= Poor Instrument Performance (e.g. base-line drifting)

= 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.)

= Surrogates Recovery Noncompliance

= Pesticide/PCB Resolution S

= % Breakdown Noncompliance for DDT and Endrin

= % Difference between columns/detectors >25% for positive results determined via GC/HPLC

= Non-linear calibrations; correlation coefficient r < 0.995

= EMPC result

Signal to noise response drop

= Percent solids <30%

Uncertainty at 2 sigma deviation is greater than sample activity

00885 PROJ_NO:

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: M

nsample	SB-482-0102	nsample	SB-482-0203	nsample	SB-482-0304
samp_date	10/29/2007	samp_date	10/29/2007	samp_date	10/29/2007
lab_id	A7J300202001	lab_id	A7J300202002	lab_id	A7J300202003
dc_type	NA	qc_type	ΣZ	qc_type	ΣZ
nnits	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	78.0	Pct_Solids	83.0	Pct_Solids	85.0
DUP OF:		DI ID OF		יים מוים	

1		ļ
	Val Qual	⊳
	Result	0.02
	Parameter	MERCURY
	Qual	
	Val Qual	כ
	Result	0.02
	Parameter	MERCURY
	Val Qual Result Qual Code	
	Result	0.063

Parameter

MERCURY

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00885

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: M

nsample

SB-482-0506 10/29/2007

nsample SB-482-0708 samp_date

nsample SB-483-0102 samp_date

samp_date lab_id

A7J300202004

10/29/2007 A7J300202005 NM

10/29/2007 lab_id A7J300202006

qc_type NM units MG/KG 84.0

lab_id qc_type units Pct_Solids

DUP_OF:

qc_type MG/KG units 83.0 Pct_Solids

DUP_OF:

NM MG/KG 86.0

Pct_Solids DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Resuit	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.054		

00885

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

lab_id

units

qc_type

SB-483-0203

10/29/2007 A7J300202007

samp_date lab_id qc_type units

nsample

SB-483-0304 10/29/2007

A7J300202008 NM

MG/KG

82.0

samp_date lab_id qc_type units

nsample

SB-483-0506 10/29/2007 A7J300202009

NM MG/KG

Pct_Solids DUP_OF:

MG/KG 83.0

NM

Pct_Solids DUP_OF:

Pct_Solids

DUP_OF:

		Val	Qual
Parameter	Result	Qual	Code
MERCURY	0.035		

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

83.0

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-483-0708 10/29/2007

nsample samp_date lab_id

SB-484-0102 10/29/2007

A7J300202011

nsample samp_date SB-484-0203 10/29/2007 A7J300202012

lab_id qc_type units

A7J300202010 NM

MG/KG

qc_type units

NM MG/KG

83.0

lab_id qc_type units Pct_Solids

NM MG/KG

86.0

Pct_Solids DUP_OF:

83.0

Pct_Solids DUP_OF:

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.028		

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

00885

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

SB-484-0304 10/29/2007 nsample samp_date

lab_id

SB-484-0506 10/29/2007 A7J300202014 nsample samp_date lab_id SB-484-0708 10/29/2007

lab_id qc_type units

A7J300202013 NM

qc_type units NM MG/KG qc_type units A7J300202015 NM MG/KG

Pct_Solids

MG/KG 83.0

Pct_Solids DUP_OF: 86.0

Pct_Solids DUP_OF: 84.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

· · · · · · · · · · · · · · · · · · ·			
		Val	Qual
Parameter	Result	Qual	Code
MERCURY	0.02	U	

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: M

nsample samp_date SB-485-0102

10/29/2007

nsample samp_date

lab_id

SB-485-0203 10/29/2007

nsample samp_date SB-485-0304 10/29/2007

lab_id qc_type

A7J300202016 NM

0.019

U

A7J300202017 qc_type NM

lab_id qc_type A7J300202018 NM

units

MG/KG 88.0

units Pct_Solids

DUP_OF:

MG/KG 89.0

units Pct_Solids DUP_OF:

MG/KG 84.0

Pct_Solids DUP_OF:

MERCURY

Val Qual Parameter Qual Code Result

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

SDG: 7J30202 MEDIA: SOIL DATA FRACTION: M

00885

nsample

SB-485-0506

nsample

SB-485-0708

samp_date

10/29/2007

samp_date

10/29/2007

iab_id

A7J300202019

lab_id

A7J300202020

qc_type units

NM MG/KG

qc_type units

NM

Pct_Solids

85.0

Pct_Solids

MG/KG 85.0

DUP_OF:

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

	Parameter	Result	Val Qual	Qual Code
MERCURY		0.02	U	

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Metals Data Reporting Form

Sample Results

Lab Sample ID: _

J95Q8

Client ID:

SB-482-0102

Matrix:

Soil

Units: m

mg/kg Pre

Prep Date: 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture:

21.875

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.13	0.063	В	1	CVAA	10/31/2007	15:14

Comments: Lot #: A7J300202 Sample #: 1

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

J95RD Lab Sample ID:

Client ID:

SB-482-0203

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304026

Weight: 0.60 Volume:

Percent Moisture:

17.289

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:25

Comments: Lot #: A7J300202 Sample #: 2

5.21.0

Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J95RE

Client ID:

SB-482-0304

Matrix:

Soil

Units: mg/kg

Prep Date: <u>10/31/2007</u>

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture: 14.87

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:26

Comments: Lot #: A7J300202 Sample #: 3

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID: _

J95RG

Client ID:

SB-482-0506

Matrix:

Soil

Units:

mg/kg Prep Dat

Prep Date: 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture:

16.023

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:27

Comments: Lot #: A7J300202 Sample #: 4

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RH

Client ID:

SB-482-0708

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

Percent Moisture:

17.274

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:28

Comments: Lot #: A7J300202 Sample #: 5

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

J95RK Lab Sample ID:

Client ID:

SB-483-0102

Matrix:

Soil

Units: mg/kg **Prep Date:** <u>10/31/2007</u>

Prep Batch: 7304026

Weight:

0.60

Volume: 100

Percent Moisture:

13.82

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.054	В	1	CVAA	10/31/2007	15:29

Comments: Lot #: A7J300202 Sample #: 6

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RL

Client ID:

SB-483-0203

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture:

17.063

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.035	В	1	CVAA	10/31/2007	15:33

Comments: Lot #: A7J300202 Sample #: 7

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RM Client ID: SB-483-0304

Matrix:

Soil

Units: mg/kg

Prep Date: __10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:34

Comments: Lot #: A7J300202 Sample #: 8

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RN

Client ID:

SB-483-0506

Matrix:

Soil

Units: mg/kg

Prep Date: __10/31/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture:

16.524

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:35

Comments: Lot #: A7J300202 Sample #: 9

5.21.0

Ε Serial dilution percent difference not within limits Form 1 Equivalent

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RP

Client ID:

SB-483-0708

Matrix:

Soil

Units: m

mg/kg Prep D

Prep Date: 10/31/2007

Prep Batch:

7304026

Weight:

0.60

Volume:

100

Percent Moisture:

17.133

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:36

Comments: Lot #: A7J300202 Sample #: 10

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RQ

Client ID:

SB-484-0102

Matrix:

Soil

Units:

WL/

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

100

17.101 Percent Moisture:

> Anal Anal

Element	Mass	IDL	Limit	Conc	O	DF	Instr	Date	Time
Mercury	253.7	0.020	0.12	0.028	В	1	CVAA	10/31/2007	15:37

Report

Comments: Lot #: A7J300202 Sample #: 11

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RR

Client ID:

SB-484-0203

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch:

7304026

Weight:

0.60

Volume:

100

Percent Moisture:

13.847

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	15:39

Comments: Lot #: A7J300202 Sample #: 12

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RT

Client ID:

SB-484-0304

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch:

Weight:

0.60

Volume:

100

Percent Moisture:

17.325

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:40

Comments: Lot #: A7J300202 Sample #: 13

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RV

Client ID:

SB-484-0506

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture:

13.545

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	15:41

Comments: Lot #: A7J300202 Sample #: 14

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95RW

Client ID:

SB-484-0708

Matrix:

Soil

Units: mg/kg

Prep Date: <u>10/31/2007</u>

Prep Batch:__

Weight:

0.60

Volume:

100

Percent Moisture:

15.833

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:43

Comments: Lot #: A7J300202 Sample #: 15

Result is less than the IDL U

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95R0

Client ID:

SB-485-0102

Matrix:

Soil

Units:

mg/kg

Prep Date: <u>10/31/2007</u>

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture:

12.001

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	15:15

Comments: _Lot #: A7J300202 Sample #: 16

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95R1

Client ID:

SB-485-0203

Matrix:

Soil

Units: mg/kg

o/ko Pren Date

Prep Date: 10/31/2007.

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture:

11.261

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	15:16

Comments: Lot #: A7J300202 Sample #: 17

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95R2

Client ID:

SB-485-0304

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture: 15.622

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:19

Comments: Lot #: A7J300202 Sample #: 18

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95R4

Client ID:

SB-485-0506

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:20

Comments: Lot #: A7J300202 Sample #: 19

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL U

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95R5

Client ID:

SB-485-0708

Matrix:

Soil

Units:

mg/kg Prep Date

Prep Date: 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume: 100

Percent Moisture:

15.25

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	15:24

Comments: Lot #: A7J300202 Sample #: 20

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

B Result is between IDL and RL

U Result is less than the IDL

Client Sample ID: SB-482-0102

General Chemistry

Lot-Sample #...: A7J300202-001 Work Order #...: J95Q8 Matrix.....: S0

Date Sampled...: 10/29/07 09:30 Date Received..: 10/30/07

% Moisture....: 22

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 78.1
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-482-0203

General Chemistry

Lot-Sample #...: A7J300202-002 Work Order #...: J95RD Matrix.....: S0

Date Sampled...: 10/29/07 09:32 Date Received..: 10/30/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 82.7
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-482-0304

General Chemistry

Lot-Sample #...: A7J300202-003 Work Order #...: J95RE Matrix.....: S0

Date Sampled...: 10/29/07 09:34 Date Received..: 10/30/07

% **Moisture....:** 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 85.1
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-482-0506

General Chemistry

Lot-Sample #...: A7J300202-004 Work Order #...: J95RG Matrix.....: S0

Date Sampled...: 10/29/07 09:36 Date Received..: 10/30/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 84.0
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-482-0708

General Chemistry

Lot-Sample #...: A7J300202-005 Work Order #...: J95RH Matrix.....: S0

Date Sampled...: 10/29/07 09:38 Date Received..: 10/30/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 82.7
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-483-0102

General Chemistry

Lot-Sample #...: A7J300202-006 Work Order #...: J95RK Matrix.....: S0

Date Sampled...: 10/29/07 10:10 Date Received..: 10/30/07

% Moisture....: 14

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 PREPARATION-</t

Client Sample ID: SB-483-0203

General Chemistry

Lot-Sample #...: A7J300202-007 Work Order #...: J95RL Matrix........... S0

Date Sampled...: 10/29/07 10:12 Date Received..: 10/30/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 82.9
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-483-0304

General Chemistry

Lot-Sample #...: A7J300202-008 Work Order #...: J95RM Matrix.....: S0

Date Sampled...: 10/29/07 10:14 Date Received..: 10/30/07

% Moisture....: 18

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 81.6
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-483-0506

General Chemistry

Lot-Sample #...: A7J300202-009 Work Order #...: J95RN Matrix.....: S0

Date Sampled...: 10/29/07 10:16 Date Received..: 10/30/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 83.5
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-483-0708

General Chemistry

Lot-Sample #...: A7J300202-010 Work Order #...: J95RP Matrix.....: S0

Date Sampled...: 10/29/07 10:18 Date Received..: 10/30/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 82.9
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-484-0102

General Chemistry

Lot-Sample #...: A7J300202-011 Work Order #...: J95RQ Matrix.....: S0

Date Sampled...: 10/29/07 10:50 Date Received..: 10/30/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 82.9
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-484-0203

General Chemistry

Lot-Sample #...: A7J300202-012 Work Order #...: J95RR Matrix...... S0

Date Sampled...: 10/29/07 10:52 Date Received..: 10/30/07

% Moisture....: 14

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 86.2
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-484-0304

General Chemistry

Lot-Sample #...: A7J300202-013 Work Order #...: J95RT Matrix.....: S0

Date Sampled...: 10/29/07 10:54 Date Received..: 10/30/07

% Moisture....: 17

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 82.7
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-484-0506

General Chemistry

Lot-Sample #...: A7J300202-014 Work Order #...: J95RV Matrix.....: S0

Date Sampled...: 10/29/07 10:56 Date Received..: 10/30/07

% Moisture....: 14

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 86.5
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-484-0708

General Chemistry

Lot-Sample #...: A7J300202-015 Work Order #...: J95RW Matrix.....: S0

Date Sampled...: 10/29/07 10:58 Date Received..: 10/30/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 84.2
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-485-0102

General Chemistry

Lot-Sample #...: A7J300202-016 Work Order #...: J95R0 Matrix.....: S0

Date Sampled...: 10/29/07 11:30 Date Received..: 10/30/07

% **Moisture....:** 12

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 PREPARATION-</t

Client Sample ID: SB-485-0203

General Chemistry

Lot-Sample #...: A7J300202-017 Work Order #...: J95R1 Matrix.....: S0

Date Sampled...: 10/29/07 11:32 Date Received..: 10/30/07

% Moisture....: 11

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 88.7
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-485-0304

General Chemistry

Lot-Sample #...: A7J300202-018 Work Order #...: J95R2 Matrix.....: S0

Date Sampled...: 10/29/07 11:34 Date Received..: 10/30/07

% Moisture....: 16

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Percent Solids
 84.4
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-485-0506

General Chemistry

Lot-Sample #...: A7J300202-019 Work Order #...: J95R4 Matrix...... S0

Date Sampled...: 10/29/07 11:36 Date Received..: 10/30/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 85.0
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

Client Sample ID: SB-485-0708

General Chemistry

Lot-Sample #...: A7J300202-020 Work Order #...: J95R5 Matrix.....: S0

Date Sampled...: 10/29/07 11:38 Date Received..: 10/30/07

% Moisture....: 15

 PARAMETER
 RESULT
 RL
 UNITS
 METHOD
 ANALYSIS DATE
 BATCH #

 Percent Solids
 84.8
 10.0
 %
 MCAWW 160.3 MOD
 11/06-11/07/07
 7310055

APPENDIX C SUPPORT DOCUMENTATION

EMBRELIOE

SDG 7J30202

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-484-0506	A7J300202014	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-482-0304	A7J300202003	NM	10/29/2007	10/31/2007	10/31/2007	. 2	0	2
HG	MG/KG	SB-482-0506	A7J300202004	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-482-0708	A7J300202005	NM	10/29/2007	10/31/2007	10/31/2007	2	0	, 2
HG	MG/KG	SB-483-0203	A7J300202007	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-483-0506	A7J300202009	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-483-0708	A7J300202010	NM .	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-484-0102	A7J300202011	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-482-0203	A7J300202002	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-484-0304	A7J300202013	NM .	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-483-0102	A7J300202006	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-484-0708	A7J300202015	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-485-0102	A7J300202016	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-485-0203	A7J300202017	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-485-0304	A7J300202018	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2

Monday, November 26, 2007

SORT	UNITS	NSAMPLE	LAB ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-485-0506	A7J300202019	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-485-0708	A7J300202020	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-482-0102	A7J300202001	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-484-0203	A7J300202012	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-483-0304	A7J300202008	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
PCS	%	SB-484-0304	A7J300202013	NM .	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-485-0506	A7J300202019	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-485-0708	A7J300202020	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-485-0304	A7J300202018	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-485-0203	A7J300202017	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-485-0102	A7J300202016	NM	10/29/2007	11/6/2007	11/7/2007	8	. 1	9
PCS	%	SB-484-0506	A7J300202014	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-482-0102	A7J300202001	NM .	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-484-0203	A7J300202012	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-484-0102	A7J300202011	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-482-0304	A7J300202003	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-484-0708	A7J300202015	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-482-0203	A7J300202002	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9

Monday, November 26,/2007

Chain of Custody Record

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Chain of Custody Record

SB-484-0304 10/24	Project Manager M. MACTW Telephone Number (Area of Sol - 5 28 - Site Contact S. HADLSY Carrier/Waybill Number	Code)/Fax Number	Date D 29 67 Lab Number Analysis (Attach list if more space is needed)	Chain of Custody Number 322986 Page of
7075 CENTURY BLVD # 700 City State Zip Code CERMANTOWN MD 20874 Project Name and Location (State) LMC MR Contract/Purchase Order/Quote No. 117	Telephone Number (Area of 301 - 5 28 - Site Contact S. HADLSY Carrier/Waybill Number	Code)/Fax Number 3027 Lab Contact	Lab Number Analysis (Attach list if more space is needed)	
7075 CENTURY BLVD # 700 City State Zip Code CERMANTOWN MD 20874 Project Name and Location (State) LMC MR Contract/Purchase Order/Quote No. 117	301 - 5 28 - Site Contact S. HADLSY Carrier/Waybill Number	3027 Lab Contact	Analysis (Attach list if more space is needed)	Page of
Comparison Min 20874 Project Name and Location (State) LMC MR Contract/Purchase Order/Quote No. 117 II 0099 8 Sample I.D. No. and Description (Containers for each sample may be combined on one line) Date SB-484-0304 10/24 II 484-0506 10 484-0708 II 10/24 II 10	S. HADLEY Carrier/Waybill Number		more space is needed)	
Project Name and Location (State) LMC	Carrier/Waybill Number	KIVES		
Contract/Purchase Order/Quote No. 117	Carrier/Waybill Number			
117	LOVINTER] *	
117				Special Instructions/
Sample I.D. No. and Description (Containers for each sample may be combined on one line) 38-484-0304	Matrix	Containers & Preservatives	04.28	Conditions of Receipt
Containers for each sample may be combined on one line Date	l d			•
184 - 0506 10 484 - 0708 10	Time FA Agus Sec.	Unpress H2SO4 HMO3 HCI NBOH ZnAC/ NaOH	77 7	BLOCK 'H' * LENZO(G) pyren
484 - 0708	954 X	2	X X	* Lenzold) pyren
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485 - 0102	58			
	130			
0703	32			
0304 10	54			
0506	36			
	36	4		MS/SD
58-485-0708 10/29 11	38 V	2	XX	* benzoal phiene
·				
Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B	Sample Disposa	the state of the s	(A fee may be	assessed if samples are retained
Turn Around Time Required	Unknown Heturn 10 C	lient Disposal By Lab OC Requirements (Specific	Archive For Months longer than 1 m	ionth)
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1. Relinquisted By	Date Time 10/29/07 144	1. Received By	44 S-2-1	10/29/07 16:47
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10/10/1/	Opened on: 10/20107	By:	mr
FedEx 🔀 Client Drop Off 🗀 U	PS ☐ DHL ☐ FAS ☐ TestAme	nca Couner (S	ignature)
Stetson 🗋 US Cargo 🔲	Other:		_
TestAmerica Cooler No# 566	back Foam Box Clie	ent Cooler Other Intact? Yes 🔼 No [¬ NA □
 Were custody seals on the out 	side of the cooler? Yes X No	intact? Yes 🔼 NO	אאו <u>ר</u> _
If YES, Quantity 3	side of cooler signed and dated?	Yes No D NA	· '
Were custody seals on the out Were custody seals on the bot	aide oi coolei aighed and dated? fles?	Yes No No	
Were custody seals on the bot If YES, are there any exception	ns		
		Yes 🐧 No 🗌	
3 Did custody papers accompany	y the samples?Yes ඥ No ☐	Relinquished by client?	Yes 🔀 No 🗌
			•
5 Packing material used: Bubble	Wrap K Foam None		·
6. Cooler temperature upon recei	ipt °C (see back of form for	multiple coolers/temp)	
METHOD: IR 💢 🚬 Oth	er	er None	
COOLANT: Wet Ice Blu		Yes X No	
7. Did all bottles arrive in good or8. Could all bottle labels and/or to	onunion (Onbloken)? and he reconciled with the COC?	Yes 🔯 No 🗍	
Could all bottle labels and/or to 9. Were samples at the correct p	H upon receipt?	Yes No No No	\ \
10. Were correct bottles used for t	he tests indicated?	Yes ⊠ No □	
11. Were air bubbles >6 mm in an	y VOA vials?		4 DX
An alleriate at a market an annit and to	norform indicated analyses?	Yes No □	
13. Was a Trip Blank present in the	ne cooler? Yes 🗌 No 🕱 Were V	/OAs on the COC? Yes ☐_N	10
Contacted PM Dat	he cooler? Yes No Were Ve:by:	via voice Mail Verbal	Other 🔲
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14. CHAIN OF CUSTODY	200urrad:	•,	
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AE CAMPIE COMPANION			
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Sample(s)	were received	ni a proport portantel.	·
	Mara 6	urther preserved in sample rec	eiving to meet
Sample(s)	litric Acid Lot #042607-HNO3 - Sulfuric A	Acid Lot # 092006-H2SO4: Sodiur	n Hydroxide Lot #
122805 -NaOH: Hvdrochloric Ad	cid Lot # 092006-HCl; Sodium Hydroxide	and Zinc Acetate Lot # 050205-C	H3COO2ZN/NaOH
What time was preservative	added to samples?		
Sample(s)	were received with	bubble > 6 mm in diameter (N	
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CASE NARRATIVE

7J30202

The following report contains the analytical results for twenty solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc. from the LMC MR Site, project number 112IC0098. The samples were received October 30, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J300202.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 2.7, 3.3, and 4.1°C.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for SB-485-0506 had RPD's outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

OC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	-
		Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the
 blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times
 the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica North Canton (formerly STL North Canton) Certifications and Approvals:

California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), OhioVAP (#CL0024), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY, USDA Soil Permit,

N:\QAQC\Customer Service\Narrative - Combined RCRA CWA 061807.doc

ANALYTICAL METHODS SUMMARY

7J30202

PARAMET	ER	METHOD
Semivol	in Solid Waste (Manual Cold-Vapor) atile Organic Compounds by GC/MS esidue as Percent Solids	SW846 7471A SW846 8270C MCAWW 160.3 MOD
Referen	ces:	
MCAWW	"Methods for Chemical Analysis of Wat EPA-600/4-79-020, March 1983 and subs	
SW846	"Test Methods for Evaluating Solid Wa Methods", Third Edition, November 198	· •

SAMPLE SUMMARY

7J30202 : A7J300202

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
J95Q8	001	SB-482-0102	10/29/07	09:30
J95RD	002	SB-482-0203	10/29/07	09:32
J95RE	003	SB-482-0304	10/29/07	09:34
J95RG	004	SB-482-0506	10/29/07	09:36
J95RH	005	SB-482-0708	10/29/07	09:38
J95RK	006	SB-483-0102	10/29/07	10:10
J95RL	007	SB-483-0203	10/29/07	10:12
J95RM	008	SB-483-0304	10/29/07	10:14
J95RN	009	SB-483-0506	10/29/07	10:16
J95RP	010	SB-483-0708	10/29/07	10:18
J95RQ	011	SB-484-0102	10/29/07	10:50
J95RR	012	SB-484-0203	10/29/07	10:52
J95RT	013	SB-484-0304	10/29/07	10:54
J95RV	014	SB-484-0506	10/29/07	10:56
J95RW	015	SB-484-0708	10/29/07	10:58
J95R0	016	SB-485-0102	10/29/07	11:30
J95R1	017	SB-485-0203	10/29/07	11:32
J95R2	018	SB-485-0304	10/29/07	11:34
J95R4	019	SB-485-0506	10/29/07	11:36
J95R5	020	SB-485-0708	10/29/07	11:38
NOTE (S	5) •			

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Metals Data Reporting Form

Initial Cal	ıbratıon '	Verifica	tion Stan	dard			·					
Instrument	t:C\	/AA	_				Units:	1	ug/L			
Chart Num	iber: hg	;11031a.j	orn				Accepta	ble Ra	inge: 9	0% - 1	10%	
Standard S	Source:		Ultra				Standar	d ID:			· · · · · · · · · · · · · · · · · · ·	
	WL/		Ck5IC 10/31/2 10:19 /	007								
Element	Mass	True Conc	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	2.5	2 53	101.0	· · · · · · · · · · · · · · · · · · ·				·			-

Metals Data Reporting Form

Continuing	Calibra	tion Ve	rification											
Instrument:	CV	/AA	_				Units:		ug/L	_		•		
Chart Numb	art Number: hg11031a.prn Acceptable Range: 80% - 120% Acceptable Range: 80% - 120% Standard ID:													
Standard So	urce:	·	Ultra		<u> </u>		Standar	d ID:		٠		_		
			Ck2CC	V	Ck2CC	ĽV	Ck2CC	V	Ck2CC	CV	Ck2CC	V		
			10/31/20	007	10/31/20	007	10/31/20	07	10/31/20	007	10/31/20)07		
	XX/T /		10:23 A	M	10:38 A	M	10:52 A	M	11:07 A	M	11:21 A	.M		
	WL/	True		%		%		%		%		%		
Element	Mass	Conc	Found	Rec	Found	Rec	Found	Rec	Found	Rec	Found	Rec		
Mercury	253.7	5.0	5.27	105.5	5.32	106.5	5.42	108.4	5.47	109.3	5.41	108.2		

Metals Data Reporting Form

Continuing Calibration Verification Instrument: _ **CVAA** Units: ug/L Chart Number: hg11031a.pm Acceptable Range: 80% - 120% Standard Source: Ultra Standard ID: Ck2CCV Ck2CCV Ck2CCV Ck2CCV Ck2CCV 10/31/2007 10/31/2007 10/31/2007 10/31/2007 10/31/2007 11:49 AM 11:53 AM 12:03 PM 12:07 PM 11:35 AM WL/ True % % % % % Conc Rec Rec Rec Rec Found Rec

5.42 108.3

Found

5.45 109.1

Found

5.44 108.7

5.37 107.3

Found

Mass

253.7

Element Mercury

Found

5.48 109.5

5.0

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA Units: ug/L

Chart Number: hg11031a.pm Acceptable Range: 80% - 120%

Standard Source: Ultra Standard ID:

			Ck2CCV 10/31/2007					Ck2CCV 10/31/2007		V 007	Ck2CCV 10/31/2007	
	XX/Y /		1:39 P	1:39 PM		1:52 PM		M	2:18 PM		2:34 PI	M
	WL/	True		%		%		%		%		%
Element	Mass	Conc	Found	Rec	Found	Rec	Found	Rec	Found	Rec	Found	Rec
Mercury	253.7	5.0	5.05	101.1	5.22	104.4	5.42	108.3	5.49	109.7	5.10	102.0

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ____CVAA ___ Units: ____ug/L

Chart Number: hg11031a.pm Acceptable Range: 80% - 120%

Standard Source: Ultra Standard ID:

	,		10/31/20	Ck2CCV 10/31/2007 2:48 PM		Ck2CCV 10/31/2007		V 107	Ck2CCV 10/31/2007		Ck2CCV 10/31/2007	
	WL/	True	2:48 PM %		3:02 PN	<u>И</u> %	3:17 PM		3:30 PM		3:45 P	M %
Element	Mass	Conc	Found	Rec	Found	Rec	Found	Rec	Found	Rec	Found	Rec
Mercury	253.7	5.0	5.36	107.3	5.42	108.3	5.44	108.9	5:51	110.2	5.38	107.6

Metals Data Reporting Form

Contract I	Required	l Detect	ion Limit	Stan	dard							
Instrumen	t:	CVAA				Units: ug/L						
Chart Nun	nber: <u>h</u>	ng11031a	.prn				Accep	table l	Range:	50% -	150%	
Standard S	Source: _		Ultra	a		_	Standa	ard ID	:			
Element	WL/ Mass	True Conc	Ck3CRA\\\ 10/31/20 10:22 A	07	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	0.2	0.17	83 N								

Metals Data Reporting Form

Initial Calib	ration B	lank R	esults									
Instrument:	CV	AA	_				Units:		ug/L			
Chart Numbe	er: <u>hg</u> 1	1031a.p	orn_									
Standard Sou	rce:						Standar	d ID:				_
			Ck4ICl 10/31/20 10:20 A	07								
Element	WL/ Mass	Report Limit	Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

Metals Data Reporting Form

			Ck1CCB 10/31/2007 10:24 AM		10/31/20	Ck1CCB 10/31/2007 10:39 AM		Ck1CCB 10/31/2007 10:53 AM		CB 007 M	Ck1CCB 10/31/2007 11:22 AM	
Element	WL/ Mass	Report Limit		Q	Found	O.	Found	Q	11:08 A Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	-0.1	В	0.1	U	-0.1	В

U Result is less than the IDL

Metals Data Reporting Form

Continuing Ca	librat	ion Bl	ank Results				
Instrument:	CV	AA	_		Units:	ug/L	
Chart Number:	hgl	1031a.	prn				
Standard Source	e:				Standard II):	
			Ck1CCB 10/31/2007 11:36 AM	Ck1CCB 10/31/2007 11:50 AM	Ck1CCB 10/31/2007 11:54 AM	Ck1CCB 10/31/2007 12:04 PM	Ck1CCB 10/31/2007 12:08 PM
W	/IL/ I	Report					'

Found

0.1 U

Found

-0.1

В

Found

-0.1

Found

0.1 U

Q

U

0.1

Element

Mercury

Mass Limit Found

0.6

253.7

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ____CVAA ____ Units: ____ug/L

Chart Number: hg11031a.pm

Standard Source: _____ Standard ID: ____

			Ck1CCB 10/31/2007 1:40 PM		10/31/20	Ck1CCB 10/31/2007 1:53 PM		Ck1CCB 10/31/2007 2:08 PM		Ck1CCB 10/31/2007 2:20 PM		Ck1CCB 10/31/2007 2:35 PM	
Element	WL/ Mass	Report Limit	Found	Q	Found	Q	Found	Q	Found Q		Found	Q	
Mercury	253.7	0.6	0.1	U	-0.1	В	0.1	U	0.1	U	0.1	U	

Metals Data Reporting Form

Continuing	g Calibr	ation B	lank Results								
Instrument:	C	VAA	_	Units:	Units: ug/L						
Chart Number: hg11031a.prn											
Standard So	ource: _			Standard ID:							
			Ck1CCB 10/31/2007 2:49 PM	Ck1CCB 10/31/2007 3:18 PM	/31/2007 10/31/2007 10/						
Element	WL/ Mass	Report	Found O	Found O	Found O	Found O	Found O				

Mercury

253.7

-0.1

-0.1

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID:

J97FNB

Matrix:

Soil

Units:

mg/kg

Prep Date: <u>10/31/2007</u>

Prep Batch: ___7304026

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.017	0.10	-0.018	В	1	CVAA	0/31/2007	15:11

Comments: Lot #: A7J300202

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID:

J95R4S

Original Sample ID:

J95R4

Client ID:

SB-485-0506S

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304026

Weight:

0.60

Volume:

100

Percent Moisture:

14.952

Element	WL/ Mass	OS Conc	o	MS Conc	Q	Spike Level	% Rec	OS DF	MS DF	Instr	OS Anal Date	OS Anal Time	MS Anal Date	MS Anal Time
Mercury	253.7	0.020	U	0.19		0.196	97.1	1	1	CVAA	10/31/2007	15:20	10/31/2007	15:23

Comments: Lot #: A7J300202 Sample #: 19

5.21.0

N Spike recovery failed

Form 5A Equivalent

NC Percent recovery was not calculated

- Duplicate analysis RPD was not within limits
- Serial dilution percent difference not within limits
- U Result is less than the IDL

Metals Data Reporting Form

Duplicate Sample Results

Lab Sample ID: J95R4X Client ID: SB-485-0506X

Matrix: Soil Units: mg/kg Prep Date: 10/31/2007 Prep Batch: 7304026

Weight: 0.60 Volume: 100 Percent Moisture: 14.952

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	0/31/2007	15:22

Metals Data Reporting Form

Sample Duplicate RPD Report

Duplicate Sample ID: J95R4X

7047

Original Sample ID: J95R4 Client ID: SB-485-0506X

Matrix: Soil Units: mg/kg Prep Date: 10/31/2007 Prep Batch: 7304026

Weight: 0.60 Volume: 100 Percent Moisture: 14.952

Element	WL/ Mass	OS Conc	Q	Dupe Conc	Q	% RPD	OS DF	Dupe DF	Instr	OS Anal Date	OS Anal Time	Dupe Anal Date	Dupe Anal Time
Mercury	253.7	0.020	U	0.020	U		1	1	CVAA	0/31/200	15:20	10/31/2007	15:22

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID: J97FNC

Matrix: Soil Units: mg/kg Prep Date: 10/31/2007 Prep Batch: 7304026

Weight: 0.60 Volume: 100 Percent Moisture: NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.83	0.90	108.1		81-123	1	CVAA	0/31/2007	15:12

Comments: Lot #: A7J300202

Metals Data Reporting Form

Instrument Detection Limits

Instrument: CVAA Units: ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Mercury	253.700	0.6	0.10	2/1/2007

Batch Number:

7304026

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:

Lisa McGall (e-Signature)

Prep Date: Due Date: 10/31/07 11/13/07

Lot	Work Orde	er	Due Date:	11/15/07	ICP Weight	ICPMS Weight	Hg Weight
A7J310000 Solid	J97FN	В	Due Date: SDG:		e.		<u>0.60 g</u>
A7J310000 Solid	J97FN	С	Due Date: SDG:				<u>0.60 g</u>
A7J300202 Solid	J95Q8 Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RD Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RE Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RG Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RH Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RK Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RL Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RM Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RN Total		Due Date: 11/13/07 SDG: 7J30202		·		<u>0.60 g</u>
A7J300202 Solid	J95RP Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RQ Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RR Total		Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>
A7J300202 Solid	J95RT Total		Due Date: 11/13/07 SDG: 7J30202				0.60 g
A7J300202 Solid	J95RV Total		Due Date: 11/13/07 SDG: 7J30202				0.60 g
A7J300202 Solid	J95RW Total		Due Date: 11/13/07 SDG: 7J30202				0.60 g
A7J300202 Solid	J95R0 Total		Due Date: 11/13/07 SDG: 7J30202				0.60 g
A7J300202 Solid	J95R1 Total		Due Date: 11/13/07 SDG: 7J30202				0.60 g
A7J300202 Solid	J95R2 Total		Due Date: 11/13/07 SDG: 7J30202				0.60 g
A7J300202 Solid	J95R4 Total	a	Due Date: 11/13/07 SDG: 7J30202				0.60 g
A7J300202 Solid	J95R4 Total	S	Due Date: 11/13/07 SDG: 7J30202				<u>0.60 g</u>

Batch Number:

7304026

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:

Lisa McGall (e-Signature)

Prep Date:

10/31/07 11/13/07

Due Date: Work Order

ICP Weight

Hg Weight

A7J300202

J95R4

ICPMS Weight

Solid

Total

Due Date: 11/13/07

SDG: 7J30202

0.60 g

A7J300202 Solid

J95R5 Total

Due Date: 11/13/07

SDG: 7J30202

 $0.60 \mathrm{g}$

LEVEL 2

BLANK AND CHECK STANDARD ON BATCH

MS/MSD AND PDS ON BATCH

CORRECT SPIKES ADDED

SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

Matrix Spike Information:

J95R4

Hg

Check Sample Information:

J97FN

Hg

Prep Method(s): SW846 7471A

: Instrument Upload Run Log - Page 1:
: Started Thu Nov 1 05:59:43 2007 by LISTM:
: Data File: UPL\$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	STD1REP1	1	31-OCT-2007	10:12:43			Н1
	STD2REP1	1	31-OCT-2007				H1
	STD3REP1	1	31-OCT-2007			•	H1
	STD4REP1	1	31-OCT-2007				H1
	STD5REP1	1	31-OCT-2007				H1
	STD6REP1	1	31-OCT-2007				H1
	CK5ICV	1	31-OCT-2007				H1
	CK4ICB	1	31-OCT-2007				H1
	CK3CRA\MRL						H1
	CK2CCV	1	31-OCT-2007				H1
	CK1CCB	1	31-OCT-2007				H1
	J924PB	1	31-OCT-2007			A7J290000	H1
	J924PC	1	31-OCT-2007			A7J290000	H1
	J9XCT	1	31-OCT-2007			A7J260162	H1
	J9XCTS	1	31-OCT-2007			A7J260162	H1
		1	31-OCT-2007			A7J260162	H1
		1	31-OCT-2007				H1
	J902F		31-OCT-2007		7302033	A7J260345	Hl
	Ј9033		31-OCT-2007				H1
	Ј9035		31-OCT-2007				H1
	J9038		31-OCT-2007	10:37:05	7302033	A7J260345	Hl
	CK2CCV	1	31-OCT-2007				H1
23	CK1CCB	1	31-OCT-2007	10:39:14			Hl
24	J903P	1	31-OCT-2007	10:40:22	7302033	A7J260345	H1
	J903W	1	31-OCT-2007	10:41:32	7302033	A7J260345	Hl
		1	31-OCT-2007	10:42:46	7302033	A7J260345	H1
	J924RB	1	31-OCT-2007	10:43:52	7302034	A7J290000	Hl
28	J924RC	1	31-OCT-2007	10:45:21	7302034	A7J290000	H1
	J90M9.	1	31-OCT-2007	10:46:47	7302034	7J26310	H1
30	J90N0	1	31-OCT-2007	10:47:53	7302034	7J26310	Hl
31	J90N1	1	31-OCT-2007	10:49:20	7302034	7J26310	Hl
	J90N3	1	31-OCT-2007	10:50:25	7302034	7 J 26310	Hl
33	J90N4	1	31-OCT-2007	10:51:31	7302034	7 J 26310	Hl
34	CK2CCV	1	31-OCT-2007	10:52:47			H1
	CK1CCB	1	31-OCT-2007	10:53:56			Hl.
36	J90N6	1	31-OCT-2007	10:55:34	7302034	7J26310	Hl
37	J90N7	1	31-OCT-2007	10:56:43	7302034	7J26310	Hl
38	J90N7X	1	31-OCT-2007			7J26310	Hl
39	J90N7S	1	31-OCT-2007	10:59:12	7302034	7J26310	Hl
40	J90ND	1	31-OCT-2007	11:00:17	7302034	7J26310	H1
	J90NE	1	31-OCT-2007				Hl
42	J90NF	1 .	31-OCT-2007	11:02:40	7302034	7J26310	н1
43	J90NH	1	31-OCT-2007	11:03:47	7302034	7J26310	Hl
44	J90NJ	1	31-OCT-2007	11:04:57	7302034	7J26310	H1

----- (continued)

: Instrument Upload Run Log - Page 2:
: Started Thu Nov 1 05:59:44 2007 by LISTM:
: Data File: UPL\$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1:

#			Date				Instrument
45	J90NK -		31-OCT-2007				•
			31-OCT-2007	11:07:27	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,020020	H1
47	CK2CCV CK1CCB	1.	31-OCT-2007				H1
48	J90NL	1	31-OCT-2007	11:09:51	7302034	7J26310	H1
49	J90NN	1	31-OCT-2007	11:10:58	7302034	7J26310	H1
			31-OCT-2007				H1
			31-OCT-2007				H1
			31-OCT-2007				H1
			31-OCT-2007				Hl
	J90PH		31-OCT-2007				H1
	J924VB	1	31-OCT-2007	11:17:49	7302035	A7J290000	H1
	J924VC	1	31-OCT-2007	11:18:59	7302035	A7J290000	H1
			31-OCT-2007 31-OCT-2007	11:20:05	7302035	7Ј26337	H1
58	CIKO CONT	7	31-007-2007	11.21.21			H1
59	CK1CCB	1	31-OCT-2007	11:22:32			H1
60	J90W9	1	31-OCT-2007	11:23:37	7302035	7J26337	H1
	J90X1		31-OCT-2007				H1
	J90X3		31-OCT-2007	11:26:06	7302035	7J26337	Hl
63	J90X5	1	31-OCT-2007	11:27:24	7302035	7J26337	H1
			31-OCT-2007			7J26337	H1
	J90X6X	7	31-OCT-2007	11:29:37	7302035	7JZ6337	H1
66	J90X6S	7	31-007-2007	11.30.42	7302035	7.T26337	Hl
67	J90XA	1	31-OCT-2007	11:31:49	7302035	7J26337	H1
68	J90XC	1	31-OCT-2007	11:32:55	7302035	7J26337	H1
69	J90XD	1	31-OCT-2007 31-OCT-2007	11:34:02	7302035	7J26337	H1
70	J90XD CK2CCV	1	31-OCT-2007	11:35:07			H1
71	CK1CCB	1	31-OCT-2007	11:36:15			H1
72	J90XE	1	31-OCT-2007	11:37:23	7302035	7 J 26337	Hl
73	J90XF	1	31-OCT-2007	11:38:31	7302035	7J26337	H1
74	J90XG	1	31-OCT-2007	11:39:38	7302035	7J26337	H1
75	J90XH		31-OCT-2007				Hl
76	J90XK		31-OCT-2007				Hl
77	J90XL	1	31-OCT-2007	11:43:04	7302035	7J26337	H1
78	J90XM	1	31-OCT-2007	11:44:10	7302035	7J26337	Hl
79			31-OCT-2007			7J26337	Hl
80	J90XT		31-OCT-2007				Hl
81	J90XV	1	31-OCT-2007	11:48:34	7302035	7J26337	Hl
	CK2CCV	1	31-OCT-2007				H1
			31-OCT-2007				H1
			31-OCT-2007		7302035		H1
		•	31-OCT-2007				H1
			31-OCT-2007				H1
			31-OCT-2007				H1
88	CK1CCB	1	31-OCT-2007	12:04:20	•		H1

----- (continued) -----

: Instrument Upload Run Log - Page 3 :
: Started Thu Nov 1 05:59:44 2007 by LISTM :
: Data File: UPL\$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1 :

#	WorkOrder		Date				
89	J924RC	1	31_00=2007	12-05-25	7302034		
		1	31-OCT-2007 31-OCT-2007 31-OCT-2007	12:07:00			H1
91	CK1CCB	1	31-OCT-2007	12:08:05			Hl
92	CK2CCV CK1CCB CK2CCV	1	31-OCT-2007	13:39:10			H1
93	CK1CCB	1	31-OCT-2007	13:40:15			H1
94	J97FJB	1	31-OCT-2007	13:41:20	7304024	A7J310000	Hl
95	J97FJC		31-OCT-2007				Hl
96	J9597	1	31-OCT-2007	13:43:33	7304024	A7J300253	Hl
97	J9597S		31-OCT-2007				Hl
98	J9597D	1 .	31-OCT-2007	13:45:44	7304024	A7J300253	H1
99	J97FLB	1	31-OCT-2007	13:46:51	7304025	A7J310000	H1
100	J97FLC	1	31-OCT-2007	13:48:07	7304025	A7J310000	H1
	J95T0	1	31-OCT-2007	13:49:17	7304025	7J30211	H1
102	J95T1	1 1	31-OCT-2007 31-OCT-2007 31-OCT-2007	13:50:25	7304025	7J30211	H1
	J95T2	1	31-OCT-2007	13:51:30	7304025	7J30211	H1
104	CK2CCV	-	31-OCT-2007	13:52:38			H1
	CK1CCB	1	31-OCT-2007	13:53:47			H1
	J95T3		31-OCT-2007				
	J95T4		31-OCT-2007				H1
	J95T6		31-OCT-2007			7J30211	H1
	J95T7	1	31-OCT-2007	13:58:32	7304025		H1 .
	J95T7X		31-OCT-2007				H1
111	J95T7S	1	31-OCT-2007	14:00:51	7304025		H1
112	J95TJ	1	31-OCT-2007 31-OCT-2007 31-OCT-2007 31-OCT-2007	14:01:55	7304025	7J30211	H1
113	J95TK	1	31-OCT-2007	14:03:10	7304025	7J30211	H1
114	J95TK J95TL J95TM	1	31-OCT-2007	14:04:46	7304025	7030211	HI .
112	CK2CCV	1	31-OCT-2007	14:06:12	7304025	7030211	H1
	CK2CCV CK1CCB	T	31-OCT-2007 31-OCT-2007	14:07:29			H1
			31-OCT-2007			7720011	H1 H1
			31-OCT-2007				H1
	J95TR J95TT		31-OCT-2007			7J30211	H1
	J95TV		31-OCT-2007				H1
							H1
122	J95TX	1	31-OCT-2007	14.15.24	7304025	7J30211	H1
		1	31-OCT-2007 31-OCT-2007	14:15:21	7304025		H1
		1	31-OCT-2007				H1
	CK2CCV	1	31-OCT-2007		,501025		H1
		1	31-OCT-2007				H1
		1	31-OCT-2007				H1
	CK1CCB	1	31-OCT-2007				H1
		1	31-OCT-2007		7304027		H1
	J97FQC	1	31-OCT-2007				H1
		_ 1	31-OCT-2007				H1
- 							

----- (continued)

: Instrument Upload Run Log - Page 4:
: Started Thu Nov 1 05:59:44 2007 by LISTM :
: Data File: UPL\$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1 :

	#	WorkOrder		Date			Lot	Instrument
	122	J95K6	1	31-OCT-2007				H1
		J95K7		31-OCT-2007			7J30180	H1
		J95K9	1	31-OCT-2007	14.42.05	7304027	7J30180	H1
		J95LA					7J30180	H1
		J95LC		31-OCT-2007			7J30180	H1
			1	31-OCT-2007			7J30180	H1
		J95LE J95LH	1	31-OCT-2007				H1
		CK2CCV		31-OCT-2007		7304027	7030160	H1
		CK1CCB	1	31-0CT-2007				H1
		J95LJ	1	31-OCT-2007		7204027	7.72.01.00	H1
			1	31-OCT-2007			7J30180	H1
		J95LM		31-OCT-2007				
		J95LN	1	31-OCT-2007			7J30180	H1
		J95LT					7J30180	H1
		J95P1	1	31-OCT-2007			7J30180	H1
		J95P2	1.	31-OCT-2007			7J30180	H1
		J95P4	1	31-OCT-2007 31-OCT-2007			7J30180	H1
		J95P6	1				7J30180	H1
		J95P7	1	31-OCT-2007			7J30180	H1
		J95P9	1	31-OCT-2007		/30402/	7J30180	H1.
		CK2CCV	1	31-OCT-2007				H1
		CK1CCB	1	31-OCT-2007		7704007	7720700	H1
		J95QC	1	31-OCT-2007				H1
		J95QCX	1	31-OCT-2007			7J30180	H1
•		J95QCS		31-OCT-2007			7J30180	H1
		J95QCD	1	31-OCT-2007				H1
		J95QF	1	31-OCT-2007			7J30180	H1
		J97FNB		31-OCT-2007			A7J310000	H1
		J97FNC		31-OCT-2007			A7J310000	H1
		-	1	31-OCT-2007				H1
		J95R0	1	31-OCT-2007				H1
		J95R1	1	31-OCT-2007		7304026	7J30202	H1
		CK2CCV	1	31-OCT-2007				H1
				31-OCT-2007		5004006		H1.
				31-OCT-2007				H1
		J95R4		31-OCT-2007				H1
				31-OCT-2007				H1
		J95R4S	1	31-OCT-2007			7J30202	H1
		J95R5	1	31-OCT-2007				H1
		J95RD	1	31-OCT-2007				H1
		J95RE	1	31-OCT-2007				H1
			1	31-OCT-2007				H1
			1	31-OCT-2007				H1
			1	31-OCT-2007		7304026		H1
	T.7.6	CK2CCV	1	31-OCT-2007	15:30:54			H1

----- (continued)

: Instrument Upload Run Log - Page 5:
: Started Thu Nov 1 05:59:44 2007 by LISTM :
: Data File: UPL\$CAN_DATA_ROOT:<LHG>HG11031A.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument		
177	CK1CCB	1	31-OCT-2007	15:32:00			H1		
178	J95RL	1	31-OCT-2007	15:33:05	7304026	7J30202	H1		
179	J95RM	1	31-OCT-2007	15:34:23	7304026	7J30202	H1		
180	J95RN	1	31-OCT-2007	15:35:31	7304026	7J30202	H1		
181	J95RP	1	31-OCT-2007	15:36:42	7304026	7J30202	H1		
182	J95RQ	1	31-OCT-2007	15:37:59	7304026	7J30202	H1		
183	J95RR	1	31-OCT-2007	15:39:17	7304026	7J30202	H1		
184	J95RT	1	31-OCT-2007	15:40:42	7304026	7J30202	H1		
1,85	J95RV	1	31-OCT-2007	15:41:58	7304026	7J30202	H1		
186	J95RW	1	31-OCT-2007	15:43:05	7304026	7J30202	H1		
187	CRA	1	31-OCT-2007	15:44:12			H1		
188	CK2CCV	1	31-OCT-2007	15:45:19			H1		
189	CK1CCB	1	31-OCT-2007	15:46:24			H1		
	End of Report								

METHOD BLANK REPORT

General Chemistry

Client Lot #...: 7J30202

Matrix..... SOLID

	PREPARATION-	PREP				
PARAMETER	RESULT	LIMIT	UNITS	METHOD	ANALYSIS DATE	BATCH #
Percent Solids		Work Order	#: KAPAT1AA	MB Lot-Sample #:	A7K060000-055	
	ND	10.0	%	MCAWW 160.3 MOD	11/06-11/07/07	7310055
		Dilution Fact	or: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J300202 Work Order #...: J95RD-SMP Matrix.....: S0

J95RD-DUP

Date Sampled...: 10/29/07 09:32 Date Received..: 10/30/07

% Moisture....: 17

RPD DUPLICATE PREPARATION-PREP PARAM RESULT RESULT UNITS RPD LIMIT METHOD ANALYSIS DATE BATCH # Percent Solids SD Lot-Sample #: A7J300202-002 82.7 양 (0-20) MCAWW 160.3 MOD 11/06-11/07/07 7310055 80.8 2.3

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J300202 Work Order #...: J95R4-SMP Matrix.....: S0

J95R4-DUP

Date Sampled...: 10/29/07 11:36 Date Received..: 10/30/07

% Moisture....: 15

DUPLICATE RPD PREPARATION-PREP PARAM RESULT RESULT ANALYSIS DATE UNITS RPD LIMIT METHOD BATCH # Percent Solids SD Lot-Sample #: A7J300202-019 85.0 84.8 엉 0.28 (0-20) MCAWW 160.3 MOD 11/06-11/07/07 7310055

Dilution Factor: 1

50V: 59508=58-482-0102 [Hg]= 0.063mg/kg as reported by the lab.

Page 103 Folder: HG11031A Protocol: HGPPB 15:01:46 31 Oct 2007 SD/RSD 1 Conc. Units Line 15:01:46 31 Oct 2007 HG Seq: 150 *** Sample ID: J95P9 SOLID .0000 % .0366 .0366 daa (Hg 15:02:52 31 Oct 2007 HG Seq: 151 *** Check Standard: 2 Ck2CCV True Units SD/RSD Found Line Flag %Rcv. 5.000 ppb .0000 % 108.3 5.416 15:04:41 31 Oct 2007 HG Seg: 152 *** Check Standard: 1 Ck1CCB Line Flag Found Range(+/-) Units SD/RSD .0000 % -.0765 .2000 dqq Seg: 153 15:05:47 31 Oct 2007 HG *** Sample ID: J950C SOLII) .0000 % -.0318 .0318) ppb Hg 15:07:13 31 Oct 2007 HG *** Sample ID: J950CX Seq: 154 SOLID .0000 % -.0668 ppb Hg .06685 15:08:20 31 Oct 2007 HG Seq: 155 *** Sample ID: J95QCS SOLID 1.0505 1.050 ppb .0000 % Hg 15:09:31 31 Oct 2007 HG Seq: 156 *** Sample ID: J950CD SOLID .0000 % 1.139 dga (981.1 Hg 15:10:47 31 Oct 2007 HG Seg: 157 *** Sample ID: J95QF SOLID .0021 1.002h .0000 % ppb Hg 15:11:52 31 Oct 2007 HG Seg: 158 *** Sample iD: J97FNB 7304026 .0000 % -.1050 -.10501 dqq 15:12:56 31 Oct 2007 HG Seq: 159 *** Sample ID: J97FNC SOLID .0000 % 5.405 5.405 Hig ppb 15:14:03 31 Oct 2007 HG Seq: 160 *** Sample ID: J9508 SOLID .2945 ,0000 % .2945) ppb Hig 15:15:09 31 Oct 2007 HG Seq: 161 *** Sample ID: J95RO SOLID .0755 dqq .0000 % Hg

DO VOI

UPLOPED



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:

MIKE MARTIN

DATE:

DECEMBER 14, 2007

FROM:

THOMAS JACKMAN

COPIES:

DV FILE

SUBJECT:

ORGANIC AND INORGANIC DATA VALIDATION - BENZO(A)PYRENE /

MERCURY / LEAD

LOCKHEED MIDDLE RIVER FACILITY

SAMPLE DELIVERY GROUP (SDG) - 7J30211

SAMPLES:

19/Solid for Mercury Analysis

SB-301-0203 SB-301-0506 SB-301-0809 SB-301-1112

SB-486-0102 SB-486-0203 SB-486-0304 SB-486-0506 SB-486-0708 SB-487-0102 SB-487-0203 SB-487-0304 SB-487-0506 SB-487-0708 SB-488-0102 SB-488-0203 SB-488-0304 SB-488-0506 SB-488-0708

4/Solid for Lead Analysis

SB-301-0203 SB-301-0506 SB-301-0809 SB-301-1112

15/Solid for Benzo(a)pyrene Analysis

SB-486-0102 SB-486-0203 SB-486-0304 SB-486-0506 SB-486-0708 SB-487-0102 SB-487-0203 SB-487-0304 SB-487-0506 SB-487-0708 SB-488-0102 SB-488-0203 SB-488-0304 SB-488-0506 SB-488-0708

Overview

This sample set for the LOCKHEED MIDDLE RIVER, SDG 7J30211, consists of 19 environmental soil samples. The samples were analyzed for benzo(a)pyrene, lead, and mercury. No field duplicates were included in this data set.

The samples were collected by Tetra Tech NUS, Inc. on October 29, 2007 and analyzed by Test America. The samples were analyzed by SW-846 Method 8270C for benzo(a)pyrene, by SW-846 Method 7471A for mercury, and by SW-846 Method 6020 for lead.

Summary

Organic Analysis. All samples were successfully analyzed with the exception of sample SB-486-0708. The organic findings in this report are based upon a general review of all available data including: data completeness, system performance, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank contamination, surrogate spike, matrix spike/matrix spike duplicate (MS/MSD) results, Laboratory Control Sample (LCS) results, internal standard recovery, compound identification, compound quantitation, and detection limits.

<u>Inorganic Analysis</u>. All samples were successfully analyzed. The inorganic findings in this report are based upon a general review of all available data including: data completeness, holding times, calibrations, laboratory method/preparation blanks, interference check standards, matrix spike

MEMO TO: M. MARTIN - PAGE 2
DATE: DECEMBER 14, 2007

results, laboratory duplicate results, laboratory control sample (LCS) results, ICP serial dilutions, analyte quantitation, and detection limits.

Areas of concern are listed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

Major Problems

- The internal standard area count for perylene-d12 in sample SB-488-0708 was very low. The nondetected result for benzo(a)pyrene in this sample is qualified as unreliable "UR". The sample was not re-analyzed by the laboratory.
- Lead was detected in continuing calibration blanks or preparation blanks at the following concentrations

Analyte

<u>Level</u>

Action Level 0.022 mg/kg

ead⁽¹⁾ 0.0044 mg/kg

An action level of 5X the maximum contaminant concentration was used for lead to evaluate laboratory or field contamination. Dilution factors and sample aliquots were taken into consideration during the application of all action levels, if applicable. No results for lead were qualified because the concentrations in the environmental sample were greater than the action level.

 Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, "J".

<u>Notes</u>

Because the laboratory did not add benzo(a)pyrene to the blank spike and to the matrix spike analyses, recoveries for these quality control samples could not be evaluated.

Executive Summary

Laboratory Performance: The internal standard area count in the analysis of benzo(a)pyrene for one sample was very low.

Other Factors Affecting Data Quality: None.

Ten l

The data for these analyses were reviewed with reference to the "Region III Modifications to the National Functional Guidelines for Organic Data Review" (9/94) and "Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analysis" (4/93). The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Teob MUS

Thomas Jackman

Environmental Scientist

Totta Tech NUS Joseph A. Samchuck Quality Assurance Officer

¹ Reported in preparation blanks.

МЕМО ТО: M. MARTIN - PAGE 3 **DECEMBER 14, 2007** DATE:

Attachments:

1.

Appendix A - Qualified Analytical Results Appendix B - Results as reported by the Laboratory Appendix C - Support Documentation 2.

3.

APPENDIX A

Qualified Analytical Results

Data Validation Qualifier Codes:

A = Lab Blank Contamination

= 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

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: OS

SB-486-0102 nsample samp_date 10/29/2007 lab_id A7J300211001 NM qc_type units UG/KG 89.0 Pct_Solids DUP_OF:

samp_date lab_id qc_type units Pct_Solids DUP_OF:

nsample SB-486-0203 10/29/2007 A7J300211002 NM UG/KG 86.0

samp_date lab_id qc_type units Pct_Solids DUP_OF:

nsample

SB-486-0304 10/29/2007 A7J300211003 NM UG/KG

85.0

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5.370	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1,5 380	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5 390	U	

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date SB-486-0506 10/29/2007

nsample samp_date SB-486-0708 10/29/2007

nsample samp_date lab_id

SB-487-0102 10/29/2007 A7J300211006

lab_id qc_type units

A7J300211004 NM UG/KG

lab_id qc_type units Pct_Solids

DUP_OF:

A7J300211005 NM UG/KG 86.0

qc_type units Pct_Solids NM UG/KG 90.0

Pct_Solids DUP_OF:

DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6410	U	

81.0

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5-390	U	

		Val	Qual
Parameter	Result	Qual	Code
BENZO(A)PYRENE	1,5 370	U	

PROJ NO:

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date SB-487-0203 10/29/2007

UG/KG

nsample samp_date SB-487-0304 10/29/2007 nsample samp_date lab_id SB-487-0506 10/29/2007

A7J300211009

lab_id qc_type units

A7J300211007 NM lab_id qc_type units A7J300211008 NM UG/KG

qc_type units Pct_Solids

NM UG/KG 84.0

Pct_Solids DUP_OF:

_Solids 82.0

Pct_Solids DUP_OF:

88.0

DUP_OF:

Parameter Result Qual Code

BENZO(A)PYRENE 1.6 400 U

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5 380	· U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6 390	U	

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date

lab_id

qc_type

SB-487-0708

10/29/2007

A7J300211010

NM

UG/KG units Pct_Solids 85.0

DUP_OF:

nsample samp_date lab_id

A7J300211011

units Pct_Solids DUP_OF:

qc_type

SB-488-0102

10/29/2007

NM UG/KG

89.0

nsample

samp_date lab_id

qc_type units

Pct_Solids DUP_OF:

A7J300211012 NM

SB-488-0203

10/29/2007

UG/KG 89.0

Val Qual Parameter Result Qual Code BENZO(A)PYRENE 1.5 300 U

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	9	J	Р

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5 370	· U	

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: OS

nsample samp_date SB-488-0304 10/29/2007 nsample samp_date lab_id SB-488-0506 10/29/2007 nsample samp_date lab_id SB-488-0708 10/29/2007 A7J300211015

lab_id qc_type units A7J300211013 NM UG/KG

qc_type units A7J300211014 NM UG/KG 82.0

qc_type units Pct_Solids NM UG/KG 85.0

Pct_Solids DUP_OF:

BENZO(A)PYRENE

U

1.5280

Pct_Solids DUP_OF:

DUP

DUP_OF:

• •		Val	Qual
Parameter	Result	Qual	Code

86.0

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.6400	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1,5300	UR	N

PROJ NO:

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: M

nsample samp_date lab_id SB-301-0203 10/29/2007 A7J300211016

Result

17.7

0.56

nsample samp_date lab_id qc_type SB-301-0506 10/29/2007 A7J300211017 nsample samp_date lab_id qc_type SB-301-0809 10/29/2007 A7J300211018

qc_type units Pct_Solids

LEAD

MERCURY

NM MG/KG 90.0

units
Pct_Solids
DUP_OF:

NM MG/KG 89.0

units
Pct_Solids
DUP_OF:

MG/KG 84.0

NM

DUP_OF:
Parameter

Val Qual	Qual Code	
		L
		N

Parameter	Result	Val Qual	Qual Code
LEAD	2.3		
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
LEAD	1.9		
MERCURY	0.02		

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: M

nsample

SB-301-1112 10/29/2007

nsample samp_date SB-486-0102 10/29/2007

nsample samp_date SB-486-0203

samp_date lab_id

A7J300211019

lab_id A7J300211001 lab_id

10/29/2007 A7J300211002

qc_type units

NM MG/KG

qc_type units

NM MG/KG qc_type units Pct_Solids NM MG/KG 86.0

Pct_Solids DUP_OF:

80.0

Pct_Solids DUP_OF:

89.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	3.3		
MERCURY	0.021	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

SB-486-0304 10/29/2007 nsample samp_date

SB-486-0506 10/29/2007 nsample samp_date SB-486-0708 10/29/2007

lab_id

A7J300211003

20

A7J300211004 lab_id

A7J300211005 NM

qc_type units NM MG/KG 85.0 lab_id qc_type units

NM MG/KG

qc_type units Pct_Solids

MG/KG

Pct_Solids DUP_OF:

Pct_Solids
DUP_OF:

81.0

DUP_OF:

86.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	·

	Parameter	Result	Val Qual	Qual Code
Ī	MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: M

Parameter

nsample samp_date lab_id

SB-487-0102 10/29/2007

NM

samp_date lab_id A7J300211006 qc_type

Qual

Code

Val

Qual

U

SB-487-0203 10/29/2007 A7J300211007 NM

MG/KG

0.02

U

82.0

samp_date lab_id qc_type units Pct_Solids DUP_OF:

nsample

SB-487-0304 10/29/2007 A7J300211008

NM MG/KG 88.0

units Pct_Solids DUP_OF:

MERCURY

qc_type

MG/KG 90.0

Result

0.019

Pct_Solids DUP_OF:

MERCURY

units

nsample

Qual Val Parameter Result Qual Code

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: M

nsample	SB-487-0506
samp_date	10/29/2007
lab_id	A7J300211009
qc_type	NM
units	MG/KG
Pct_Solids	84.0
DUP_OF:	

nsample
samp_date
lab_id
qc_type
units
Pct_Solids
DUP_OF:

nsample
samp_date
lab_id
qc_type
units
Pct_Solids
DUP_OF:

SB-488-0102
10/29/2007
A7J300211011
NM
MG/KG
89.0

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

Parameter	Result	Val Qual	Qual Code	
MERCURY	0.019	U		

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: M

nsample samp_date

lab_id

units

qc_type

SB-488-0203

10/29/2007 A7J300211012

samp_date lab_id

qc_type units Pct_Solids

nsample

SB-488-0304 10/29/2007

A7J300211013

NM MG/KG nsample samp_date lab_id

SB-488-0506 10/29/2007 A7J300211014

NM MG/KG 82.0

Pct_Solids DUP_OF:

MG/KG 89.0

NM

DUP_OF:

86.0

Pct_Solids DUP_OF:

qc_type

units

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	Ü	

Parameter	Result	Val Qual	Qual Code
MERCURY	0.019	U	

		Val	Qual
Parameter	Result	Qual	Code
MERCURY	0.02	U	

00998

SDG: 7J30211 MEDIA: SOIL DATA FRACTION: M

nsample

SB-488-0708

samp_date

10/29/2007

lab_id

A7J300211015

qc_type

NM

units

MG/KG

Pct_Solids

85.0

DUP_OF:

Parameter	Result	Val Qual	Qual Code
MERCURY	0.02	U	

APPENDIX B

Results as reported by the Laboratory

Client Sample ID: SB-486-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300211-001 Date Sampled: 10/29/07 13:20 Prep Date: 10/31/07 Prep Batch #: 7304332 Dilution Factor: 1 % Moisture: 11		10/30/07 11/01/07			SO
	•	REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a) pyrene	ND	370	ug/kg	1.5	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	70	(24 - 112)			
2-Fluorobiphenyl	69	(34 - 110)			
Terphenyl-d14	94	(41 - 119)			
Phenol-d5	76	(28 - 110)			
2-Fluorophenol	75	(26 - 110)			
2,4,6-Tribromophenol	83	(10 - 118)			
	•				

NOTE (S):

Client Sample ID: SB-486-0203

GC/MS Semivolatiles

			and the second s
Lot-Sample #: A7J300	0211-002 Work Order #.	: J95TK1AD	Matrix SO
Date Sampled: 10/29/	/07 13:22 Date Received	: 10/30/07	
Prep Date: 10/31/	/07 Analysis Date	: 11/01/07	
Prep Batch #: 730433	32		
Dilution Factor: 1	V.		
% Moisture: 14	Method	: SW846 8270C	
		REPORTING.	
PARAMETER	RESULT	LIMIT UNI	TS MDL
Benzo(a)pyrene	ND	380 ug/	kg 1.5
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
Nitrobenzene-d5	47	(24 - 112)	
2-Fluorobiphenyl	49	(34 - 110)	
Terphenyl-d14	72	(41 - 119)	
Phenol-d5	55	(28 - 110)	
2-Fluorophenol	52	(26 - 110)	
2,4,6-Tribromophenol	67	(10 - 118)	
NOTE (S):			

Client Sample ID: SB-486-0304

GC/MS Semivolatiles

Lot-Sample #: A7J300211- Date Sampled: 10/29/07 1 Prep Date: 10/31/07 Prep Batch #: 7304332		: 10/30/07	rix: SO
Dilution Factor: 1 % Moisture: 15	Method	• SM846 8270C	
* MOIScure 13	recirou	. 54040 02700	
		REPORTING	
PARAMETER	RESULT	LIMIT UNITS	MDL
Benzo(a)pyrene	ND	390 ug/kg	1.5
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	<u>LIMITS</u>	
Nitrobenzene-d5	54	(24 - 112)	
2-Fluorobiphenyl	52	(34 - 110)	
Terphenyl-d14	75	(41 - 119)	
Phenol-d5	60	(28 - 110)	
2-Fluorophenol	60	(26 - 110)	
2,4,6-Tribromophenol	64	(10 - 118)	
NOTE (S):			

Client Sample ID: SB-486-0506

GC/MS Semivolatiles

	10/29/07 13:26 10/31/07	Work Order #: Date Received: Analysis Date:	10/30/07	Matrix	: SO
Dilution Factor: % Moisture:		Method:	SW846 8270	C	
			REPORTING		
PARAMETER		RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	•	ND	410	ug/kg	1.6
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5		53	(24 - 112)		
2-Fluorobiphenyl		53	(34 - 110)		
Terphenyl-d14		89	(41 - 119)		
Phenol-d5		60	(28 - 110)		
2-Fluorophenol		62	(26 - 110)		
2,4,6-Tribromophe	enol	73	(10 - 118)		
NOTE (S):					

Client Sample ID: SB-486-0708

GC/MS Semivolatiles

Lot-Sample #: A7J300211- Date Sampled: 10/29/07 1 Prep Date: 10/31/07 Prep Batch #: 7304332		: 10/30/07	Matr	ix	.: SO
Dilution Factor: 1	nr 11 . 1	GE10.4.C 0.2.7.C	\C		
% Moisture: 14	Method	.: SW846 82/0). 		
		REPORTING	**************************************	MDT	
PARAMETER	RESULT	LIMIT	UNITS	MDL_	
Benzo(a)pyrene	ND	390	ug/kg	1.5	
CUDDOCAMD	PERCENT RECOVERY	RECOVERY LIMITS	÷		
SURROGATE	·	$\frac{1111113}{(24 - 112)}$	-		
Nitrobenzene-d5 2-Fluorobiphenyl	46 47	(34 - 110)			
Terphenyl-d14	80	(41 - 119)			
Phenol-d5	49	(28 - 110)			
2-Fluorophenol	50	(26 - 110)			
2,4,6-Tribromophenol	62	(10 - 118)			
Nome (a)					

Client Sample ID: SB-487-0102

GC/MS Semivolatiles

Lot-Sample #: A7 Date Sampled: 10 Prep Date: 10	0/29/07 13:35 1 0/31/07		10/30/07	Matrix	· · · · · · · · · · · · · · · · · · ·	so
Prep Batch #: 73	04332	•				
Dilution Factor: 1 % Moisture: 10)	Method:	SW846 8270	C		
			REPORTING			
PARAMETER	į	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	-1	ND	370	ug/kg	1.5	
		PERCENT	RECOVERY			
SURROGATE	,	RECOVERY	LIMITS			
Nitrobenzene-d5		57	(24 - 112)			
2-Fluorobiphenyl		58	(34 - 110)			
Terphenyl-d14	;	83	(41 - 119)			
Phenol-d5	•	67	(28 - 110)			
2-Fluorophenol		65	(26 - 110)			
2,4,6-Tribromopheno	.1	72	(10 - 118)			

Results and reporting limits have been adjusted for dry weight.

NOTE (S):

Client Sample ID: SB-487-0203

GC/MS Semivolatiles

Lot-Sample #: A7J300211-00 Date Sampled: 10/29/07 13: Prep Date: 10/31/07 Prep Batch #: 7304332		10/30/07	Matr	ix: SO
Dilution Factor: 1 % Moisture: 18	Method	SW846 8270	C	
PARAMETER	RESULT	REPORTING LIMIT	UNITS	\mathtt{MDL}
Benzo(a)pyrene	ND	400	ug/kg	1.6
SURROGATE Nitrobenzene-d5	PERCENT RECOVERY 50	RECOVERY LIMITS (24 - 112)		
2-Fluorobiphenyl Terphenyl-d14 Phenol-d5 2-Fluorophenol 2,4,6-Tribromophenol	54 75 59 57 67	(34 - 110) (41 - 119) (28 - 110) (26 - 110) (10 - 118)		

Results and reporting limits have been adjusted for dry weight.

NOTE (S):

Client Sample ID: SB-487-0304

GC/MS Semivolatiles

Lot-Sample #: A7J300211-008 Date Sampled: 10/29/07 13:39 Prep Date: 10/31/07 Prep Batch #: 7304332 Dilution Factor: 1		10/30/07	Matrix	sso
% Moisture: 12	Method:	SW846 8270	C	
		·		
		REPORTING	******	MDT
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	58	(24 - 112)		•
2-Fluorobiphenyl	59	(34 - 110)		
Terphenyl-d14	81	(41 - 119)		
Phenol-d5	71	(28 - 110)		
2-Fluorophenol	69	(26 - 110)		
2,4,6-Tribromophenol	74	(10 - 118)		
NOTE (S):		· .		

Client Sample ID: SB-487-0506

GC/MS Semivolatiles

Lot-Sample #: A7J300211- Date Sampled: 10/29/07 3 Prep Date: 10/31/07 Prep Batch #: 7304332		: 10/30/07	Mati	rix \$0
Dilution Factor: 1			~	
% Moisture: 16	Method	: SW846 82/0	C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	54	(24 - 112)		
2-Fluorobiphenyl	46	(34 - 110)		
Terphenyl-d14	77	(41 - 119)		
Phenol-d5	60	(28 - 110)		
2-Fluorophenol	63	(26 - 110)		
2,4,6-Tribromophenol	63	(10 - 118)		
NOTE (S):				

Client Sample ID: SB-487-0708

GC/MS Semivolatiles

Lot-Sample #: A7J300211-010 Date Sampled: 10/29/07 13:43 Prep Date: 10/31/07 Prep Batch #: 7304332		10/30/07	Matrix	s	6 0
Dilution Factor: 1	Nothed .	CM046 9270	c	. •	
% Moisture: 15	Method:	5W040 02/U	C		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a) pyrene	ND	390	ug/kg	1.5	
	PERCENT	RECOVERY	,		
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	60	(24 - 112)			
2-Fluorobiphenyl	55	(34 - 110)			
Terphenyl-d14	82	(41 - 119)			
Phenol-d5	67	(28 - 110)			
2-Fluorophenol	68	(26 - 110)			
2,4,6-Tribromophenol	71	(10 - 118)			
NOTE (S):			·		

Client Sample ID: SB-488-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300211-011 Date Sampled: 10/29/07 14:0 Prep Date: 10/31/07 Prep Batch #: 7304332 Dilution Factor: 1	O Date Received: Analysis Date:	10/30/07 11/01/07		ix: SO
% Moisture: 11	Method:	SW040 02/0	C	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	9.0 J	370	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	51	(24 - 112)		
2-Fluorobiphenyl	62	(34 - 110)		
Terphenyl-d14	77	(41 - 119)		
Phenol-d5	59	(28 - 110)		
2-Fluorophenol	53	(26 - 110)		
2,4,6-Tribromophenol	71	(10 - 118)		
NOTE (S):				

J Estimated result. Result is less than RL.

Client Sample ID: SB-488-0203

GC/MS Semivolatiles

Lot-Sample #:	A7J300211-012	Work Order #:	J95T11AD	Matrix		: SO
-	10/29/07 14:02 10/31/07 7304332	Date Received: Analysis Date:	10/30/07			
% Moisture:		Method:	SW846 8270	С		
			REPORTING			
PARAMETER		RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	·	ND	370	ug/kg	1.5	
		PERCENT	RECOVERY			
SURROGATE		RECOVERY	LIMITS			
Nitrobenzene-d5		53	(24 - 112)			
2-Fluorobiphenyl		57	(34 - 110)			
Terphenyl-d14		76	(41 - 119)			
Phenol-d5		59	(28 - 110)			
THEHOT GO		57	(26 - 110)			
2-Fluorophenol		37	(20 110)			

Client Sample ID: SB-488-0304

GC/MS Semivolatiles

Lot-Sample #: A7J300211-013 Date Sampled: 10/29/07 14:04 Prep Date: 10/31/07 Prep Batch #: 7304332		10/30/07	Matrix	: SO
Dilution Factor: 1				
% Moisture: 14	Method:	SW846 8270	C .	
		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Nitrobenzene-d5	59	(24 - 112)		
2-Fluorobiphenyl	59	(34 - 110)		
Terphenyl-d14	83	(41 - 119)		
Phenol-d5	65	(28 - 110)		
2-Fluorophenol	67	(26 - 110)		
2,4,6-Tribromophenol	74	(10 - 118)		
2,4,6-Tribromophenol NOTE(S):	74	(10 - 118)		

Client Sample ID: SB-488-0506

GC/MS Semivolatiles

Dilution Factor: 1 % Moisture: 18	Method:		C		
		REPORTING			
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Benzo(a)pyrene	ND	400	ug/kg	1.6	
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
Nitrobenzene-d5	44	(24 - 112)			
2-Fluorobiphenyl	45	(34 - 110)			
Terphenyl-d14	79	(41 - 119)			
Phenol-d5	50	(28 - 110)			
2-Fluorophenol	50	(26 - 110)			
2,4,6-Tribromophenol	60	(10 - 118)			
NOTE (S):				•	

Client Sample ID: SB-488-0708

GC/MS Semivolatiles

Lot-Sample #: A7J300211-015 Date Sampled: 10/29/07 14:08 Prep Date: 10/31/07 Prep Batch #: 7304332		10/30/07	Matrix	: SO
Dilution Factor: 1 % Moisture: 15	Method:	SW846 8270	С	
PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	75	(24 - 112)		
2-Fluorobiphenyl	63	(34 - 110)		
Terphenyl-d14	97	(41 - 119)		
Phenol-d5	63	(28 - 110)		
2-Fluorophenol	60	(26 - 110)		
2,4,6-Tribromophenol	33	(10 - 118)		

Results and reporting limits have been adjusted for dry weight.

NOTE (S):

Metals Data Reporting Form

Sample Results

Lab Sample ID: J95T6 Client ID:

SB-301-0203

Matrix:

Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch: 7304025

Weight:

1.00

Volume:

100

Percent Moisture:

10.454

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Lead	208	0.0017	0.11	17.7		1	ICPMS	11/6/2007	10:53

Comments: Lot #: A7J300211 Sample #: 16

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95T7

Client ID:

SB-301-0506

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch:___

Weight:

1.00

Volume:

100

Percent Moisture:

10.663

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Lead	208	0.0017	0.11	2.3		1	ICPMS	11/6/2007	11:05

Comments: Lot #: A7J300211 Sample #: 17

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95VG

Client ID:

SB-301-0809

Matrix:

Soil

Units: mg/kg

Prep Date: __10/31/2007 __

Prep Batch: 7304025

Weight:

1.00

Volume:

100

Percent Moisture:

15.7

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Lead	208	0.0018	0.12	1.9		1	ICPMS	11/6/2007	11:13

Comments: Lot #: A7J300211 Sample #: 18

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95VJ

Client ID:

SB-301-1112

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

7304025

Weight:

1.00

Volume:

100

Percent Moisture:

19.511

Prep Batch:

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Lead	208	0.0019	0.12	3.3		1	ICPMS	11/6/2007	11:15

Comments: Lot #: A7J300211 Sample #: 19

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95T6

Client ID:

SB-301-0203

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

10.454

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.56		1	CVAA	10/31/2007	13:57

Comments: Lot #: A7J300211 Sample #: 16

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95T7

Client ID:

SB-301-0506

Matrix:

Soil

Units:

mg/kg

Prep Date: __10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

10.663

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	13:58

Comments: <u>Lot #: A7J300211 Sample #: 17</u>

5.21.0

Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95VG

Client ID:

SB-301-0809

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

15.7

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	В	1	CVAA	10/31/2007	14:16

Comments: Lot #: A7J300211 Sample #: 18

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

Result is between IDL and RL

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95VJ

Client ID:

SB-301-1112

Matrix:

Soil

Units:

mg/kg Prep

Prep Date: 10/31/2007_

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

19.511

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.021	0.12	0.021	U	1	CVAA	10/31/2007	14:17

Comments: Lot #: A7J300211 Sample #: 19

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

B Result is between IDL and RL

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95TJ

Client ID:

SB-486-0102

Matrix:

Units: mg/kg

100

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

Percent Moisture: 10.578

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	14:01

Comments: Lot #: A7J300211 Sample #: 1

5.21.0

Serial dilution percent difference not within limits

Form 1 Equivalent

Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID: J95TK

Client ID:

SB-486-0203

Matrix: Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume: 100

Percent Moisture:

13.67

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	14:03

Comments: Lot #: A7J300211 Sample #: 2

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95TL

Client ID:

SB-486-0304

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

15.13

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF_	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	14:04

Comments: Lot #: A7J300211 Sample #: 3

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95TM

Client ID:

SB-486-0506

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

18.681

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	14:06

Comments: Lot #: A7J300211 Sample #: 4

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95TN

Client ID:

SB-486-0708

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

14.395

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	14:09

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95TR Client ID: SB-487-0102

Matrix:

Soil

mg/kg **Units:**

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

0.60 Weight:

Volume: 100 Percent Moisture:

10.372

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	14:10

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95TT

Client ID:

SB-487-0203

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume: 100

Percent Moisture:

17.56

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	14:11

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95TV

Client ID:

SB-487-0304

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	14:13

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95TW

Client ID:

SB-487-0506

Matrix:

Soil

Units:

mg/kg Prep Date

0.12

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

14:14

Weight: (

0.60

Mercury

Volume:

253.7

100

0.020

Percent Moisture:

16.197

CVAA

10/31/2007

WL/ Report | Anal Anal Element Mass IDL Limit Conc O DF Instr Date Time

0.020

U

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95TX

Client ID:

SB-487-0708

Matrix:

Soil

Units: mg/k

100

mg/kg Prep Date

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

Percent Moisture:

14.658

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	14:15

Comments: Lot #: A7J300211 Sample #: 10

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95T0

Client ID:

SB-488-0102

Matrix:

Soil

Units:

mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

11.142

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	13:49

Comments: Lot #: A7J300211 Sample #: 11

5.21.0

Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID: _____ J95T1

Client ID:

SB-488-0203

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight: 0.60

1.

Volume: 100

Percent Moisture:

11.478

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	10/31/2007	

Comments: Lot #: A7J300211 Sample #: 12

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

B Result is between IDL and RL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95T2

Client ID:

SB-488-0304

Matrix:

Soil

Units:

mg/kg

Prep Date: __10/31/2007

Prep Batch: 7304025-Hg

Weight:

0.60

Volume:

100

Percent Moisture:

Element	WL/ Mass	IDL	Report Limit	Conc	0	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.019	0.12	0.019	U	1	CVAA	10/31/2007	

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95T3 Client ID: SB-488-0506

Matrix: Soil

Units: mg/kg **Prep Date:** 10/31/2007

Prep Batch: 7304025-Hg

Weight: 0.60

100 Volume:

Percent Moisture: 17.876

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	13:55

Result is less than the IDL

Metals Data Reporting Form

Sample Results

Lab Sample ID:

J95T4

Client ID:

SB-488-0708

Matrix:

Soil

Units: mg/kg

Prep Date: 10/31/2007

Prep Batch: 7304025-Hg

Weight: 0.60

Volume: 100

Percent Moisture:

14.788

Element	WL/ Mass	IDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	10/31/2007	13:56

Comments: Lot #: A7J300211 Sample #: 15

5.21.0

E Serial dilution percent difference not within limits

Form 1 Equivalent

U Result is less than the IDL

Result is between IDL and RL

APPENDIX C

Support Documentation

CASE NARRATIVE

7J30211

The following report contains the analytical results for nineteen solid samples submitted to TestAmerica North Canton by Tetra Tech NUS Inc. from the LMC MR Site, project number 112IC00998. The samples were received October 30, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J300211.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Patrick J. O'Meara, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 2.7, 3.3, and 4.1°C.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for SB-486-0102 had RPD's outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The internal standard areas were outside acceptance limits for sample(s) SB-488-0708 due to matrix effects. (Refer to IS report following this Case Narrative for additional detail.)

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

Chain of Custody Record

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Chain of Custody Record



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SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-487-0506	A7J300211009	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG .	MG/KG	SB-301-0809	A7J300211018	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-301-1112	A7J300211019	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-486-0203	A7J300211002	NM	10/29/2007	10/31/2007	10/31/2007	2	0	. 2
HG	MG/KG	SB-486-0506	A7J300211004	NM	10/29/2007	10/31/2007	10/31/2007	. 2	0	2
HG	MG/KG	SB-486-0708	A7J300211005	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-487-0102	A7J300211006	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-301-0506	A7J300211017	NM .	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-487-0304	A7J300211008	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
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HG	MG/KG	SB-487-0708	A7J300211010	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-488-0102	A7J300211011	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-488-0203	A7J300211012	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-488-0304	A7J300211013	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-488-0506	A7J300211014	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	SB-301-0203	A7J300211016	NM	10/29/2007	10/31/2007	10/31/2007	2	0	2
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HG	MG/KG	SB-487-0203	A7J300211007	NM :	10/29/2007	10/31/2007	10/31/2007	2	0	2
HG	MG/KG	SB-486-0304	A7J300211003	NM	10/29/2007	10/31/2007	10/31/2007	2	0	. 2
М	MG/KG	SB-301-1112	A7J300211019	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
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M	MG/KG	SB-301-0506	A7J300211017	NM	10/29/2007	10/31/2007	11/6/2007	2	6	8
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PCS	%	SB-488-0708	A7J300211015	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-488-0102	A7J300211011	NM	10/29/2007	11/6/2007	11/7/2007	. 8	1	9
PCS	%	SB-487-0506	A7J300211009	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-301-0203	A7J300211016	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-487-0203	A7J300211007	. NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-487-0102	A7J300211006	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP ANL
PCS	%	SB-486-0708	A7J300211005	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-486-0506	A7J300211004	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-486-0304	A7J300211003	NM	10/29/2007`	11/6/2007	11/7/2007	. 8	1	9
PCS	%	SB-486-0203	A7J300211002	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-486-0102	A7J300211001	NM	10/29/2007	11/6/2007	11/7/2007	8	1 1 .	9
PCS	%	SB-301-1112	A7J300211019	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-301-0809	A7J300211018	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-301-0506	A7J300211017	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
PCS	%	SB-487-0708	A7J300211010	NM	10/29/2007	11/6/2007	11/7/2007	8	1	9
OS	%	SB-486-0304	A7J300211003	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	%	SB-488-0506	A7J300211014	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	%	SB-486-0102	A7J300211001	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	%	SB-486-0203	A7J300211002	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	%	SB-488-0304	A7J300211013	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	%	SB-488-0203	A7J300211012	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	%	SB-486-0506	A7J300211004	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	%	SB-488-0708	A7J300211015	NM	10/29/2007	10/31/2007	11/2/2007	2	2	4
OS	%	SB-488-0102	A7J300211011	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3

Androis verify and a company in the

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP ANL
os	%	SB-487-0708	A7J300211010	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	%	SB-487-0506	A7J300211009	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	%	SB-487-0304	A7J300211008	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	%	SB-487-0203	A7J300211007	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	%	SB-487-0102	A7J300211006	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	%	SB-486-0708	A7J300211005	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	UG/KG	SB-486-0304	Ā7J300211003	NM	10/29/2007	10/31/2007	11/1/2007	2	. 1	3
os	UG/KG	SB-487-0708	A7J300211010	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	ÚG/KG	SB-488-0506	A7J300211014	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	UG/KG	SB-488-0304	A7J300211013	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	UG/KG	SB-488-0203	A7J300211012	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	UG/KG	SB-488-0102	A7J300211011	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	UG/KG	SB-488-0708	A7J300211015	NM	10/29/2007	10/31/2007	11/2/2007	2	2	4
os	UG/KG	SB-487-0506	A7J300211009	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
OS	UG/KG	SB-487-0304	A7J300211008	NM	10/29/2007	10/31/2007	11/1/2007	2	†	3
os	UG/KG	SB-487-0203	A7J300211007	NM	10/29/2007	10/31/2007	11/1/2007	2	1 .	3
os	UG/KG	SB-487-0102	A7J300211006	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	UG/KG	SB-486-0506	A7J300211004	NM	10/29/2007	10/31/2007	11/1/2007	2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3
Memieray	Nevamina.	745,21997								1012 (5 of 25)

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	SB-486-0203	A7J300211002	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3
os	UG/KG	SB-486-0102	A7J300211001	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3 .
os	UG/KG	SB-486-0708	A7J300211005	NM	10/29/2007	10/31/2007	11/1/2007	2	1	3

Mileral English Agentifica de Carlo.

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30211

Lab File ID (Standard): 2SMH1102 Date Analyzed: 11/02/07

Instrument ID: A4AG2 Time Analyzed: 0907

	1	TO 4 (TO TO TO TO TO TO TO TO TO TO TO TO TO			r		
		IS4 (PHN)		IS5 (CRY)		IS6 (PRY))
		AREA #	RT	AREA #	RT	AREA #	RT
	==========	=========	=====	=========	=====	========	=====
	12 HOUR STD	631202	6.83	581779	8.80	553071	10.26
	=========	=========	======		=====	========	======
	UPPER LIMIT	1262404	7.33	1163558	9.30	1106142	10.76
		========	=====		======		======
	LOWER LIMIT	315601	6.33	290890	8.30	276536	9.76
		313001		250050	0.50 =====	270550	J. 70 ======
	EPA SAMPLE						
	,						
	NO.						
	=========	========	=====	========	=====	=======	=====
01	J98TKBLK	1198330	6.84	1084539	8.82	1060807	10.28
02	J98TKCHK	1024281	6.83	945290	8.80	91 5900	10.26
03	SB-488-0708	655450	6.83	564158	8.81	73028*	10.27
04							
05							
06					.——i		
07							·
08							
09							·
10							
11]						
12							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
44					[

IS4 (PHN) = Phenanthrene-dl0

UPPER LIMIT = +100% of internal standard area.

IS5 (CRY) = Chrysene-d12 IS6 (PRY) = Perylene-d12

LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

1/87 Rev.

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN

SDG No: 7J30211

Matrix Spike ID: SB-486-0102

Lot #: A7J300211

WO #: J95TJ1AF BATCH: 7304332

SPIKE ·	MSD	MSD				
ADDED	CONCENT.	용	. %	QC 1	LIMITS	j
(ug/kg)	(ug/kg)	REC	RPD	RPD	REC	QUAL
=======	=======	=====	======	==== i	========	=======
740	370	50	18	30	33- 110	
740	470	63	4.6	30	10- 200	
740	600	80	14.6	30		!
740	580	78	5.2	30		
740	440	60	15	!!		
740	310	41	32 *	!!		n
740	480	64	1.9	!!		P
740	450	61	13			
740	410	56	16	!!		
740	550	74				
740	510	!				
	ADDED (ug/kg) ======= 740 740 740 740 740 740 740 74	ADDED CONCENT. (ug/kg) (ug/kg)	ADDED (ug/kg) REC (ug/kg) REC (ug/kg) (ug/kg) REC (ug/	ADDED CONCENT. % % (ug/kg) (ug/kg) REC RPD ======= ====== ====== 740 370 50 18 740 63 4.6 740 630 4.6 740 580 78 5.2 740 440 60 15 740 310 41 32 * 740 480 64 1.9 740 450 61 13 740 410 56 16 740 740 550 74 5.5 5	ADDED CONCENT. % % QC 1 (ug/kg) (ug/kg) REC RPD RPD ===================================	ADDED CONCENT. % % QC LIMITS (ug/kg) (ug/kg) REC RPD RPD REC RPD RPD REC RPD RPD REC RPD RPD REC RPD RPD REC RPD RPD REC RPD RPD REC RPD RPD REC RPD RPD REC RPD RPD REC RPD RPD REC RPD RPD RPD REC RPD RPD RPD RPD RPD RPD RPD RPD RPD RPD

NOTES (S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

	1					side l	imits	•
Spike	Recov	ery:	0	out	of	11	outside	limits

COMMENTS:

p Relative percent difference (RPD) is outside stated control limits.

Metals Data Reporting Form

Initial Calib	ration B	lank R	esults						
Instrument: ICPMS					Units: ug/L				· · · · · · · · · · · · · · · · · · ·
Chart Number	er: <u>11</u>	0607c.re	<u>ep</u>						
Standard Source:					Standard ID:				
			QC Std 2 11/6/2007 8:33 AM						
Element	WL/ Mass	Report Limit	Found 0	Kound O	Found Q	Found	O	Found	Q
Lead	208	1	0.02 B			,			

Metals Data Reporting Form

Continuin	g Calibra	ation B	lank Resi	ults							
Instrument	Instrument: ICPMS								ug/L		
Chart Num	ber: <u>1</u>	10607c	rep								
Standard S	ource: _				·		Standa	rd II);	· .	
			QC Std 11/6/200 8:51 AM	07	QC Std 11/6/200 10:29 A)7	QC Std 11/6/200 11:02 A)7	QC Std 7 11/6/2007 11:36 AM		
Element	WL/ Mass	Report Limit	Found	o	Found	0	Found	Q	Found O	Found	0
Lead	208	1	0.015	U	0.015	U	0.015	U	0.021 B	7	
										/	

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: J97FLB

Matrix: Soil Units: mg/kg

mg/kg **Prep Date:** 10/31/2007

Prep Batch: 7304025

Weight: 1.00 Volume: 100 Percent Moisture: NA

Element	WL/ Mass	IDL	Report Limit	Conc	o	DF	Instr	Anal Date	Anal Time
Lead	208	0.0015	0.10	0.0044	В	1	ICPMS	11/6/2007	10:47
					/				

Comments: Lot #: A7J300211

CALCULATION WORKSHEET

Page 1 of 1

CLIENT:	SDG No.					
LOCKHEED MIDDLE RIVER 7J30211						
SUBJECT:						
EXAMPLE CALCULATION - BENZO(A)PYRENE - SOIL						
EXAMPLE CALCULATION - BENZO(A)	PYRENE - SOIL					
BY:	DATE:					

İ	Sample ID = SB-488-0102	Benzo(a)pyrene
	Concentration = 9 ug/kg	

EQUATION:

$$C_{s} = \frac{A_{x} \times ls \times Vt \times Df}{Ais \times RRF \times V_{i} \times W_{s} \times D}$$

Where:

Cs	=	analyte concentration in soil		ug/kg
A _x	=	analyte response	=	35764
ls	=	amount of internal standard	=	2 ng
V _t	=	volume of final extract	=	2000 uL
Df	=	dilution factor	=	1
Ais	=	response of internal standard	=	1115637
RRF	=	response factor of compound	=	1.06425
Vi	=	volume injected	=	0.5 uL
Ws	=	sample weight	=	30.07 g
D	=	percent solids	=	0.89

Therefore: benzo(a)pyrene concentration in soil =

35764 x 2ng x 2000uL x 1 1115637 x 1.06425 x 0.5uL x 30.07g x 0.89

C _s	=	 9.0	ug/kg	

Tetra Tech NUS, Inc

Client Sample ID: SB-488-0102

GC/MS Semivolatiles

Lot-Sample #: A7J300211-011	Work Order #: J95T01AD	Matrix SO
Date Sampled: 10/29/07 14:00	Date Received: 10/30/07	
Prep Date: 10/31/07	Analysis Date: 11/01/07	
Prep Batch #: 7304332		
Dilution Factor: 1	Initial Wgt/Vol: 30_07_g	Final Wgt/Vol. 2 mL
% Moisture	Method: SW846 8270C	

REPORTING

PARAMETER	RESHET	LIMIT UNITS
Benzo(a)pyrene	9.0 J	370 ug/kg
	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Nitrobenzene-d5	51	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	77	(41 - 119)
Phenol-d5	59	(28 - 110)
2-Fluorophenol	53	(26 - 110)
2,4,6-Tribromophenol	71	(10 - 118)
Nominate Anna		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Data File: \\cansvr11\dd\chem\MSS\a4aq2.i\71101A.b\J95T01AD.D Page 1

Report Date: 02-Nov-2007 08:35

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file: \\cansvr11\dd\chem\MSS\a4ag2.i\71101A.b\J95T01AD.D

Client Smp ID: SB-488-0102 Lab Smp Id: J95T01AD

Inj Date : 01-NOV-2007 17:25

Inst ID: a4ag2.i

Operator : 046900 Ins Smp Info : J95T01AD,71101A.b,8270P,BAP.SUB

Misc Info:

Comment

Method : \\cansvr11\dd\chem\MSS\a4ag2.i\71101A.b\8270p.m Meth Date: 02-Nov-2007 08:30 hulat Quant Type: ISTD

Cal File: 2SHHH1029.D Cal Date : 29-OCT-2007 07:15

Als bottle: 40

Dil Factor: 1.00000

Integrator: HP RTE Compound Sublist: BAP.SUB

Target Version: 4.14

Processing Host: CANPMSSV04

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws) * CpndVariable

Name	Value Description	
DF Uf Vt Vi Ws Cpnd Variable	1.000 Dilution Factor 1.000 ng unit correction factor 2000.000 Volume of final extract (uL)(1000 low, 200.50000 Volume injected (uL) 30.070 Weight of sample extracted (g) Local Compound Variable	2

						CONCENTRA	TIONS
	QUANT SIG					ON-COLUMN	FINAL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(NG)	(ug/kg)
=======================================	# # ###		ARE			======	
* 1 1,4-Dichlorobenzene-d4	152	3.601	3.595	(1.000)	274856	2.00000	(Q)
* 2 Naphthalene-d8	136	4.501	4.495	(1.000)	1217008	2.00000	
* 3 Acenaphthene-d10	164	5.771	5.766	(1.000)	664081	2.00000	
* 4 Phenanthrene-d10	188	6.866	6.854	(1.000)	1187964	2.00000	
* 5 Chrysene-d12	240	8.842	8.824	(1.000)	1149191	2.00000	
* 6 Perylene-d12	264	10.336	10.301	(1.000)	1115637	2.00000	
146 Benzo(a)pyrene	252	10.265	10.236	(0.993)	35764	0.06024	8.0137
\$ 154 Nitrobenzene-d5	82	3.977	3.978	(0.884)	471525	2.55494	339.86
\$ 155 2-Fluorobiphenyl	172	5.260	5.254	(0.911)	1230227	3.10117	412.53
\$ 156 Terphenyl-d14	244	8.012	8.001	(0.906)	1817779	3.85570	512.90
\$ 157 Phenol-d5	99	3.307	3.295	(0.918)	921006	4.45825	593.05
\$ 158 2-Fluorophenol	112	2.725	2.713	(0.757)	621309	3.95941	526.69
\$ 159 2,4,6-Tribromophenol	330	6.348	6.336	(1.100)	280188	5.29191	703.94
\$ 186 2-Chlorophenol-d4	132	3.448	3.442	(0.958)	754483	4.24043	564.07
\$ 187 1,2-Dichlorobenzene-d4	152	3.713	3.707	(1.031)	159589	1.40618	187.05

QC Flag Legend

Report Date : 29-Oct-2007 10:35

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 29-OCT-2007 07:15 End Cal Date : 29-OCT-2007 09:38

Quant Method : ISTD : Disabled Origin Target Version : 4.14 : HP RTE Integrator

: \\cansvr11\dd\chem\MSS\a4ag2.i\71029A.b\8270p.m : 29-Oct-2007 10:31 a4ag2.i Method file

Last Edit

Curve Type : Average

		- ,							
	0.05000	0.25000	0.50000	1.000	2.500	5.000		6 DCD	1
Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	RRF [% RSD	1
	7.500	10.000	12.500		1				ŀ
	7.500 Level 7	Level 8	12.500 Level 9	 	l }		i l		1
	= =====================================	BEETSEEE	Dever 2						٠ĺ
L44 Hexachlorophene	1 +++++	+++++	++++	, +++++	+++++	+++++		!	i
	++++	+++++	++++	ĺ			+++++	+++++	I
	-								١-
145 Hexachlorophene product	+++++	++++	+++++	+++++	+++++	++++	1		
	+++++	++++	++++		l .		+++++	+++++	1
									۱-
146 Benzo(a)pyrene	1.19388	, "	•	•	0.99585	1.06396	1.06425	10.275	! : 1
	1.10598	1.11559	1.23742	 	[1.06423	10.2/5	? -
148 3-Methylcholanthrene	+++++	+++++	 +++++	+++++	1 +++++	+++++			
ETO D MCCM TOMOTOMENTOME	1 +++++	++++	+++++	1	1		+++++	+++++	i
	[, 					-
149 Indeno(1,2,3-cd)pyrene	1.22899	1.01257	1.04827	1.12537	1.12255	1.19394			1
	1.24288	1.24889	1.38394		1		1.17860	9.699	9
	-								- [
150 Dibenz(a,h)anthracene	1.02002		•	•	0.96776	1.01881			
	1.06353	1.07575	1.19310	 -			1.00440	10.044	•
	-				0.95685	1.00796			•
151 Benzo(g,h,i)perylene	1.00163		•	•	1 0.33663] 1.00736	 0.99629	7.576	5
	-1	1.04345	1 1,14012	! !	! !	; 	0.550 <u>2</u> 5		.
199 3-Picoline	+++++	++++	l +++++	+++++	 +++++	 +++++		· ·	i
199 1 210011110	++++	+++++	l +++++	l			+++++	++++	ĺ
			, 						-
200 N.N-Dimethylacetamide	+++++	+++++	+++++	**+++	+++++	++++			
	+++++	+++++	+++++	1	1		+++++	++++	
	-1								•
201 Quinoline	++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++	[•.		i t	+++++	+++++	
200 Pinhamul	·-		- -	}	 +++++	+++++	 		
202 Diphenyl	1 +++++	+++++	+++++ 	+++++ 	; +++++ !	 	 +++++	++++	1
) +++++ 	+++++ 	1 1	! 	! [-
	1	1	1	1	1	1		1	,

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.

Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J30211

Lot #: A7J300211

Extraction: XXA13QL01

-	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
	性性性化性的自动性性结合性性性性 计计算机 计多数计算器 计多数计算器 化苯基苯甲基甲基	·======	======	======	======	222222	======	======
01	SB-486-0102	70	69	94	76	75	83	00
02	SB-486-0203	47	49	72	55	52	67	00
03	SB-486-0304	54	52	75	60	_60	64	00
04	SB-486-0506	53	53	89	60	_62	73	_00
05	SB-486-0708	46	47	80	49	50	_62	_00
06	SB-487-0102	57	_58	83	67	65	72	.00
07	SB-487-0203	50	54	75	59	57	67	00
- 08	SB-487-0304	58	59	81	71	69	74	00
09	SB-487-0506	54	46	77	60	63	63	00
10	SB-487-0708	60	55	82	67	68	71	00
11	SB-488-0102	51	62	77	59	_53	71	00
12	SB-488-0203	53	57	76	59	57	73	00
13	SB-488-0304	59	59	83	_65	_67	74	_00
14	SB-488-0506	44	45	79	50	50	60	00
15	SB-488-0708	75	63	97	_63	_60	33	_00
16	METHOD BLK. J98TK1AA	75	74	93	78	82	65	00
17	LCS J98TK1AC	80	74	91	82	80	75	00
18	SB-486-0102 D	54	60	80	_62	56	77	00
19	SB-486-0102 S	65	65	83	73	69	08	0.0

SURROGA	TES	QC LIMITS
SRG01	= Nitrobenzene-d5	(24-112)
SRG02	= 2-Fluorobiphenyl	(34-110)
SRG03	= Terphenyl-d14	(41-119)
SRG04	= Phenol-d5	(28-110)
SRG05	= 2-Fluorophenol	(26-110)
SRG06	= 2,4,6-Tribromophenol	(10-118)

FORM II

[#] Column to be used to flag recovery values

^{*} Values outside of required QC Limits

D System monitoring Compound diluted out

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30211

Lab File ID: 2DF1029 DFTPP Injection Date: 10/29/07

Instrument ID: A4AG2 DFTPP Injection Time: 0704

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
=====	***************************************	
51	30.0 - 60.0% of mass 198	34.6
68	Less than 2.0% of mass 69	0.6 (1.5)1
69	Mass 69 relative abundance	40.0
70	Less than 2.0% of mass 69	0.1 (0.4)1
127	40.0 - 60.0% of mass 198	49.9
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	6.4
275	10.0 - 30.0% of mass 198	25.2
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	11.5
442	Greater than 40.0% of mass 198	82.3
443	17.0 - 23.0% of mass 442	15.3 (18.6)2
!	1-Value is % of mass 69 2-Value is % of mass	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

					······································
	EPA	LAB	LAB	DATE	TIME
	SAMPLE NO.	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
				========	=======
01	SSTD009	L9	2SHHH1029	10/29/07	0715
02	SSTD008	L8	2SHH1029	10/29/07	0739
03	SSTD007	L7	2SH1029	10/29/07	0756
03	SSTD007	L6	2SMH1029	10/29/07	0813
			2SMM1029	10/29/07	0830
05	SSTD005	L5			
06	SSTD004	L4	2SM1029	10/29/07	0847
07	SSTD003	L3	2SML1029	10/29/07	0904
80	SSTD002	L2	2SL1029	10/29/07	0921
09	SSTD001	L1	2SLL1029	10/29/07	0938
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FORM V SV

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30211

Lab File ID: 2DF1101 DFTPP Injection Date: 11/01/07

Instrument ID: A4AG2 DFTPP Injection Time: 0618

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 198 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative a 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass Present, but less than mass Greater than 40.0% of mass 17.0 - 23.0% of mass 442	0.2 (0.5 50.5)1
	1-Value is % of mass 69	2-Value is % of mass 442	

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

ab Date	TIME
E ID ANALYZED	ANALYZED
.01 11/01/07	0629
AD 11/01/07	1359
AE 11/01/07	1416
AF 11/01/07	1433
	1450
	1508
	1525
AD 11/01/07	1542
AD 11/01/07	1559
AD 11/01/07	1616
AD 11/01/07	1634
AD 11/01/07	1651
AD 11/01/07	1708
	1725
AD 11/01/07	1742
	1800
AD 11/01/07	1817
	AB DATE ANALYZED LO1 11/01/07 LAD 11/01/07 LAF 11/01/07 LAD 11/01/07

page 1 of 1

FORM V SV

5B SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.:

SAS No.:

SDG No.: 7J30211

Lab File ID: 2DF1102

DFTPP Injection Date: 11/02/07

Instrument ID: A4AG2

DFTPP Injection Time: 0856

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51 68 69 70 127 197 198 199 275 365 441 442 443	30.0 - 60.0% of mass 198 Less than 2.0% of mass 69 Mass 69 relative abundance Less than 2.0% of mass 69 40.0 - 60.0% of mass 198 Less than 1.0% of mass 198 Base Peak, 100% relative abundance 5.0 - 9.0% of mass 198 10.0 - 30.0% of mass 198 Greater than 1.0% of mass 198 Present, but less than mass 443 Greater than 40.0% of mass 198 17.0 - 23.0% of mass 442	40.4 0.6 (1.4)1 45.0 0.2 (0.5)1 52.9 0.5 100.0 6.6 24.5 3.2 9.1 65.0 12.5 (19.2)2
1	1-Value is % of mass 69 2-Value is % of m	ass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EP		LAB		LAB	DATE	TIME
	SAMPLE	E NO.	SAMPLE	ID	FILE ID	ANALYZED	ANALYZED
	======	=====	=======			========	######################################
01	SSTD00		L6		2SMH1102	11/02/07	0907
02	J98TKBI	JK.	J98TK1AA		J98TK1AA	11/02/07	0929
03	J98TKC	IK.	J98TKLAC	İ	J98TKLAC	11/02/07 11/02/07 11/02/07	0946
04	SB-488	-0708	J95T41AD		J95T41AD	11/02/07	1237
05							
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FORM V SV

8B SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30211

Lab File ID (Standard): 2SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4AG2 Time Analyzed: 0629

			IS1 (DCB)		IS2 (NPT)		IS3 (ANT)	1
	İ		AREA #	RT	AREA #	RT	AREA #	RT
	========	===	=======	=====		======	========	======
	12 HOUR	מייי	204046	3.60	864274	4.50	441616	5.77
				=====			========	
	UPPER LI	VITT	408092	4.10	1728548	5.00	883232	6.27
	OPPER LIL	·11. 1	400094	======	1/20340	3.00 ======		
			7.0000		432137	4.00	220808	5.27
	LOWER LI		102023	3.10	432137			3.2/
i	========		========	=====		=====		=====
'	EPA SAMP	لك					,	
	NO.	i						1 1
1		===	=======================================	=====		=====	=======================================	======
01	SB-486-01		235564	3.60	1061072	4.50	569646	5.77
02	SB-486-01	D2 '	279560	3.60	1304414	4.50	720915	5.77
03	SB-486-01	D2	279235	3.60	1260801	4.50	694211	5.77
04	SB-486-02	D3	268212	3.60	1185433	4.50	638192	5.77
05	SB-486-03	04	306203	3.60	1369471	4.50	730828	5.77
06	SB-486-05		285758	3.60	1269695	4.50	669078	5.77
07	SB-486-076		175821	3.60	775059	4.50	403656	5.78
08	SB-487-01	1 '	264642	3.60	1217850	4.50	670684	5.77
09	SB-487-020		310725	3.60	1383105	4.50	724600	5.77
					1303326	4.50	721304	5.77
10	SB-487-030	1	283326	3.60			666815	5.77
11	SB-487-050	1	273027	3.60	1232278	4.50		
12	SB-487-076		290566	3.60	1334879	4.50	730605	5.77
13	SB-488-010	1	274856	3.60	1217008	4.50	664081	5.77
14	SB-488-020	1	286714	3.60	1290905	4.50	695084	5.77
15	SB-488-036	04	272556	3.60	1215905	4.50	669050	5.77
16	SB-488-05	Ф6	334625	3.60	1457406	4.50	793039	5.77
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IS1 (DCB) = 1,4-Dichlorobenzene-d4 UPPER LIMIT = +100% of internal standard area.

IS3 (ANT) = 1,4-Dichlorobenzene-d4 of internal standard area.

LOWER LIMIT = -50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-1

8C SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30211

Lab File ID (Standard): 2SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4AG2 Time Analyzed: 0629

	I	IS4 (PHN)		IS5 (CRY)		IS6 (PRY)	
	·	AREA #	RT	AREA #	RT	AREA #	RT
		1	======	E========		680042	10.30
•	12 HOUR ST	TD 754632	6.85	692263	8.82	000042	=====
	UPPER LIM	IT 1509264	7.35	1384526	9.32	1360084	10.80
	UPPER LIM	11 1509204	7.55	T304320	J.52	======================================	======
	LOWER LIM	IT 377316	6.35	346132	8.32	340021	9.80
			=====	========	=====		======
	EPA SAMPLI	E					
	NO.						
	===========		=====	========	=====	========	=====
01	SB-486-0102		6.87	917489	8.84	910377	10.33
02	SB-486-0102		6.87	1251339	8.84	1193758	10.34
03	SB-486-0102		6.87	1187010	8.85	1150157	10.34
04	SB-486-0203		6.87	1104608	8.84	1085284	10.34
05	SB-486-0304	l l	6.87	1208009	8.85	1188346	10.35
06	SB-486-050		6.87	1143807	8.84	1130062	10.34
07	SB-486-0708		6.87	700505	8.84	653351	10.34
08	SB-487-010		6.87	1122987	8.84	1094027 1105967	10.34
09	SB-487-0203		6.87	1258795	8.84 8.84	1196492	10.34
10	SB-487-0304		6.87	1250248 1124921	8.84	1069183	10.34
11	SB-487-050		6.87 6.87	1249925	8.84	872666	10.34
12	SB-487-0708		6.87	1149191	8.84	1115637	10.34
13	SB-488-0102 SB-488-0203	- (6.87	1202256	8.84	1182672	10.33
14 15	SB-488-0304	· 1	6.87	1134127	8.84	1088475	10.34
16	SB-488-050	,	6.87	1300205	8.84	1283100	10.34
17	3B-400-030	0 1103424	0.07	1300203	0.01		
18	1			\ <u> </u>			
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IS4 (PHN) = Phenanthrene-d10 UPPER LIMIT = +100% of internal standard area. IS6 (PRY) = Perylene-d12 LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Case No.: SAS No.: SDG No.: 7J30211 Lab Code: TALCAN

Lab File ID (Standard): 2SMH1102 Date Analyzed: 11/02/07

Time Analyzed: 0907 Instrument ID: A4AG2

			IS1 (DCB)	DEL	IS2 (NPT)	DIT	IS3 (ANT) AREA #	RT
			AREA #	RT	AREA #	RT	AREA #	====== VT
	12 HOUR	STD	182072	3.57	759534	4.47	380375	5.74
	UPPER LI	TIN	364144	4.07	1519068	4.97	760750	6.24
	LOWER LI		91036	3.07	379767	3.97	190188	5.24
	EPA SAMPI NO.			=====		=====		
	=========	===				=====	=========	
01	J98TKBLK		319562	3.57	1412829	4.47	701394	5.74
02	J98TKCHK		266812	3.57	1189738	4.47	605051	5.74
03	SB-488-070	p8	180482	3.57	759140	4.47	375244	5.74
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= 1,4-Dichlorobenzene-d4 (DCB) IS1 = Naphthalene-d8 IS2 (NPT)

= Acenaphthene-d10

UPPER LIMIT = +100%

of internal standard area.

LOWER LIMIT = - 50%

of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

IS3

(ANT)

FORM VIII SV-1

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J30211

Date Analyzed: 11/02/07 Lab File ID (Standard): 2SMH1102

Time Analyzed: 0907 Instrument ID: A4AG2

UPPER LIMIT 1262404 7.33 1163558 9.30 1106142 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
UPPER LIMIT 1262404 7.33 1163558 9.30 1106142 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	RT
UPPER LIMIT 1262404 7.33 1163558 9.30 1106142 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10.26
LOWER LIMIT 315601 6.33 290890 8.30 276536 ===================================	10.76
EPA SAMPLE NO. J98TKBLK 1198330 6.84 1084539 8.82 1060807 915900 3 SB-488-0708 655450 6.83 564158 8.81 3028*	9.76
EPA SAMPLE NO. 101 J98TKBLK 1198330 6.84 1084539 8.82 1060807 915900 3 SB-488-0708 655450 6.83 564158 8.81 3028*	=====
01 J98TKBLK 1198330 6.84 1084539 8.82 1060807 02 J98TKCHK 1024281 6.83 945290 8.80 915900 03 SB-488-0708 655450 6.83 564158 8.81 3028*	
	10.28 10.26 10.27
04 05	
06 07	
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= Phenanthrene-d10 IS4 (PHN) = Chrysene-d12 IS5 (CRY) = Perylene-d12 IS6 (PRY)

UPPER LIMIT = +100% of internal standard area. LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk.

page 1 of 1

FORM VIII SV-2

□(s10H

Data File: \\cansvr11\\dd\chem\MSS\a4ag2.i\71102A.b\J95T41AD.D Page 1

Report Date: 11-Nov-2007 08:18

TestAmerica North Canton

INTERNAL STANDARD COMPOUNDS AREA AND RT SUMMARY

Instrument ID: a4ag2.i Lab File ID: J95T41AD.D Lab Smp Id: J95T41AD

Lab Smp Id: J95T41AD.
Lab Smp Id: J95T41AD
Analysis Type: SV

Quant Type: ISTD Operator: 046900

Calibration Date: 02-NOV-2007 Calibration Time: 09:07

Client Smp ID: SB-488-0708

Level: LOW Sample Type: SOIL

Method File: \\cansvr|11\dd\chem\MSS\a4ag2.i\71102A.b\8270p.m

Misc Info:

1		1		AREA	LIMIT	1	
COMPOUND		1	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
=		۱H	=======	=======	=======	========	======
١	1 1,4-Dichlorobenz	e l	182072	910361	364144	180482	-0.87
ĺ	2 Naphthalene-d8	1	759534	379767	1519068	759140	-0.05
1	3 Acenaphthene-d10	1	380375	190188	760750	375244	-1.35
l	4 Phenanthrene-d10	1	631202	315601	1262404	655450	3.84
1	5 Chrysene-d12	1	581779	290890	1163558	564158	1 -3-031
i	6 Perylene-d12	1	553071	2765361	1106142	3028	99.451€
ì	. -	1		lI	_	1	1

1		RT L	IMIT I		
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
COMPOUND	SIANDARD 		=======================================	========	=======
1 1,4-Dichlorobenze	3.57	3.07	4.07	3.57	-0.001
2 Naphthalene-d8	4.47	3.97	4.97	4.47	-0.13
3 Acenaphthene-d10	5.74	5.24	6.24	5.74	-0.00
4 Phenanthrene-d10	6.83	6.33	7.33	6.831	-0.001
5 Chrysene-d12	8.80	8.30	9.30	8.81	0.07
6 Perylene-d12	10.26	9.76	10.76	10.27	0.11
I	ļ I <u> </u>				

AREA UPPER LIMIT = +100% 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.\$0 minutes of internal standard RT.

APPENDIX E - ADMINISTRATIVE REQUIREMENTS

Written Agreement Block H Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland

APR-14-2008 11:39 From:

To:5032211789 P.2/3

WRITTEN AGREEMENT

If the Response Action Plan is approved by the Maryland Department of the Environment, Lockheed Martin Corporation agrees, subject to the withdrawal provisions of Section 7-512 of the Environment Article, to comply with the provisions of the Response Action Plan. Lockheed Martin Corporation understands that if Lockheed Martin Corporation fails to implement and complete the requirements of the approved plan and schedule, the Maryland Department of the Environment may reach an agreement with Lockheed Martin Corporation to revise the schedule of completion in the approved Response Action Plan or, if an agreement cannot be reached, the Department may withdraw approval of the plan.

Director Environmental
Title Keinedlation

4/14/08

Zoning Certification Block H Soil Response Action Plan Lockheed Martin Middle River Complex, Middle River, Maryland

Sent by: JetFax N5

APR-14-2008 11:39 From:

To: 5032211789 P.3/3

ZONING CERTIFICATION

Lockheed Martin Corporation hereby certifies that the property meets all applicable county and municipal zoning requirements.

Lockheed Martin Corporation acknowledges that there are significant penalties for falsifying any information required by the Maryland Department of the Environment under Title 7, Subtitle 5 of the Environment Article, Annotated Code of Maryland, and that certification is required to be included in a response action plan for the Voluntary Cleanup Program pursuant to Title 7, Subtitle 5 of the Environment Article, Annotated Code of Maryland.

Brad W. Owens

Printed Name

Director, Environmental

Penadia han

4/14/08

Date