Lockheed Martin Corporation
6801 Rockledge Drive, Bethesda, MD 20817
Telephone 301-214-9958 Fax 301-214-9502

LOCKHEED MARTIN

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 G, 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 G, MRC, Middle River, Maryland
BET 130
cc: Via Email

Brad Owens, Lockheed Martin	Mr. Horacio Tablada, MDE
Christine Kline, Lockheed Martin	Mr. James R. Carroll, MDE
Mary Morningstar, Lockheed Martin	Ms. Richelle Hanson, MDE
Mike Martin, Tetra Tech	Mr. Gary Schold, MDE

SOIL RESPONSE ACTION PLAN
BLOCK G LOT 1
LOCKHEED MARTIN MIDDLE RIVER COMPLEX

2323 Eastern Boulevard
Middle River, Maryland



LOCKHEED MARTIN

Tetra Tech
Environmental Engineers & Scientists

April 2008

Final Soil Response Action Plan
Block G Lot 1
Lockheed Martin Middle River Complex
2323 Eastern Boulevard
Middle River, Maryland

Prepared for:

Lockheed Martin Corporation

Prepared by:

Tetra Tech, Inc.



Michael Martin, P.G.
Project Manager

TABLE OF CONTENTS

Section **Page**

EXECUTIVE SUMMARY ES-1

1 INTRODUCTION 1-1

1.1 PURPOSE 1-1
1.2 SCOPE 1-1
1.3 ORGANIZATION 1-2

2 BLOCK G LOT 1 OVERVIEW 2-1

2.1 BLOCK G LOT 1 BACKGROUND 2-1
2.1.1 Block G Lot 1 Description 2-1
2.1.2 Block G Lot 1 History 2-3
2.1.3 Block G Lot 1 Characteristics 2-4
2.2 SUMMARY OF BLOCK G LOT 1 INVESTIGATIONS 2-7
2.2.1 Historical Survey (2004) 2-8
2.2.2 Site-Wide Phase II Investigation (2004) 2-8
2.2.3 Phase II Soil Investigation (Summer 2005) 2-10
2.2.4 Geophysical Survey/Soil Investigation (Fall 2005) 2-11
2.3 NATURE AND EXTENT OF CONTAMINATION 2-11
2.3.1 Soil 2-11
2.3.2 Groundwater 2-12
2.4 RESPONSE ACTION SUMMARY 2-13
2.4.1 Proposed Response Actions 2-13
2.4.2 Future Land Use Category 2-13
2.4.3 Proposed Land Use Control 2-14

3 ADDITIONAL INVESTIGATORY INFORMATION 3-1
3.1 ADDITIONAL SOIL INVESTIGATIONS 3-1
3.2 RESULTS 3-2

4 EXPOSURE ASSESSMENT 4-1

4.1 INTRODUCTION 4-1
4.2 CURRENT AND FUTURE LAND USE 4-1
4.3 MEDIA OF CONCERN 4-2
4.4 CONCEPTUAL SITE MODEL 4-2

TABLE OF CONTENTS (Continued)

Section **Page**

5 CLEANUP CRITERIA 5-1

5.1 CLEANUP CRITERIA 5-1
5.2 RISK ASSESSMENT SUMMARY 5-2
5.3 CLEANUP GOALS 5-2
5.4 ATTAINMENT OF CLEANUP GOALS 5-3

6 SELECTED TECHNOLOGIES AND LAND USE CONTROLS 6-1

6.1 INTRODUCTION 6-1
6.1.1 Response Action Objectives 6-1
6.1.2 Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria 6-2
6.1.3 Chemicals of Concern 6-3
6.1.4 Cleanup Goals 6-3
6.1.5 General Response Actions and Action-Specific ARARs 6-4
6.1.6 Estimated Volume of Contaminated Soil 6-4
6.2 SCREENING OF TECHNOLOGIES AND PROCESS OPTIONS 6-5
6.2.1 Preliminary Screening of Technologies and Process Options 6-6
6.2.2 Detailed Screening of Treatment Technologies and Process Options 6-7
6.2.3 Selection of Representative Process Options 6-10
6.3 DEVELOPMENT AND DETAILED ANALYSIS OF ALTERNATIVES 6-10
6.3.1 Development of Alternatives 6-11
6.3.2 Description and Detailed Analysis of Alternatives 6-12
6.3.3 Detailed Analysis of Alternatives 6-16
6.4 COMPARATIVE ANALYSIS OF ALTERNATIVES 6-20
6.4.1 Soil 6-20
6.4.2 Summary of Comparative Analysis of Alternatives 6-21
6.5 PROPOSED ALTERNATIVE 6-21

7 EVALUATION CRITERIA FOR THE SELECTED TECHNOLOGY 7-1

7.1 EVALUATION CRITERIA 7-1
7.2 CONTINGENCY MEASURES 7-1

8 PROPOSED RESPONSE ACTIONS 8-1

8.1 INTRODUCTION 8-1
8.2 RESPONSE ACTION PLAN DESCRIPTION 8-1
8.2.1 Summary of Major Components 8-1
8.2.2 Performance Criteria 8-3
8.2.3 Sequence 8-7

TABLE OF CONTENTS (Continued)

Section **Page**

8.3 POST-REMOVAL/CONFIRMATION SAMPLING AND ANALYSIS 8-8
8.3.1 Sampling and Sample Evaluation 8-8
8.3.2 Sampling Locations 8-9
8.4 EROSION AND SEDIMENT CONTROL 8-10
8.4.1 Inspection and Maintenance 8-10
8.4.2 Restoration 8-11
8.5 MISCELLANEOUS RESPONSE ACTION REQUIREMENTS 8-12
8.5.1 Utilities 8-12
8.5.2 Groundwater Monitoring Wells 8-12
8.5.3 Dust Control 8-12
8.5.4 Spill Mitigation Response Procedures 8-13
8.6 REPORTING REQUIREMENTS 8-14
8.6.1 Recordkeeping 8-15

9 PERMITS, NOTIFICATIONS, AND CONTINGENCIES 9-1

9.1 INTRODUCTION 9-1
9.2 PERMITS 9-1
9.2.1 Earth-Moving Activities 9-1
9.2.2 Excavation Dewatering 9-2
9.2.3 Underground Storage Tanks 9-3
9.3 NOTIFICATIONS 9-4
9.4 CONTINGENCIES 9-4

10 IMPLEMENTATION SCHEDULE 10-1

11 ADMINISTRATIVE REQUIREMENTS 11-1

11.1 INTRODUCTION 11-1
11.2 WRITTEN AGREEMENT 11-1
11.3 ZONING CERTIFICATION 11-1
11.4 PERFORMANCE BOND OR OTHER SECURITY 11-1
11.5 HEALTH AND SAFETY PLAN 11-2
11.5.1 Training and Medical Surveillance 11-3
11.5.2 On-Site Health and Safety Functions 11-4

12 REFERENCES 12-1

TABLE OF CONTENTS (Continued)

APPENDICES

APPENDIX A – SUMMARY OF DETECTED CONCENTRATIONS IN SOIL

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

APPENDIX C – FIELD DOCUMENTATION NOTES AND BORING LOGS

APPENDIX D – DATA VALIDATION REPORTS

APPENDIX E – ADMINISTRATIVE REQUIREMENTS
WRITTEN AGREEMENT
ZONING CERTIFICATION

LIST OF FIGURES
All figures appear at the end of each section

Figure 1-1 Middle River Complex Location Map
Figure 1-2 Middle River Complex Tax Blocks
Figure 2-1 Middle River Complex Layout Map
Figure 2-2 Groundwater Contours of the Upper Surficial Aquifer, December 2005
Figure 2-3 Sampling Locations
Figure 2-4 COC Exceedances of Cleanup Goals
Figure 3-1 Sampling Locations
Figure 3-2 COC Exceedances of Cleanup Goals (including Fall 2007 Data)
Figure 8-1 Removal Limits

TABLE OF CONTENTS (Continued)

LIST OF TABLES
All tables appear at the end of each section

Table 2-1 Summary of Groundwater Level Measurements
Table 5-1 Cleanup Criteria
Table 5-2 Pre- and Post-Response Action Risks
Table 6-1 Chemical-Specific ARARs
Table 6-2 Location-Specific ARARs
Table 6-3 Action-Specific ARARs
Table 6-4 Preliminary Screening of Technologies and Process Options
Table 6-5 Summary of Comparative Analysis of Alternatives
Table 8-1 Backfill Material Acceptance Criteria

ACRONYMS

µg/kg	micrograms per kilogram
API	American Petroleum Institute
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials International
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMP	corrugated metal pipe
COC	chemical of concern
COMAR	Code of Maryland Regulations
COPC	chemical of potential concern
CSF	Cancer Slope Factor
CSM	Conceptual Site Model
CWA	Clean Water Act
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
ESA	Environmental Site Assessment
GLM	Glenn L. Martin Company
GRA	general response action
GRO	gasoline range organics
HASP	Health and Safety Plan
HHRA	human health risk assessment

IDW	investigation-derived waste
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
OCP	Oil Control Program
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PLS	pure live seed
PPE	personal protective equipment
PRG	preliminary remediation goal
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
STP	Sewage Treatment Plant
SVOC	semivolatile organic compound

TBC	To Be Considered
TCE	trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbon
TSD	treatment, storage, and disposal
TSDF	treatment, storage, and disposal facility
Tetra Tech	Tetra Tech, Inc.
UCL	upper confidence limit
UECA	Uniform Environmental Covenants Act
USC	United States Code
USCS	Unified Soil Classification System
UST	underground storage tank
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 G Lot 1 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. In addition, previously abandoned-in-place underground storage tanks (USTs), associated piping, and associated contaminated soil will be removed. A separate RAP is being prepared to address contaminated groundwater beneath the MRC, including the groundwater beneath Block G Lot 1.

The MRC is located in Middle River, Maryland, approximately 11.5 miles northeast of downtown Baltimore and covers approximately 161 acres. Block G Lot 1 (13.46 acres) is located in the southwestern portion of the MRC. Two Recognized Environmental Conditions (RECs), REC #11 [Former Sewage Treatment Plant (STP)/Wind Tunnel Test Building/Vibration Test Building] and REC #12 (Southern Portion of Lot 3), are located in Block G Lot 1. The remaining portion of Parking Lot No. 3 is also included in Block G Lot 1. Currently, REC #11 is an open, grass-covered area located between Chesapeake Park Plaza and Cow Pen Creek (Cassell, July 1977), REC #12 is a gravel-covered lot, and Parking Lot No. 3 is a flat parcel of land used for truck trailer storage.

Investigations at Block G Lot 1 were conducted in 2004 and 2005 and consisted of an historical survey, 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 arsenic as chemicals of concern (COCs) in soil. The greatest concentrations of benzo(a)pyrene and arsenic were generally detected in shallow soils in REC #11 and in Parking Lot No. 3. 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 G Lot 1 will result in a cancer risk less than 1×10^{-5} and a hazard index less than 1.0.

An additional field investigation was conducted at Block G Lot 1 during the fall of 2007 to refine the horizontal and vertical limits of soil with COC concentrations greater than the cleanup goals. Based on the investigation, benzo(a)pyrene concentrations in nine of the 242 soil samples analyzed for benzo(a)pyrene exceeded the cleanup goal [400 micrograms per kilogram (µg/kg)]. The arsenic concentrations in fourteen soil samples ranged from non-detect to a maximum of 2.4 milligrams per kilogram (mg/kg) at soil boring SB-458 [1 to 2 feet below ground surface (bgs)], but all arsenic concentrations were less than the cleanup goal (12 mg/kg). The soil boring locations with COC exceedances of cleanup goals are presented in Figure 3-2.

The soils will be removed from portions of REC # 11 (Area A) encompassing soil boring locations SB-84, SB-85, SB-86, SB-258, SB-260, SB-261, SB-411, SB-415, SB-424, SB-427, SB-430 and SB-431 to a depth of 2 feet bgs with an additional three feet of soil removal at soil boring locations SB-84 and SB-85 (5 ft bgs total removal depth), an additional four feet of soil removal at soil boring SB-411 (6 ft bgs total), an additional two feet of soil removal at soil boring SB-424 (4 ft bgs total) and an additional one foot of soil removal at soil boring SB-427 (3 ft bgs total). The soils will be removed with benzo(a)pyrene and arsenic concentrations above cleanup goals from soil boring locations SB-91 and SB-92 (Area B) from ground surface to 1 foot bgs.

In addition, soils will be removed from soil boring locations SB-195, SB-199, SB-453 and SB-441 (Area C) from the ground surface to 5 feet bgs, with an additional one foot of removal at soil boring SB-441 (6 ft bgs total). A total of 25,000 tons of soil would be removed from Areas A, B, and C. The soil removal limits and corresponding areas 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 to Allow Unrestricted Residential Site Use and Off-Site Treatment and Disposal.

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 G Lot 1. In addition, previously abandoned-in-place USTs, associated piping, and associated contaminated soil with petroleum hydrocarbon diesel range organics (DRO) and gasoline range organics (GRO) with concentrations greater than the MDE soil cleanup standard of 230 mg/kg would be removed. A total of 17,000 cubic yards of soil would be removed. 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. Previously abandoned-in-place USTs and associated piping would also be removed. 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 and USTs.

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 G Lot 1 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. In addition, previously abandoned-in-place underground storage tanks (USTs), associated piping, and associated soil with petroleum hydrocarbon diesel range organic (DRO) and gasoline range organic (GRO) concentrations greater than MDE soil cleanup standards will be removed. Block G Lot 1 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 G Lot 1, 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 and removal of previously abandoned-in-place USTs, associated piping, and associated soil with DRO and GRO concentrations greater than MDE soil cleanup standards.

- 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 G Lot 1 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.

- Section 2 – Block G Lot 1 Overview: Presents a brief description of MRC and Block G Lot 1 history, environmental investigations and results, nature and extent of contamination, and a summary of the proposed soil response action.

- Section 3 – Additional Investigatory Information: Presents a summary the additional investigation completed in support of the response action.

- Section 4 – Exposure Assessment: Presents the current and proposed land use, media of concern, and Conceptual Site Model (CSM).

- Section 5 – Cleanup Criteria: Presents cleanup criteria, a risk assessment summary, cleanup goals, and information associated with attainment of cleanup goals.

- Section 6 – Selected Technologies and Land Use Controls: 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 G Lot 1.

- Section 7 – Evaluation Criteria for the Selected Technology: Presents the criteria required for a Certificate of Completion.

- Section 8 – Proposed Response Actions: Presents the plan for all work necessary to perform the proposed response action.

- Section 9 – Permits, Notifications, and Contingencies: Presents the local, State, and federal laws and regulations that prescribe the permits and approvals required to implement the MDE-approved RAP.

- Section 10 – Implementation Schedule: Presents the detailed schedule for all work necessary to implement the MDE-approved RAP.

- Section 11 – Administrative Requirements: Presents the administrative documents required to implement the MDE-approved RAP.

- Section 12 – References: 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.

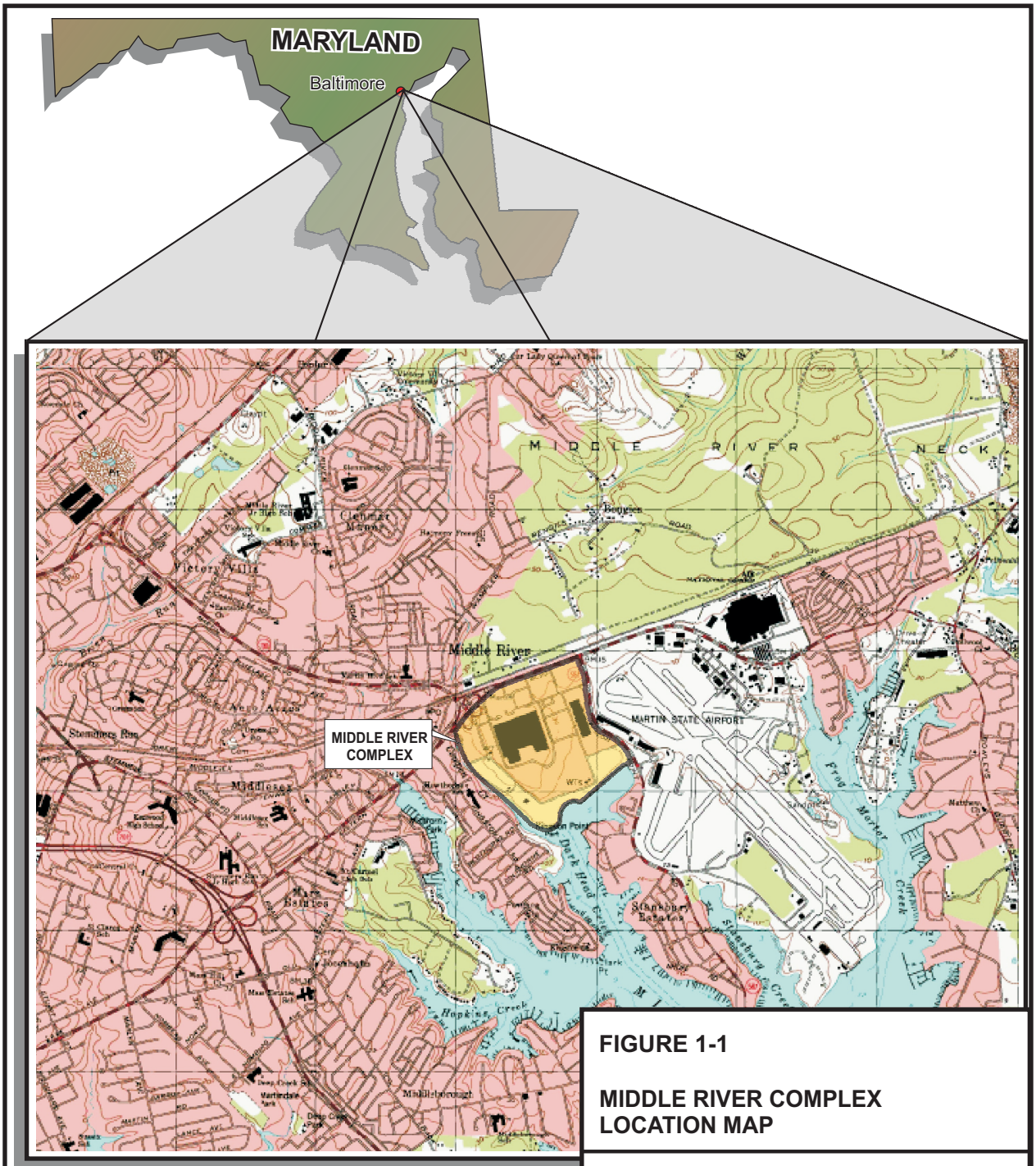


FIGURE 1-1

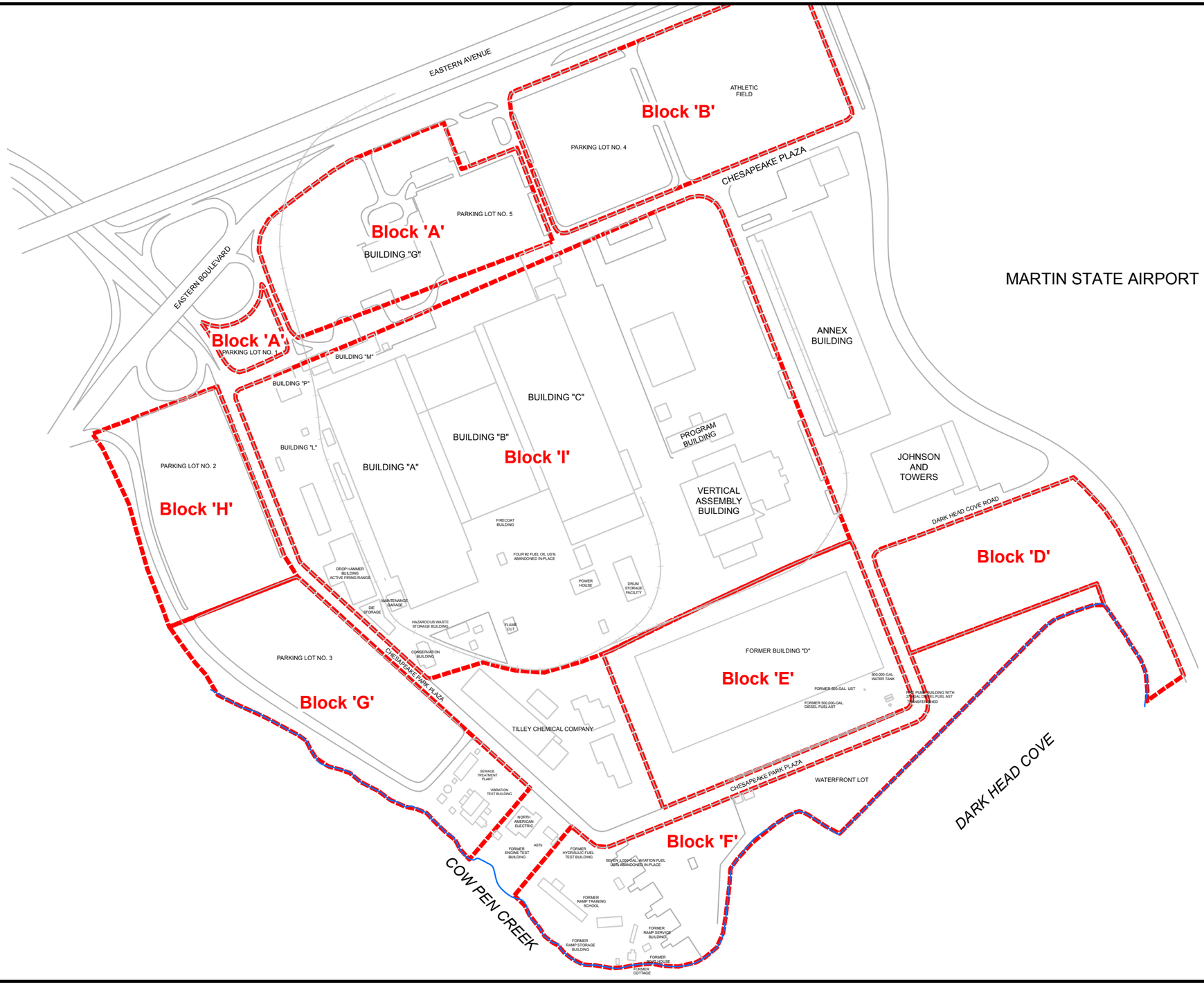
MIDDLE RIVER COMPLEX LOCATION MAP

Lockheed Martin Middle River Complex
Middle River, Maryland

NOT TO SCALE	N
DATE MODIFIED: 1/24/07	CREATED BY: J. F.

Tetra Tech, Inc.

K:\GProject\middle_river\graphics\Middle River Complex Loc Map_Revised.cdr



MARTIN STATE AIRPORT

FIGURE 1-2

MIDDLE RIVER COMPLEX TAX BLOCKS

LEGEND

- TAX BLOCK
- STRUCTURE
- RAILROAD TRACKS

Lockheed Martin Middle River Complex
Middle River, Maryland

0 100 200 400 Feet

N

DATE MODIFIED: 1/24/07

CREATED BY: J. F.

Tetra Tech, Inc.

K:\GProject\middle_river\Maps\draft response action plan\Blocks_16Jan07.mxd

Section 2
Block G Lot 1 Overview

2.1 BLOCK G LOT 1 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 its 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 G Lot 1 consists of 13.46 acres and is located in the southwestern portion of the MRC on the southern side of Chesapeake Park Plaza. Block G Lot 1 is bounded on the north by Parking Lot No. 2 (Block H), to the east by Chesapeake Park Plaza, to the south by North American Electric, Inc. (Block G Lot 2), and to the west by Cow Pen Creek. Two Recognized Environmental Conditions (RECs) are located in Block G Lot 1. The two RECs were identified during a historical research investigation of the MRC conducted in the summer of 2004 (Tetra Tech, August 2004) and include REC #11 [Former Sewage Treatment Plant (STP)/Wind Tunnel Test Building/Vibration Test Building] and REC #12 (Southern Portion of Lot 3). The remaining portion of Parking Lot No. 3 is also included in Block G Lot 1. Figure 2-1 shows the locations of the RECs and all tax blocks at the MRC.

2.1.1 Block G Lot 1 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.

A former STP that consisted of five structures, the Wind Tunnel Test Building, the Vibration Test Building, two fuel oil USTs located immediately west of the test buildings, an unidentified structure in the vicinity of the STP, and the Hydraulic and Fuel Test Building, was located within the area defined as REC #11. With the exception of storm drain outfall V and the foundations of the former test buildings, there are no structures currently present on REC #11. The foundations of the former STP have been mostly removed, but the footprint of the former STP was still evident in a 1986 aerial photograph due to variations in grass color (Tetra Tech, January 2005). Currently, REC #11 is an open, grass-covered area located between Chesapeake Park Plaza and Cow Pen Creek (Cassell, July 1977) with some remnants of building slab foundations. A chain-link fence present along the REC's northern and eastern perimeter prohibits unauthorized access; however, the REC is unfenced along its southern perimeter, which is shared with North American Electric, Inc. A locked gate along Chesapeake Park Plaza provides vehicle access to the area.

During the historical research investigation, aerial photographs of the southern portion of Parking Lot No. 3 (REC #12) showed manicured grass and disturbed ground (1964, 1971, 1979, and 1981), with the most prevalent disturbances shown in the 1964 and 1971 photographs (Earth Tech, February 2003). Currently, this REC is gravel covered with minor staining of the gravel noted during Phase II activities, likely from vehicle parking and storage.

Parking Lot No. 3 is a flat parcel of land used for truck trailer storage. A chain-link fence surrounds the parking lot on all sides prohibiting unauthorized access. A locked gate off of Chesapeake Park Plaza allows access to the southern portion of the parking lot.

2.1.2 Block G Lot 1 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.

The structures located within REC #11 appear to have been present from the early 1930s to the mid-1970s. Based on historical site maps, the STP consisted of approximately five structures that appear to have been present at the MRC from approximately 1931 to the early 1960s. The actual use of each of the structures associated with the STP is unknown.

A separate, undesignated structure was observed south-southwest of the STP (closer to Cow Pen Creek). Although the use of this structure is uncertain, an incinerator slab is shown at the same location on one undated plot map of the STP and Wind Tunnel Test Building. No additional information regarding the unidentified structure was obtained, but it appears that the structure was constructed and demolished within the same time frame as the STP.

The Wind Tunnel Test Building and Vibration Test Building were shown on several MRC layout maps from the mid-1950s to the early 1960s and were demolished in the early to mid-1970s. Two USTs (a 2,000-gallon #2 fuel oil tank and a 10,000-gallon #6 fuel oil tank) were shown as being located immediately west of the test buildings. According to MRC personnel, both USTs were abandoned-in-place (Tetra Tech, August 2004). These USTs do not appear to be present in MDE databases or have case numbers in MDE's Oil Control Program (OCP).

An additional structure, labeled as a Hydraulic and Fuel Test Building on several maps, was located south of the Wind Tunnel Test Building and Vibration Test Building in the 1960s and early 1970s. This area is currently owned by North American Electric, Inc.

No information regarding chemical handling, storage, or waste disposal practices associated with any of the historical structures in Block G Lot 1 was obtained from MRC records. No information regarding the abandonment of the two USTs was obtained during the Phase I Environmental Site Assessment (ESA) regulatory database review.

According to a 1977 MRC drainage map, stormwater generated from the northern portion of Tilly Chemical Company and a portion of the active industrial facility yard, specifically the Bone Yard (REC #27), was discharged to a drainage swale (designated as S.S. System V) crossing the northern portion of REC #11. During field sampling activities, the drainage swale was present, but the stormwater lines appear to have been placed underground and now discharges to an outfall located along Cow Pen Creek.

Parking Lot No. 3 has been primarily used as an employee parking lot. Trailers and equipment were stored on the southern portion of the parking lot in 1971, and in 1972, the area was mostly vacant. In a 1982 aerial photograph, numerous trailers were seen staged in the parking lot, but the parking lot was vacant in 1986 and 1989 aerial photographs. No permanent structures are known to have existed on this parking lot. Aerial photographs of the southern portion of Parking Lot No. 3 (REC #12) showed manicured grass and disturbed ground (1964, 1971, 1979, and 1981), with the most prevalent disturbances shown in the 1964 and 1971 photographs (Earth Tech, February 2003). All applicable file information regarding Parking Lot No. 3 that was reviewed indicated that the parking lot was used only for parking and trailer storage.

2.1.3 Block G Lot 1 Characteristics

2.1.3.1 Current and Surrounding Land Use

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.

REC #11 is a relatively flat parcel of land ranging from 2 feet above msl along Cow Pen Creek to 18 feet above msl at Chesapeake Park Plaza, with a 10-foot drop occurring at the Cow Pen Creek shoreline (Cassell, July 1977).

Parking Lot No. 3 is a flat parcel of land, with the southern portion of the parking lot (REC #12) ranging from 10 feet above msl at the service road west of REC #12 to 20 feet above msl along Chesapeake Park Plaza east of REC #12 (Cassell, July 1977).

2.1.3.3 Hydrology

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 REC #11. A shallow, grass-covered drainage swale is present in the northern portion of the REC. The drainage swale trends east to west and eventually discharges to Cow Pen Creek at the storm drain outfall. The swale is most likely the former stormwater discharge point (designated as S.W. System V) shown on the 1977 facility drainage area map (Cassell, July 1977). No surface water bodies cross or emanate from Parking Lot No. 3. A 42-inch-diameter corrugated metal pipe (CMP) culvert (NPDES Outfall 004) and 24-inch-diameter concrete culvert (NPDES Outfall 003) traverse Parking Lot No. 3 and discharge to Cow Pen Creek. 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 G Lot 1, and Block G Lot 1 is not located within the 100-year floodplain.

2.1.3.4 Soils

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 surfical geology of Block G Lot 1 is summarized below. The geology of the MRC is described in the Site Characterization Report (Tetra Tech, May 2006).

The lithology beneath REC #11 appears to primarily consist of silty clay and in a few locations silt to approximately 8 feet below ground surface (bgs). Only one soil boring (SB-86) extended past 8 feet bgs. This boring contained a 3.5-foot-thick silty sand unit beneath the silty clay upper unit.

The silty sand lens was in turn underlain by silty clay. It is not clear whether the silty sand represents a small localized lens or a REC-wide unit.

Soil borings completed at REC #11 within the foundations of the former test buildings encountered sand of varying grain sizes to the maximum investigated depth of 8 feet. Borings completed through the footprint of the STP and outside the foundations of the test buildings typically encountered fill material consisting of reworked native material, sand, and concrete fragments to a maximum depth of 6 feet bgs. Soil borings installed in the southern portion of Parking Lot No. 3 (REC #12) encountered silty sand to fine-grained sand beneath the gravel cover.

2.1.3.6 Hydrogeology

A summary of groundwater measurements taken at Block G Lot 1 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 REC #11 between 3 and 6 feet bgs and occurred in the silty clay unit as well as within the fill material. Based on the elevation difference between REC #11 and Cow Pen Creek, the groundwater encountered was most likely present in perched zones. Groundwater was encountered between 5 and 8 feet bgs beneath the southern portion of Parking Lot No. 3 (REC #12).

2.2 SUMMARY OF BLOCK G LOT 1 INVESTIGATIONS

Investigations associated with Block G Lot 1 have been conducted since 2004 and included record reviews, discussions with MRC personnel, geophysical surveys, and soil and groundwater sampling. Investigations[1] included the Historical Survey (2004) (Tetra Tech, August 2004), Site-Wide Phase II Investigation (2004) (Tetra Tech, April 2005), 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

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

Groundwater Investigation (Fall 2005) (Tetra Tech, May 2006). The summary of Block G Lot 1 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 Historical Survey (2004)

The historical survey consisted of review of available MRC maps (e.g., as-builts, proposed construction plans, and plot maps), interviews with Lockheed Martin and tenant personnel, and site visits. The former STP, incinerator, and test buildings were noted during a review of available MRC maps and identified as REC #11. The two USTs adjacent to the test buildings were identified during interviews with Lockheed Martin personnel.

Although all applicable file information regarding Parking Lot No. 3 reviewed during the historical survey indicated that the lot had only been used for parking and trailer storage, review of aerial photographs indicated the presence of disturbed ground in the southern portion of Parking Lot No. 3 (photographs dated 1964, 1971, 1979, and 1989). Because the nature of the disturbance could not be determined, the southern portion of Parking Lot No. 3 was identified as REC #12.

No other information concerning REC #11 and REC #12 was obtained during this survey (Tetra Tech, August 2004).

2.2.2 Site-Wide Phase II Investigation (2004)

An electromagnetic (EM) survey was conducted over a rectangular-shaped, 1-acre parcel of land in the western portion of REC #11, that included the area of the former test buildings. The survey identified two anomalies indicative of utilities and 10 anomalies delineated as possible locations of the two USTs. Based on a review of an available MRC plot map of the STP and test building area, one of the anomalies was associated with the former STP, five of the anomalies were associated with several water towers and the 2,000-gallon #2 fuel oil UST, and one of the anomalies was associated with the 10,000-gallon #6 fuel oil UST. The geophysical report is included as part of Appendix C of the Site-Wide Phase II Investigation Report (Tetra Tech, April 2005).

Six soil borings were completed within the footprints of the former STP, incinerator, and test buildings (SB-81 through SB-86). One surface soil sample and one subsurface soil sample each were collected from soil borings SB-81 through SB-84, and one surface soil sample and two subsurface soil samples were collected from soil borings SB-85 and SB-86. Hydropunch® groundwater samples were also collected from soil borings SB-81 through SB-86. All of these samples were submitted for the following laboratory analyses:

- Volatile organic compounds (VOCs)
- Semivolatile organic compounds (SVOCs)
- Polychlorinated biphenyls (PCBs)
- Total priority pollutant metals
- Gasoline range organics (GRO)
- Diesel range organics (DRO)

The soil samples from soil borings SB-85 and SB-86 were also analyzed for pesticides. In addition, the groundwater samples were analyzed for pesticides, perchlorate, and dissolved priority pollutant metals.

Fourteen additional soil borings (SB-87 through SB-90 and SB-181 through SB-190) were installed around nine of the EM anomalies identified during the geophysical survey, and two soil borings (SB-191 and SB-192) were installed around the anomaly that was associated with the STP. One subsurface soil sample were collected from each of these soil borings (except SB-183) and analyzed for DRO, naphthalene, and benzene, toluene, ethylbenzene, and xylenes (BTEX). Only a surface soil sample was collected from soil boring SB-183 because of poor sample recovery of fill material (i.e., concrete fragments). Groundwater samples were collected from soil borings SB-90, SB-181, SB-183, SB-185, SB-188, SB-190, and SB-192 and analyzed for DRO, naphthalene, and BTEX.

Two soil borings (SB-91 and SB-92) were installed within the southern portion of Parking Lot No. 3 (REC #12). One surface soil sample and one subsurface soil sample were collected from each boring and analyzed for VOCs, SVOCs, pesticides, PCBs, total priority pollutant metals, DRO, and GRO. One groundwater sample was collected from each boring and analyzed for VOCs, SVOCs, PCBs, perchlorate and total and dissolved priority pollutant metals. Sample locations are shown on Figure 2-3.

The analytical results of this investigation indicated that organic compounds and some metals were detected at concentrations greater than risk-based screening criteria in the sampled media. The results of this investigation are provided in the Final Data Report Site-Wide Phase II Investigation (Tetra Tech, April 2005). Tables AG-1 and AG-2 (Appendix A) provide a summary of detected concentrations in surface soil and subsurface soil samples, respectively.

2.2.3 Phase II Soil Investigation (Summer 2005)

Seventeen additional soil borings (SB-194 through SB-199 and SB-254 through SB-264) were installed at Block G Lot 1 during the soil investigation in the summer of 2005. Sample locations are shown on Figure 2-3.

Soil borings SB-258 through SB-264 were installed at REC #11 to evaluate the distribution of PCBs and PAHs detected previously in this area. Soil borings SB-254 through SB-257 were installed at REC #12 to evaluate the distribution of PCBs and PAHs detected previously in this area. Surface soil and subsurface soil samples were collected from these soil borings and analyzed for PCBs, PAHs, and DRO or GRO, depending on the results of the initial soil characterization conducted in 2004. PAHs and PCBs were analyzed for in soil samples collected at REC #11 and REC #12 to evaluate the distribution of PAHs and PCBs in these areas.

Soil borings SB-194 through SB-199 were installed in the northern end of Parking Lot No. 3 to provide a baseline evaluation of areas of Parking Lot No. 3 not previously investigated. Surface soil and subsurface soil samples were collected from these soil borings and analyzed for a full range of analytes (VOCs, SVOCs, PCBs, priority pollutant metals, GRO, and DRO).

VOCs, PAHs and other SVOCs, PCBs, and metals were detected in the soil samples collected within the area of Parking Lot No. 3 not previously sampled. PAHs at concentrations greater than risk-based screening criteria were scattered sporadically throughout the parking lot. The concentrations of PCBs detected in this area were substantially less than concentrations detected in samples collected from REC #11 and REC #12. The concentrations of metals found in soil samples in Parking Lot No. 3 were generally consistent with the concentrations found at REC #11 and REC #12.

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

2.2.4 Geophysical Survey/Soil Investigation (Fall 2005)

EM surveying techniques were used in the fall of 2005 to screen Block G Lot 1, primarily to evaluate Parking Lot No. 3 to determine if waste was buried under the parking lot. Although no anomalies were identified at Parking Lot No. 3, only a portion of the area (approximately 8 acres) could be surveyed because a large number of tractor trailers were parked on the parking lot at the time of the survey. The geophysical survey report is provided as Appendix A to the Site Characterization Report (Tetra Tech, May 2006).

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 G Lot 1 based on the results of all investigations conducted prior to the fall of 2007. Tables AG-1 and AG-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 G Lot 1 included 10 metals (antimony, arsenic, cadmium, chromium, cobalt, lead, mercury, 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], one VOC (trichloroethene), two PCBs (Aroclor-1254 and Aroclor-1260), DRO, and GRO. These chemicals were then evaluated in the HHRA for Block G Lot 1. 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. The COCs identified for Block G Lot 1 were

carcinogenic PAHs in surface and subsurface soils and arsenic in one surface soil sample (soil boring SB-92).

The highest concentrations of benzo(a)pyrene and other PAHs were detected in surface soil samples around the former STP and wind tunnel and vibration test buildings (REC #11) and in Parking Lot No. 3. Detected benzo(a)pyrene concentrations ranged from 45 µg/kg (SB-256) to 24,000 µg/kg (SB-91) in surface soil and from 29 µg/kg (SB-254) to 5,570 µg/kg (SB-260) in subsurface soil. The highest concentrations of these compounds were generally found in the shallow samples (0 to 1.5 feet bgs). However, at several locations, the concentrations in samples from 5 feet bgs were also elevated. Figure 2-4 shows the concentrations of benzo(a)pyrene in the soil samples that exceed the cleanup goal established in Section 5.3.

Detected arsenic concentrations ranged from 0.93 mg/kg (SB-83) to 37 mg/kg (SB-92) in surface soil and from 0.61 mg/kg (SB-86, 10 feet bgs) to 6 mg/kg (SB-198, 10 feet bgs) in subsurface soil. The highest concentrations of arsenic were generally found in the shallow samples (0 to 1.5 feet bgs). Figure 2-4 shows the concentration of arsenic in the soil sample (SB-92) that exceeds the cleanup goal established in Section 5.3.

GRO was detected in soil at 5 ft bgs at concentrations above the MDE soil cleanup standard in soil borings SB-84 (520 mg/kg) and SB-85 (240 mg/kg).

In addition to soil contaminated with PAHs and arsenic, the previously abandoned-in-place USTs, associated piping, and soil associated with the USTs and piping contaminated with DRO or GRO greater than MDE soil cleanup standards [MDE Oil Control Program (OCP)] will be removed

2.3.2 Groundwater

The primary impacts to groundwater in Block G Lot 1 are chlorinated solvents. Generally wells in the southern portion of Block G Lot 1 (REC #11) reflect the downgradient extent of a chlorinated solvent plume that appears to originate from the area around a used oil UST previously located in Block I. The remaining five wells are located in Parking Lot No. 3 (including REC #12).

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 G Lot 1 at the MRC. This RAP was prepared to address elevated concentrations of PAHs and arsenic in soils within Block G Lot 1. A separate RAP is being prepared to address contaminated groundwater beneath the MRC.

In addition to soil contaminated with PAHs and arsenic, previously abandoned-in-place USTs, associated piping, and associated contaminated soil with DRO and GRO concentrations greater than MDE soil cleanup standards will be removed to comply with MDE OCP requirements.

2.4.1 Proposed Response Actions

Soil at Block G Lot 1 with benzo(a)pyrene and arsenic concentrations greater than the cleanup goals, and previously abandoned-in-place USTs, associated piping, and associated contaminated soil with DRO and GRO concentrations greater than MDE soil cleanup standards 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

Although 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 G Lot 1.

2.4.3 Proposed Land Use Control

The proposed RAP for Block G Lot 1 includes the removal of all soil with concentrations of benzo(a)pyrene and arsenic greater than the cleanup goals and removal of previously abandoned-in-place USTs, associated piping, and associated contaminated soil with DRO and GRO concentrations greater than MDE soil cleanup standards. Consequently, Block G Lot 1 will be considered for unrestricted residential uses, and land use controls (LUCs) will not be required. LUCs for the groundwater beneath Block G Lot 1 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 G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

Monitoring Well Number	Top of Riser Elevation (ft)	Ground Surface Elevation (ft)	Screened Interval Length (ft)	Elevation of Bottom of Screened Interval (ft)	Measurement Date					
					6/5/2005		10/13/2005		12/6/2005	
					Groundwater Elevation (ft)	Depth to Groundwater (ft bgs)	Groundwater Elevation (ft)	Depth to Groundwater (ft bgs)	Groundwater Elevation (ft)	Depth to Groundwater (ft bgs)
MW09A	9.37	9.76	10	-4.24	7.17	2.59	9.37	0.39	9.37	0.39
MW10A	11.31	11.50	10	-1.50	11.31	0.19	11.31	0.19	11.31	0.19
MW11A	13.49	14.01	10	1.01	10.79	3.22	11.19	2.82	13.49	0.52
MW12A	10.83	11.23	10	-2.77	8.96	2.27	10.83	0.40	9.38	1.85
MW13A	11.79	12.01	10	-1.99	10.94	1.07	11.79	0.22	11.09	0.92
MW14A	18.37	18.73	10	5.73	14.27	4.46	14.92	3.81	15.22	3.51
MW15A	18.36	18.66	10	5.66	18.36	0.30	18.36	0.30	18.36	0.30
MW16A	18.89	19.42	10	6.42	11.24	8.18	18.89	0.53	15.14	4.28
MW54A	18.63	18.86	10	1.86	NA	NA	NA	NA	14.88	3.98
MW63A	17.74	18.09	10	4.09	NA	NA	NA	NA	15.14	2.95
EXT-MW06	33.39	31.56	NA	NA	NA	NA	23.02	8.54	23.04	8.52
MW07A	35.07	35.32	10	13.32	23.87	11.45	23.63	11.69	23.19	12.13

1 Monitoring well data for monitoring wells located within or near the Block G Lot 1 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.

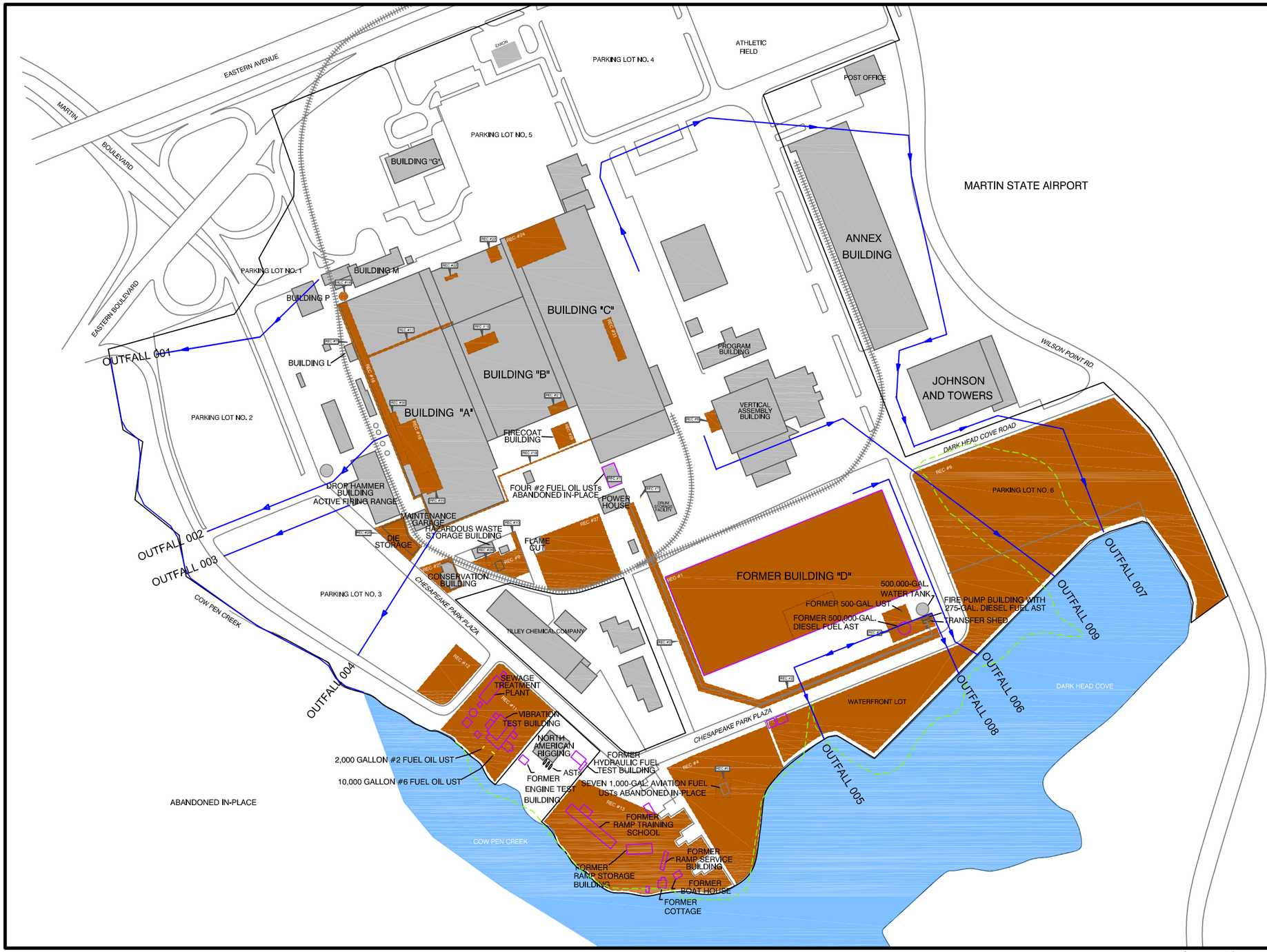


FIGURE 2-1

MIDDLE RIVER COMPLEX LAYOUT MAP

LEGEND

OUTFALL 004 NPDES PERMITTED OUTFALL

STORMWATER AND FLOW DIRECTION

PRE-1950 SHORELINE

EXISTING STRUCTURE

FORMER STRUCTURE

REC LOCATION (APPROXIMATE)

Lockheed Martin Middle River Complex
Middle River, Maryland

0 200 400

N

DATE MODITFIED 3/13/07

CREATED BY J.F.

Tetra Tech Inc.

filename: k:\gproject\middle_river\cad\newfolder\2003SiteLocationMapFigure2_16Jan07.dwg

MARTIN STATE AIRPORT

MW03A 24.92
MW01A 20.69
MW02A 21.27
MW06A 20.16
MW05A 19.50
MW49A 16.13
EXT-MW04 NM
MW51A 13.01
MW50A 16.42
MW52A 15.34
MW41A 17.39
MW17A 28.15
MW53A 14.47
MW64A 25.50
MW08A 11.46
MW18A 22.15
MW54A 14.88
MW19A 26.27
MW20A 26.40
MW07A 23.19
MW16A 15.14
MW09A 9.37
MW21A-B 31.69(A)
EXT-MW06 23.04
MW22A 18.66
MW15A 18.36
MW10A 11.31
MW14A-C 15.22(A)
MW11A
MW11C 13.49(A)
MW63A 15.14(A)
MW12A
MW12C 9.38(A)
MW13A 11.09
MW55A 25.25
MW57A 28.34
MW56A 32.68
MW58A 32.13
MW59A 34.01
MW60A 24.62
MW48A 17.44
MW42A 15.12
MW26A 13.94
MW25A 15.23
MW62A
MW62C 11.67(A)
MW43A 11.57
MW65A 11.42
MW66A 9.90
MW47A 12.30
MW45A *
MW46A 2.27
MW04A 23.10
MW61A NM
MW23A 17.32
MW24A NM
MW27A-C 12.40(A)
MW28A 11.01
MW29A 10.12
MW30A 11.84
MW31A 9.65
MW32A 8.79
MW34A-C 8.42(A) 8.65(B)
MW33A 10.95
MW44A 11.45
MW35A 6.84
MW37A 4.63
MW37B-C 3.55
MW36A 4.78
MW38A 4.14
MW39A 3.55
MW40A 6.24

5 10 15 20 25 30

COW PEN CREEK

DARK HEAD COVE

FIGURE 2-2

GROUNDWATER CONTOURS OF THE UPPER SURFICIAL AQUIFER, DECEMBER 2005

LEGEND

- GROUNDWATER MONITORING WELL
- GROUNDWATER CONTOUR
- INFERRED
- 15.23 WATER ELEVATION (FEET ABOVE MSL)
- NM NOT MEASURED
- * ELEVATION WAS NOT CONSISTENT WITH SURROUNDING ELEVATIONS AND WAS NOT USED FOR CONTOURING.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 95 190 380 Feet

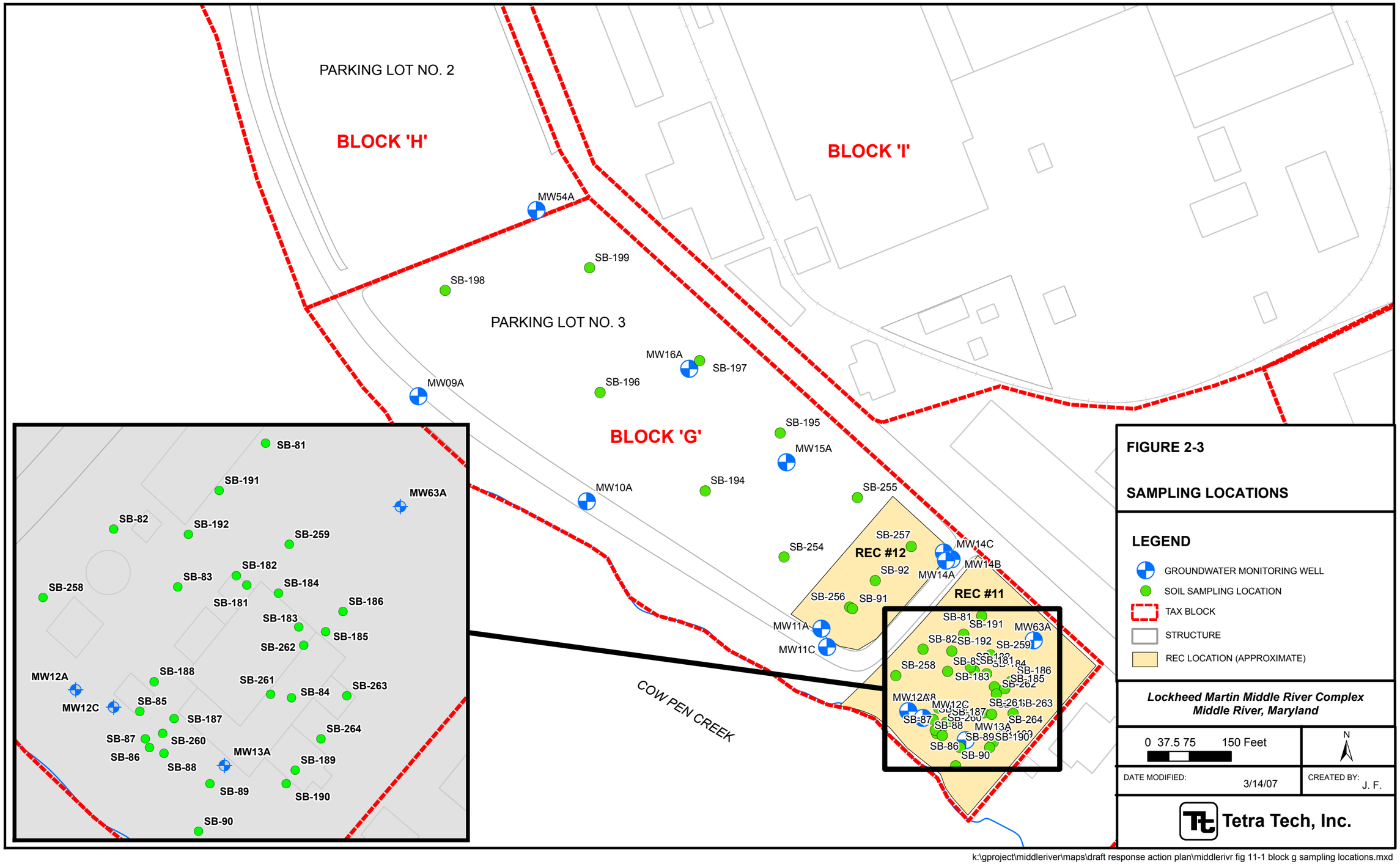
N

DATE MODIFIED: 3/27/07

CREATED BY: LR

Tetra Tech, Inc.

K:\GProject\middle_river\Maps\draft response action plan\Middle River GW Contours of Upper Surficial Aquifer_16Jan07.mxd



k:\gproject\middleriver\maps\draft response action plan\middlerivr fig 11-1 block g sampling locations.mxd

PARKING LOT NO. 2

BLOCK 'H'

BLOCK 'I'

SB-199
BENZO(A)PYRENE 0.671 (05')

PARKING LOT NO. 3

SB-196
BENZO(A)PYRENE 0.949 (SS)
BENZO(A)PYRENE 0.370 (05')

SB-195
BENZO(A)PYRENE 1.410 (05')

SB-194
BENZO(A)PYRENE 0.382 (SS)

BLOCK 'G'

SB-255
BENZO(A)PYRENE 0.937 (0.5')

SB-92
ARSENIC 37 (SS)
BENZO(A)PYRENE 13 (SS)

SB-91
BENZO(A)PYRENE 24 (SS)

SB-258
BENZO(A)PYRENE 0.821 (0.5')

SB-85
BENZO(A)PYRENE 3.100 (SS)
GASOLINE RANGE ORGANICS 240 (05')

SB-260
BENZO(A)PYRENE 2.160 (0.5')
BENZO(A)PYRENE 5.570 (1.5')

SB-84
BENZO(A)PYRENE 3.400 (SS)
GASOLINE RANGE ORGANICS 520 (05')

SB-86
BENZO(A)PYRENE 0.530 (SS)

SB-261
BENZO(A)PYRENE 1.600 (1.5')

2,000 GALLON #2 FUEL OIL UST

10,000 GALLON #6 FUEL OIL UST

COW PEN CREEK

FIGURE 2-4

COC EXCEEDANCES OF CLEANUP GOALS

Legend

- SOIL SAMPLING LOCATION
- TAX BLOCK
- STRUCTURE

Cleanup goal for Arsenic is 12 mg/kg
Cleanup goal for Benzo(A)Pyrene is 400 ug/kg
Cleanup goal for DRO and GRO is 230 mg/kg

Lockheed Martin Middle River Complex
Middle River, Maryland

0 50 100 200 Feet

N

DATE MODIFIED: 1/24/07

CREATED BY: J. F.

Tetra Tech, Inc.

Map Document: (K:\GProject\middle_river\Maps\GPS SOIL BORING LOC\Final RAP figures\Block G COC Exceedances.mxd) 4/17/2008 -- 12:30:01 PM

Section 3
Additional Investigatory Information

3.1 ADDITIONAL SOIL INVESTIGATIONS

Tetra Tech performed an additional field investigation at Block G during the fall of 2007 to confirm previous results and refine the limits of COCs greater than the cleanup goals. The risk assessment included in the Site Characterization Report (Tetra Tech, May 2006) identified benzo(a)pyrene, arsenic, and GRO concentrations that require mitigation. Concentrations of benzo(a)pyrene and GRO in excess of the cleanup goals were identified at previous soil boring locations (SB-84, SB-85, SB-86, SB-258, SB-260, SB-261) located around the former STP and wind tunnel and vibration test buildings (REC #11) and in Parking Lot No. 3 (SB-91, SB-92, SB-194, SB-195, SB-196, SB-199 and SB-255). The highest concentration of arsenic (37 mg/kg) was detected at soil boring SB-92 in surface soil. This concentration exceeds the cleanup goal for arsenic. The extent of COCs in excess of cleanup goals in the vicinity of these soil borings was refined by locating borings around the soil boring SB-84, SB-85, SB-86, SB-258, SB-260, SB-261, SB-91, SB-92, SB-194, SB-195, SB-196, SB-199 and SB-255 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.

Fifty four soil borings were installed in the vicinity of soil borings SB-84, SB-85, SB-86, SB-258, SB-260, SB-261, SB-91, SB-92, SB-194, SB-195, SB-196, SB-199 and SB-255 using a direct push technology (DPT). The borings were spaced on a grid pattern across the previously identified geophysical anomaly areas to cover significant horizontal and vertical areas for further delineation of COCs greater than the cleanup goals. Soil boring locations are shown on 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 (2 to 3, 5 to 6 and 8 to 9 ft 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 provided in Appendix C. The lithology is consistent with presence of fill material with brown silty clay mixed with clayey sands, sand-silt and sand-gravel mixtures. The soils were generally moist with the shallow water table present between 3 to 6 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 arsenic (Method SW-846 6020) analysis.

3.2 RESULTS

The laboratory data confirmed the presence of benzo(a)pyrene in nine soil samples. A total of 256 soil samples were collected from the 54 soil borings and analyzed in the laboratory. A total of 242 soil samples were analyzed for benzo(a)pyrene and fourteen soil samples were analyzed for arsenic. These samples underwent Level IV data validation procedures in accordance with EPA 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 AG-3 (Appendix A) and the validation reports are provided in Appendix D.

Detected benzo(a)pyrene concentrations in soil samples ranged from non-detect to 4,000 µg/kg at soil boring SB-424 (2 to 3 feet bgs). The majority of the samples exhibited benzo(a)pyrene concentrations below 100 µg/kg. The seventy one detections of benzo(a)pyrene were scattered sporadically at various boring locations. The cleanup goal for benzo(a)pyrene is 400 µg/kg.

The arsenic concentrations detected in fourteen soil samples ranged from non-detect to a maximum of 2.4 mg/kg at soil boring SB-458 (1 to 2 feet bgs) with no detected arsenic concentration greater than the cleanup goal (12 mg/kg). The soil boring sample locations with COC exceedances of cleanup goals is presented on Figure 3-2.

Map Document: (K:\GProject\middle_river\Maps\GPS SOIL BORING LOC\Final RAP Figures\Block G Sampling Locations.mxd) 2/11/2008

MW54A
SB-455
SB-442
PARKING LOT NO. 2
SB-441
SB-443
SB-454
SB-198
SB-199
PARKING LOT NO. 3
SB-440
SB-444
SB-453
SB-196
MW16A
SB-197
MW09A
SB-445
SB-452
SB-439
SB-438
SB-194
SB-446
MW15A
SB-195
MW06
MW18A
MW58A
MW59A
MW02
MW05
MW42A
MW19A
MW20A
MW07A
MW25A
MW21A
MW21B
MW22A
SB-255
BLOCK 'G'
SB-447
SB-451
SB-437
SB-496
SB-450
SB-448
SB-254
SB-436
SB-92
SB-91
MW14A
MW14C
MW14B
SB-495
SB-494
SB-461
SB-460
SB-457
SB-459
SB-428
SB-430
SB-419
SB-427
SB-431
SB-418
SB-420
SB-81
SB-192
SB-426
SB-432
MW11A
REC #12
MW11C
SB-410
SB-82
SB-417
SB-421
MW63A
SB-425
SB-433
SB-258
SB-259
SB-411
SB-83
SB-416
SB-184
SB-422
SB-186
REC #11
SB-262
SB-415
SB-423
MW12A
MW12C
SB-260
SB-85
SB-18
SB-414
SB-84
SB-263
SB-87
SB-88
MW13A
SB-434
SB-89
SB-413
SB-90
COW PEN CREEK

REC #12
SB-419
SB-456
SB-494
SB-449
SB-461
SB-92
SB-457
SB-459
SB-458
SB-256
SB-460
SB-435
SB-91

REC #11
SB-428
SB-430
SB-419
SB-427
SB-431
SB-418
SB-420
SB-81
SB-426
SB-432
SB-192
MW63A
SB-417
SB-410
SB-421
SB-425
SB-82
SB-258
SB-259
SB-182
SB-422
SB-411
SB-181
SB-83
SB-411
SB-184
SB-186
SB-424
SB-183
SB-185
SB-262
SB-415
SB-423
SB-412
MW12A
SB-188
MW12C
SB-414
SB-260
SB-263
SB-187
SB-84
SB-434
SB-85
SB-87
SB-264
SB-189
SB-88
MW13A
SB-86
SB-413
SB-89
SB-413
SB-261
SB-90
SB-190

0 25 50 100 Feet

FIGURE 3-1

SAMPLING LOCATIONS

Legend

- GROUNDWATER MONITORING WELL
- PREVIOUS SOIL SAMPLING LOCATION
- FALL 2007 SOIL SAMPLING LOCATION
- TAX BLOCK
- STRUCTURE
- REC LOCATION APPROXIMATE

Lockheed Martin Middle River Complex
Middle River, Maryland

0 50 100 150 Feet

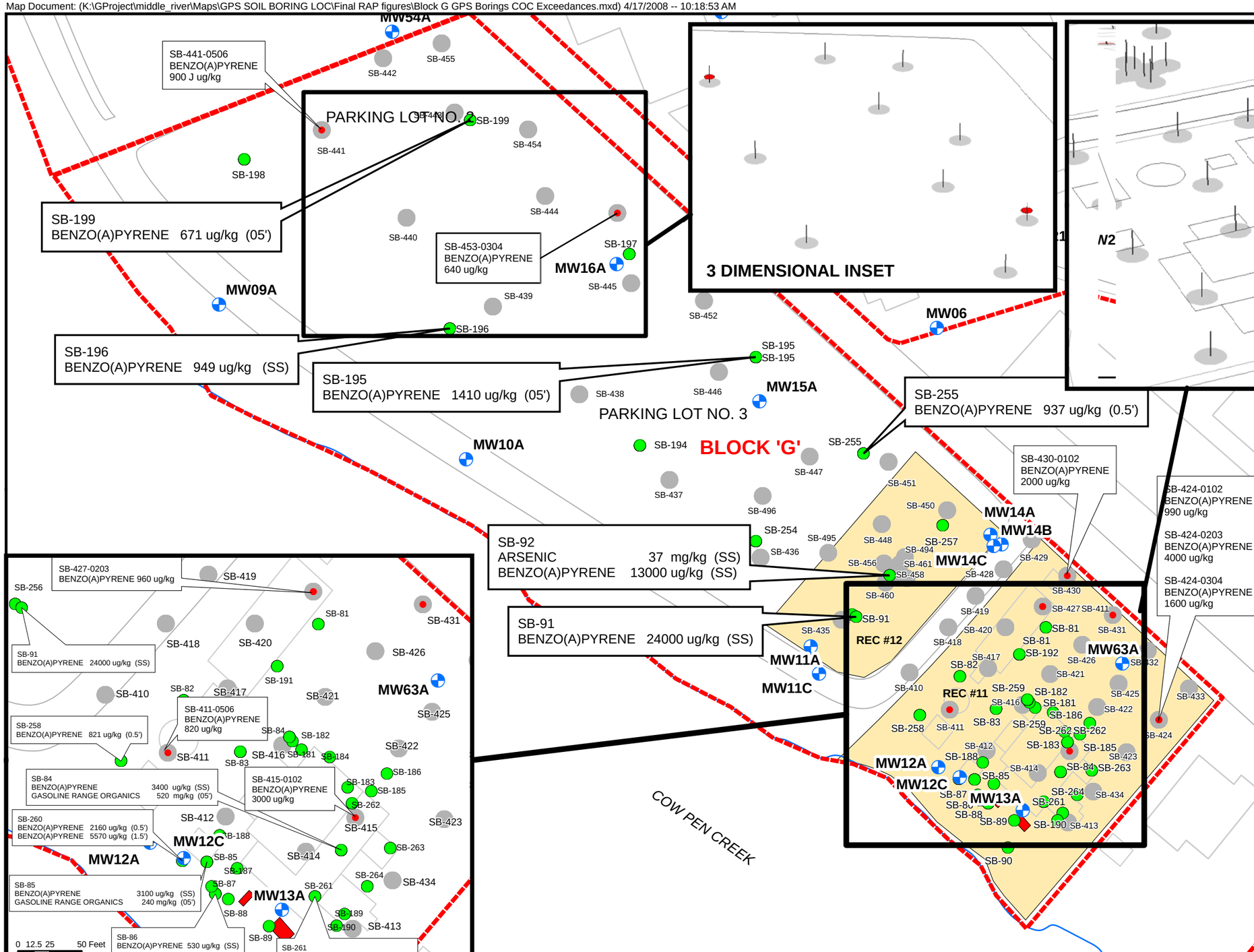
N

DATE MODIFIED: 1/31/08

CREATED BY: LR

Tetra Tech, Inc.

Map Document: (K:\GProject\middle_river\Maps\GPS SOIL BORING LOC\Final RAP figures\Block G GPS Borings COC Exceedances.mxd) 4/17/2008 -- 10:18:53 AM



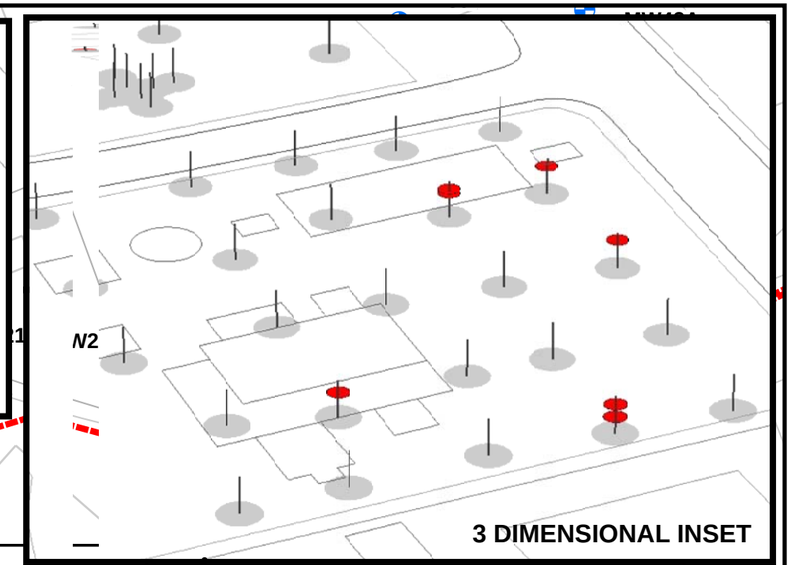


FIGURE 3-2

COC EXCEEDANCES OF CLEANUP GOALS (INCLUDING FALL 2007 DATA)

Legend

- GROUNDWATER MONITORING WELL
- PREVIOUS SOIL SAMPLING LOCATION
- FALL 2007 SOIL SAMPLING LOCATION
- TAX BLOCK
- STRUCTURE
- REC LOCATION APPROXIMATE

Cleanup goal for Arsenic is 12 mg/kg
Cleanup goal for Benzo(a)pyrene is 400 ug/kg
Cleanup goal for GRO and DRO is 230 mg/kg

Lockheed Martin Middle River Complex
Middle River, Maryland

0 50 100 200 Feet

N

DATE MODIFIED: 1/31/08

CREATED BY: LR

Tetra Tech, Inc.

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 G Lot 1 is a parking lot and 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 G Lot 1 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 G Lot 1, which evaluated potential future residential development.

4.3 MEDIA OF CONCERN

The medium of concern at Block G Lot 1 is surface and subsurface soil. Groundwater was also investigated at Block G Lot 1; 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 G Lot 1 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 G Lot 1 (residents), work at Block G Lot 1 (commercial or industrial workers), develop Block G Lot 1 (construction workers), or visit Block G Lot 1 (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 1×10^{-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 1×10^{-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 that may result in a cancer risk greater than 1×10^{-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 G Lot 1-wide approach rather than evaluation of results from individual soil borings.

Soil sampling locations with COC concentrations greater than the MDE 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 of cleanup criteria for the COCs as well as attain target risk

levels for a site. Verification of post-removal conditions will be conducted to ensure that post-response action risks are less than a cancer risk of 1×10^{-5} and a hazard index of 1.0.

Soil impacted with petroleum hydrocarbons is addressed through MDE's OCP.

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 all exposure scenarios except the construction worker exceeded MDE's threshold level for cancer risk (1×10^{-5}). Residential exposure, commercial exposure for the child visitor, and adult construction worker exposure have hazard indices that exceed the target of 1.0. The COCs identified in this assessment are carcinogenic PAHs and arsenic in soil.

5.3 CLEANUP GOALS

Cleanup goals were identified for benzo(a)pyrene and arsenic 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 ensures removal of all 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 1×10^{-5} and a target hazard index of 1.0.

The MDE identifies a residential soil cleanup standard for arsenic of 2 mg/kg. However, because arsenic is naturally occurring, it is appropriate to consider a background reference concentration. 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 (TtNUS, December 2006). The post-removal Block G Lot 1-wide average concentration for arsenic, as represented by the 95 percent upper confidence limit of the mean (UCL), will be less than 6 mg/kg

with no individual soil concentration exceeding 12 mg/kg. This approach ensures that no arsenic "hot spots" remain within Block G Lot 1 while attaining protection of human health through exposure to arsenic in soil at Block G Lot 1.

COPCs, including those constituents comprising TPH, were evaluated in the Block G Lot 1-specific risk assessment and cleanup goals subsequently developed. COPCs associated with the previously abandoned-in-place USTs were therefore included in the Block G Lot 1 risk assessment. To comply with MDE's OCP, soil associated with the previously abandoned-in-place USTs with soil concentrations greater than MDE cleanup standards will be removed. The MDE generic numerical residential cleanup standard for DRO and GRO in soil is 230 mg/kg.

Cleanup goals are summarized in Table 5-1. Attainment of the cleanup goals at Block G Lot 1 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 mg/kg and arsenic concentrations greater than 12 mg/kg will be removed. In addition, it must be demonstrated that after soil with arsenic concentrations greater than 12 mg/kg is removed, the post-response action UCL arsenic concentration is less than 6 mg/kg. Moreover, the post-response action risk at each soil boring should be less than a cancer risk of 1×10^{-5} and the hazard index of 1.0. In addition, the previously abandoned-in-place USTs, associated piping, and associated contaminated soil with DRO and GRO concentrations greater than the MDE cleanup standard of 230 mg/kg will be removed.

Arsenic and vanadium were identified as COPCs in the HHRA. Vanadium was evaluated in the HHRA, but it is not a COC. Vanadium is considered to be present within background levels based on the analysis presented in Comment Response Document No. 2 of the Site Characterization Report (TtNUS, December 2006). For vanadium to be within background levels, the UCL concentration for vanadium across Block G Lot 1 must be less than 55 mg/kg with no individual samples concentration exceeding 91 mg/kg. Because arsenic and vanadium concentrations

following the response action would be considered to be within background levels, risks associated with these metals would not be included in the post-response action risk calculation.

Table 5-2 illustrates which samples will be removed 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. The UCL concentration in surface soil for arsenic will be reduced from a pre-response concentration of 8 mg/kg to a post-response concentration of 5 mg/kg with a maximum detected concentration of 6 mg/kg. Vanadium was less than its background concentration prior to any proposed response action at the site.

Soil associated with the previously abandoned-in-place USTs and piping with DRO and GRO concentrations greater than the MDE cleanup standard of 230 mg/kg will also be removed.

Table 5-1

Cleanup Criteria
Block G Lot 1
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
Arsenic[1]	--	EPA SW-846 6020
- Individual soil sample result	≤ 12 mg/kg	
- Post-response action 95% UCL for Block G Lot 1 soil	≤ 6 mg/kg	
Petroleum Hydrocarbon – Diesel Range Organics[2]	≤ 230 mg/kg	EPA SW-846 8015M DRO
Petroleum Hydrocarbon – Gasoline Range Organics [2]	≤ 230 mg/kg	EPA SW-846 8015M GRO

1 The cleanup goal for arsenic is based on a statistical analysis of arsenic data across the Middle River Complex.

2 The cleanup criteria for petroleum hydrocarbons is equal to the MDE residential cleanup standard for soil [Table 2 – Generic Numeric Cleanup Standards for Groundwater and Soil for Total Petroleum Hydrocarbon (MDE, August 2001)]. Cleanup criteria are applicable only for the previously abandoned-in-place USTs, associated piping, and associated contaminated soil.

DRO Diesel range organics.
EPA United States Environmental Protection Agency.
GRO Gasoline range organics.
mg/kg Milligrams per kilogram.
UCL Upper confidence limit.
µg/kg Micrograms per kilogram.

Table 5-2

Pre- and Post-Response Action Risks
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland
Page 1 of 3

Surface Soil Boring	Residential Risks (Pre-Response Action)[1]		Residential Risks (Post-Response Action)[2]	
	Cancer	Noncancer	Cancer	Noncancer
SB-183	0	0	0	0
SB-194	9.60E-06	0.63	0	0
SB-195	2.70E-06	0.85	0	0
SB-196	2.20E-05	0.64	0	0
SB-197	1.80E-05	1.5	3.40E-06	0.21
SB-198	4.40E-06	0.68	4.40E-06	0.09
SB-199	3.80E-06	0.8	0	0
SB-254	3.90E-06	0.016	3.90E-06	0.016
SB-255	2.40E-05	0.015	0	0
SB-256	1.90E-06	0.016	1.90E-06	0.016
SB-257	3.00E-06	0.016	3.00E-06	0.016
SB-258	2.50E-05	0.017	0	0
SB-259	8.80E-06	0.017	8.80E-06	0.017
SB-260	5.20E-05	0.016	0	0
SB-261	2.70E-06	0.017	0	0
SB-81	1.90E-05	0.52	8.70E-06	0.36
SB-82	1.30E-05	0.42	1.90E-06	0.33
SB-83	1.30E-05	0.32	1.70E-06	0.28
SB-84	1.00E-04	1.3	0	0
SB-85	9.90E-05	1.2	0	0
SB-86	4.40E-05	0.96	0	0
SB-91	1.10E-05	0.4	0	0
SB-92	1.10E-04	2.3	0	0
Subsurface Soil Boring	**Cancer**	**Noncancer**	**Cancer**	**Noncancer**
SB-181	0	0	0	0
SB-182	0	0	0	0
SB-184	0	0	0	0
SB-185	0	0	0	0
SB-186	0	0	0	0
SB-187	0	0	0	0

Table 5-2

Pre- and Post-Response Action Risks
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland
Page 2 of 3

Subsurface Soil Boring	Residential Risks (Pre-Response Action)[1]		Residential Risks (Post-Response Action)[2]	
	Cancer	Noncancer	Cancer	Noncancer
SB-188	0	0	0	0
SB-189	0	0	0	0
SB-190	0	0	0	0
SB-191	0	0	0	0
SB-192	0	0	0	0
SB-194	1.60E-05	0.79	2.10E-06	0.063
SB-195	4.60E-05	2.2	0	0
SB-196	9.30E-06	0.94	0	0
SB-197	2.20E-05	1.4	8.00E-06	0.21
SB-198	2.00E-05	2	2.80E-06	0.19
SB-199	1.70E-05	1.1	0	0
SB-254	1.40E-06	0	1.40E-06	0
SB-255	1.50E-06	0	0	0
SB-256	1.60E-06	0	0	0
SB-257	1.60E-06	0	0	0
SB-258	1.70E-06	0	0	0
SB-259	6.20E-06	0	6.20E-06	0
SB-260	1.30E-04	0	0	0
SB-261	4.00E-05	0	0	0
SB-262	0	0	0	0
SB-263	0	0	0	0
SB-264	0	0	0	0
SB-81	1.70E-05	0.37	9.30E-06	0.26
SB-82	1.30E-05	0.31	1.70E-06	0.25
SB-83	1.50E-05	0.34	0	0.25
SB-84	2.10E-05	0.44	0	0.28
SB-85	1.70E-05	0.44	0	0.33
SB-86	1.20E-05	0.33	3.30E-06	0.29
SB-87	0	0	0	0
SB-88	0	0	0	0
SB-89	0	0	0	0

Table 5-2

Pre- and Post-Response Action Risks
Block G Lot 1
Lockheed Martin Middle River Complex, Middle River, Maryland
Page 3 of 3

Subsurface Soil Boring	Residential Risks (Pre-Response Action)[1]		Residential Risks (Post-Response Action)[2]	
	Cancer	Noncancer	Cancer	Noncancer
SB-90	0	0	0	0
SB-91	1.70E-05	0.39	9.80E-06	0.28
SB-92	1.40E-05	0.37	1.00E-05	0.3

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 G Lot 1-specific background reference concentration of 12 and 91 mg/kg, respectively).

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 G Lot 1. 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 G Lot 1. 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 G Lot 1:

- Prevent unacceptable human health risk associated with exposure to surface and subsurface soil containing PAHs and surface soil containing arsenic at concentrations greater than the cleanup goals.
- Remove previously abandoned-in-place USTs, associated piping, and contaminated soil under the MDE OCP in accordance with the Code of Maryland Regulations (COMAR) 26.10.10.02.

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)]:

- Chemical-Specific: 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.

- Location-Specific: 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.

- Action-Specific: 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 1×10^{-5} or a hazard quotient greater than 1.0. The determination of COCs was based on a Block G Lot 1-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 arsenic) and MDE soil cleanup standards for DRO and GRO were determined in Section 5.3, and attainment of the cleanup criteria 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 G Lot 1.

The following GRAs were considered for soil at Block G Lot 1:

- 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 17,000 in-place cubic yards (cy) of contaminated soil with a surface area of approximately 140,000 square feet (sf) contain concentrations of COCs greater than the cleanup goals and DRO and GRO concentrations greater than the MDE soil cleanup standards.

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 G Lot 1. 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 No Action

No Action consists of maintaining status quo at Block G Lot 1. 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 G Lot 1 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 6 ft bgs for the soil removal areas and up to 12 feet bgs for of the 10,000 gal UST. The excavation would be cut-back or steeped, supported by trench boxes or personnel would not be permitted to enter the excavation. Existing structural foundations, slabs, etc. would have to be removed prior to excavation. The previously abandoned USTs and associated piping would be removed during the excavation of contaminated soil.

Cost

Cost of excavation at Block G Lot 1 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 ption, 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 only be excavated to a depth of 5 feet bgs, 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 containing arsenic 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 GRA's, 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.

6.3 DEVELOPMENT AND DETAILED ANALYSIS OF 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 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 G Lot 1. This would require excavation of the soil with contaminant concentrations greater than the cleanup criteria identified in Section 5.3.

The previously abandoned-in-place USTs, associated piping, and associated soil with DRO and GRO concentrations greater than MDE soil cleanup standards will be removed. The UST removal will be performed under the MDE OCP in accordance with the COMAR 26.10.10.02 and the American Petroleum Institute's (API's) Recommended Practice 1604 (1996) modified as necessary based on conditions encountered.

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 G Lot 1 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 G Lot 1 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 G Lot 1)

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 Alternative S-1: No Action

Description of Alternative S-1

This alternative would leave Block G Lot 1 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 arsenic that exceed the established site-specific cleanup goal for human health and concentrations of DRO and GRO greater than MDE soil cleanup standards would remain in the soil. Therefore, the RAOs for Block G Lot 1 would not be achieved.

Compliance with ARARs

Alternative S-1 would not achieve human health site-specific cleanup goals or MDE soil cleanup standards.

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 Alternative S-2: Excavation to Allow Unrestricted Site Use and Off-Site Treatment Disposal

Description of Alternative S-2

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 treatment and disposal.

Component 1: Excavation to Allow Unrestricted Site Use

Figure 6-1 shows the areas of Block G Lot 1 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 5 feet would be conducted using a bulldozer, front-end loader, or similar equipment. Removal of the previously abandoned-in-place USTs, associated piping, and associated soil with TPH concentrations greater than MDE soil cleanup standards would also be completed during this alternative.

Post-removal/confirmation samples would be collected from the sidewalls and base of the excavation and analyzed for benzo(a)pyrene and arsenic. Post-removal/confirmation samples in the previously abandoned-in-place aviation fuel USTs excavation would be collected from the sidewalls and base of the excavation and analyzed for DRO and GRO.

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:

- Excavated material characterized as RCRA non-hazardous waste would be transported to a permitted RCRA Subtitle D facility for direct landfilling.
- 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 for a hypothetical future residential receptor would ensure that unrestricted use of Block G Lot 1 would not pose unacceptable risk to human health. Block G Lot 1 would be suitable for revegetation and potential use as a natural and recreational corridor. All of the RAOs for Block G Lot 1 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 G Lot 1 and deposited in a

suitable landfill outside the site, resulting in residual levels that would not 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 17 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 $2,800,000. There are no annual O&M costs associated with Alternative S-2. The NPW value of the capital and O&M costs is $2,800,000.

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 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 G Lot 1 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 Long-Term Effectiveness and Permanence

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 G Lot 1 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 17 weeks for Alternative S-2.

6.4.1.6 Implementability

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 $2,800,000.

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 G Lot 1 and remove the previously abandoned-in-place USTs, associated piping, and contaminated soil with DRO and GRO concentrations greater than the MDE cleanup

standards. 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 G Lot 1 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 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 arsenic. In the area of the abandoned-in-place USTs and associated piping, the post-removal/confirmation samples would be analyzed for DRO and GRO.

Following excavation and after post-removal/confirmation sample results confirm that soil with COC concentrations greater than the cleanup goals and soil with DRO and GRO concentrations greater than the MDE cleanup standards have 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 G Lot 1
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 may be 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 G Lot 1
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 Code of Maryland Regulations.
MRC Middle River Complex.

Table 6-3

Action-Specific ARARs
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
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	Potentially Applicable	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. However, the NAAQSs themselves are non-enforceable and are not ARARs themselves.	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. However, consolidation of contaminated soil within Block G Lot 1 for the purposes of reducing the size of the contaminated area may not constitute land disposal.
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	29 CFR Part 1910, Subpart Z	Potentially Applicable	Establishes permissible exposure limits for workplace exposure to a specific	Standards are applicable for worker exposure to OSHA hazardous chemicals during response

Table 6-3

Action-Specific ARARs
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
and Safety Regulations			listing of chemicals.	action activities.
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	40 CFR Part 264, Subpart I	Potentially Relevant and	Sets standards for the storage of containers of hazardous waste.	This requirement would apply if a response action alternative involves the storage of a

Table 6-3

Action-Specific ARARs
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
of Containers		Appropriate		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.
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.

Table 6-3

Action-Specific ARARs
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Maryland OCP	Title 26, Subtitle 10 of the COMAR	Applicable	The MDE OCP regulates all oil-related activities, such as aboveground and underground oil storage facilities, oil-contaminated soil treatment facilities, and oil transportation. The OCP oversees the installation, maintenance, operation and removal of oil storage tanks.	These requirements apply because USTs are being removed.

ARARs Applicable or Relevant and Appropriate Requirements.
CAA Clean Air Act.
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act.
CFR Code of Federal Regulations.
COMAR Code of Maryland Regulations.
LDRs Land Disposal Restrictions.
MDE Maryland Department of the Environment.
NAAQSs National Ambient Air Quality Standards.
OCP Oil Control Program.
OSHA Occupational Safety and Health Act.
RCRA Resource Conservation and Recovery Act.
TCLP Toxicity Characteristic Leaching Procedure.
TSDF Treatment, Storage, and Disposal Facility.
USC United States Code.
UST Underground storage tank.

Table 6-4

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

General Response Action	Response Action Technology	Process Option	Description	Screening Comment
No Action	None	Not applicable	No activities conducted at Block G Lot 1 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 G Lot 1 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 G Lot 1 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 G Lot 1 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 G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

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 arsenic.
		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 arsenic.
	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 arsenic.

Table 6-4

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

General Response Action	Response Action Technology	Process Option	Description	Screening Comment
In-Situ Treatment (Continued)	Physical/ Chemical (Continued)	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 G Lot 1. In addition, it is not applicable to arsenic.
		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. Not suitable for unrestricted use of 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 arsenic 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.

Table 6-4

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

General Response Action	Response Action Technology	Process Option	Description	Screening Comment
Ex-Situ Treatment	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.
		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 arsenic.
	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 arsenic 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 arsenic contamination.

Table 6-4

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

General Response Action	Response Action Technology	Process Option	Description	Screening Comment
Ex-situ Treatment (Continued)	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 G Lot 1 in contaminated areas.
		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.

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.
SVOCs Semivolatile organic compounds.
VOCs Volatile organic compounds.

Table 6-5

Summary of Comparative Analysis of Alternatives
Block G Lot 1
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. Seventeen weeks to attain soil RAOs.
Implementability	Nothing to implement	Easy to implement
Costs: Capital NPW of O&M NPW	 $0 $0 $0	 $2,800,000 $0 $2,800,000

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 arsenic] concentrations greater than the cleanup goals; removal of previously abandoned-in-place USTs and associated piping; and removal of soil associated with the USTs and piping with DRO and GRO concentrations greater than MDE soil cleanup standards. 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 and soil with DRO and GRO concentrations greater than the MDE cleanup standards have been removed. Additional removal and sampling will be performed until it is confirmed that soil with COC concentrations greater than the cleanup goals and soil with DRO and GRO concentrations greater than the MDE cleanup standards have 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 soil with DRO and GRO concentrations greater than the MDE cleanup standards and the nature of the proposed response action (i.e., removal), the development of contingency measures to address COC impacts at Block G Lot 1 is not warranted.

Section 8
Proposed Response Actions

8.1 INTRODUCTION

The proposed response action for Block G Lot 1 will address soil and groundwater with COC concentrations greater than the cleanup goals. The proposed soil response action will remove and dispose off site soil with COC (i.e. PAHs and arsenic) concentrations greater than the cleanup goals; remove previously abandoned-in-place USTs and associated piping; and remove soil associated with the USTs and piping with DRO and GRO concentrations greater than MDE soil cleanup standards. The proposed response action for soil and USTs in Block G Lot 1 is described in this section. The proposed response action for groundwater in Block G Lot 1 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. In addition, previously abandoned-in-place USTs, associated piping, and associated soil with DRO and GRO concentrations greater than MDE soil cleanup standards will also be removed. 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:

- Remove soils from parts of REC #11 (Area A) encompassing soil boring locations SB-84, SB-85, SB-86, SB-258, SB-260, SB-261, SB-411, SB-415, SB-424, SB-427, SB-430 and SB-431 from ground surface to 2 feet bgs with additional two feet at SB-84 and SB-85 (5 feet bgs total). Remove additional four feet of soils at SB-411 (6 feet bgs total); remove additional two feet of soils at soil boring SB-424 (4 feet bgs total); and remove additional three feet of soils at soil boring SB-423 (5 feet bgs total). Remove benzo(a)pyrene and arsenic hot spot soils from boring locations SB-91 and SB-92 (Area B) from ground surface to 1 feet bgs. Remove soils from soil boring locations SB-195, SB-199, SB-453 and SB-441 (Area C) from ground surface down to 5 feet bgs, with additional one feet at soil boring SB-441 (6 feet bgs total). The total estimated quantities of 17,000 cubic yards of soil from Areas A, B, and C will be removed for disposal. This quantity include soil quantities from two UST removals too. The soil removal limits and corresponding areas are shown in Figure 8-1.

- The base dimension of the removal areas will extend 10 feet minimum beyond the sample locations with COC concentrations that exceed the cleanup goal as indicated on Figure 8-1. The aerial extent of removal is approximately 140,000 sf and the removed soil quantity, including the USTs, is approximately 17,000 cy. The soil boring sample locations and removal limits are indicated on Figure 8-1.

- Removal of previously abandoned-in-place USTs. Remove previously abandoned-in-place USTs, associated piping, and associated soil with DRO and GRO concentrations greater than MDE soil cleanup standards. The USTs were reportedly abandoned in place, however, no closure records were available for these USTs. The UST removal procedure will therefore be as follows, as applicable:

  - Coordinate removal activities with the MDE OCP personnel.
  - Determine the location and contents of USTs.
  - Remove flammable, combustible, or other liquids from the UST storage systems.
  - Empty and clean the USTs by removing all liquids and accumulated sludges.
  - Empty, disconnect, and remove associated piping including fill lines, vents, dispensing lines, and return lines.
  - Purge UST storage systems of all explosive vapors and monitor with an appropriate direct-reading instrument before and during removal.
  - Remove USTs and any solid inert material.
  - Puncture USTs to render them unfit for further use.
  - Remove cathodic protection systems and anchorage.
  - Remove regulated substances, soils saturated with regulated substances, and visibly contaminated soil from the excavation.
  - Perform post-removal/confirmation sampling and analysis and compare results to the MDE soil cleanup standards provided in Table 5-1.
  - Backfill the excavation and restore the ground surface.
  - Amend the UST registration forms and submit to the MDE OCP within 30 days after the USTs are removed.

- Post-removal/confirmation sampling and analysis – Sampling and analysis of the exposed soil on the base and sidewalls of the removal areas, including the UST areas, will be performed to confirm that soils with contaminant concentrations greater than the cleanup

criteria provided in Table 5-1 are removed. Post-removal/confirmation sampling and analysis procedures are presented in Section 8.3.

- Characterization, transport, and off-site disposal of removed materials – Stockpiled soil will be characterized for the purposes of waste disposal, transported to an off-site non-hazardous waste disposal facility, and disposed. Removed concrete, steel and other construction/demolition materials will be characterized as appropriate. Disposal of soil at an off-site permitted non-hazardous waste disposal facility is assumed based on review of the constituent concentrations provided in Tables AG-1, AG-2, and AG-3 (Appendix A). The disposal quantity is approximately 25,000 tons based on the removal limits indicated on Figure 8-1.

- Concrete, steel and other construction/demolition materials resulting from removal of the foundations of former structures, previously abandoned-in-place USTs and piping will either be cleaned/decontaminated as appropriate and subsequently recycled or disposed in an off-site facility permitted to accept such materials.

- 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 natural 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 revegetation or paved. 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 G Lot 1 with COC concentrations greater than the cleanup goals will be removed. The removal limits presented in the RAP were determined based on review of existing soil boring sample results provided in Tables AG-1, AG-2, and AG-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.

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.

UST, Associated Piping, and Soil Removal

The previously abandoned-in-place USTs, associated piping, and associated soil with DRO and GRO concentrations greater than MDE soil cleanup standards will be removed. The UST locations were tentatively identified during the geophysical survey performed as part of the 2004 Phase II Environmental Site Assessment (Tetra Tech, January 2005). Excavation will be required to confirm UST locations. The UST removal will be performed under the MDE OCP in accordance with the COMAR 26.10.10.02 and the API's Recommended Practice 1604 (1996) modified as necessary based on conditions encountered. The final limits of removal will be determined after completion of post-removal/confirmation sampling. The removal limits will extend to the indicated depths.

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. Post-removal/confirmation sampling and analysis procedures are provided in Section 8.3.

Temporary Storage

Soil and materials from the removal areas will be stockpiled and secured within the Block G Lot 1 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 and materials 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 and materials will be temporarily stored on site until waste characterization has been completed.

Waste Characterization

Removed soil and materials will be sampled from the stockpiles 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. 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.

Disposal

Removed soil and materials not suitable for recycling 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 and materials not suitable for recycling 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 in 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 Material[2]. 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).

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

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 will be restored to pre-response action conditions.

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 17 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, previously abandoned-in-place USTs, and associated piping 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, 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 and soil with DRO and GRO concentrations associated with the previously abandoned-in-place USTs and associated piping greater than MDE cleanup standards have 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 and removal and off-site disposal of soil with DRO and GRO concentrations associated with the previously abandoned-in-place USTs and associated piping greater than MDE cleanup standards. 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.

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 samples for soil that is not subsequently removed and disposed off-site will also be analyzed for VOCs, SVOCs, PCBs, and metals at a minimum frequency of 1 for every 5 samples (i.e., 20 percent). 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 post-removal/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 post-removal/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 frequency of one sidewall sample for every 50 feet of exposed sidewall. 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 runoff-producing 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 G Lot 1. A 42-inch-diameter CMP culvert, a 24-inch-diameter concrete culvert, and above- and below-ground electrical service are present in Block G Lot 1. 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 with flush-mounted protective casings exist throughout Block G Lot 1. Monitoring wells MW09A, MW10A, MW15A, MW16A and MW54A are located in Parking Lot No. 3; MW12A, MW12C, MW13A, MW14A, MW14B, MW14C, and MW63A are located in REC #11; and MW11A and MW11C are located in REC #12. The monitoring wells will be protected during response action implementation. Groundwater monitoring well locations 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 any spills that may occur or within the decontamination pad to contain spills. 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-mil-thick 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 spills 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.

UST documentation will include the following information:

- UST size (gallons and dimensions) and material of construction
- UST location on the property
- Date of removal

- UST system description including condition and contents
- Method or methods used for removal of the UST system
- Method or methods used for cleaning/decontamination of recyclable materials
- Post-removal confirmation sample analytical reports and documentation
- Name of contractor who performed the work
- Receipt documenting proper disposal of the UST system
- Receipt documenting proper disposal of removed oil-contaminated soil

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 G Lot 1.

8.6.1 Recordkeeping

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

Lockheed Martin and the MDE-certified underground storage system technician or remover will maintain complete records of UST removal for a minimum of 5 years as required by COMAR 26.10.06.11G. Lockheed Martin will maintain complete records that demonstrate compliance with the UST closure requirements for at least 5 years after completion of the removal.

Table 8-1

Backfill Material Acceptance Criteria
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

Parameter	Criteria	Test Method
USCS Classification	GW, GP, GM, SW, SP, and SM	ASTM D 2487
Atterberg Limits	--	ASTM D 4318
- Liquid Limit	35 maximum	
- 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.

Map Document: (K:\GProject\middle_river\Maps\GPS SOIL BORING LOC\Finasl RAP Figures\Block G Removal Limits.mxd) 3/11/2008

MW54A
SB-441-0506
BENZO(A)PYRENE
900 J ug/kg
SB-455
SB-442
PARKING LOT NO. 2
Area C
(11,081 cubic yards)
SB-443
SB-199
SB-454
SB-444
SB-440
SB-199
BENZO(A)PYRENE 671 ug/kg (05')
SB-453-0304
BENZO(A)PYRENE
640 ug/kg
SB-197
MW09A
MW16A
SB-445
(14 cubic yards)
SB-439
SB-452
SB-196
SB-196
BENZO(A)PYRENE 949 ug/kg (SS)
PARKING LOT NO. 3
SB-195
SB-195
BENZO(A)PYRENE 1410 ug/kg (05')
SB-446
MW15A
SB-438
MW10A
COW PEN CREEK
BLOCK 'G'
SB-194
SB-255
SB-447
SB-437
SB-437
SB-496
SB-448
SB-450
MW14A
SB-495
SB-195
SB-429
SB-494
MW14C
MW14B
SB-436
SB-458
SB-428
SB-92
ARSENIC 37 mg/kg (SS)
BENZO(A)PYRENE 13000 ug/kg (SS)
SB-435
SB-91
SB-419
SB-91
BENZO(A)PYRENE 24000 ug/kg (SS)
REC #12
SB-418
SB-420
SB-192
MW63A
MW11A
SB-410
SB-417
SB-192
SB-426
MW11C
SB-421
SB-82
SB-425
SB-259
SB-181
SB-422
SB-433
SB-416
SB-184
SB-258
SB-83
SB-186
SB-424
SB-183
SB-185
SB-412
SB-262
SB-415
SB-188
SB-414
SB-84
SB-263
MW12A
SB-85
SB-187
MW12C
SB-260
SB-86
SB-264
REC #11 Removal
Depth = 2 ft bgs
MW13A
SB-88
SB-261
SB-84 & SB-85 Removal
Additional Depth = 3 ft
SB-89
SB-190
SB-410
SB-90
SB-413
Area C
(5,541 cubic yards)
REC #11
COW PEN CREEK
MW18A
MW58A
MW59A
MW01
MW02
MW05
MW42A
MW19A
MW20A
MW07A
MW25A
NOTE:
Depth of removal indicated is based on bottom of sampling interval where contaminant concentrations exceed the cleanup criteria. Actual depth of removal will extend to this depth or to the depth of the zone of saturation, whichever is less. Post-removal/confirmation sampling and analysis of the exposed soil on the base and sidewalls of the removal area(s) will be performed.
MW21A
MW21B
MW22A
MW06
SB-255
BENZO(A)PYRENE 937 ug/kg (0.5')
Area B
(86 cubic yards)
SB-430-0102
BENZO(A)PYRENE
2000 ug/kg
SB-424-0102
BENZO(A)PYRENE
990 ug/kg
SB-424-0203
BENZO(A)PYRENE
4000 ug/kg
SB-424-0304
BENZO(A)PYRENE
1600 ug/kg
SB-459
SB-427-0203
BENZO(A)PYRENE 960 ug/kg
SB-427
SB-431
SB-256
SB-81
SB-91
BENZO(A)PYRENE 24000 ug/kg (SS)
SB-418
SB-420
SB-426
MW63A
SB-417
SB-192
SB-411-0506
BENZO(A)PYRENE
820 ug/kg
SB-422
SB-264
SB-421
SB-415-0102
BENZO(A)PYRENE
3000 ug/kg
SB-425
SB-84
SB-258
BENZO(A)PYRENE 821 ug/kg (0.5')
SB-84
SB-186
SB-422
SB-264
SB-84
BENZO(A)PYRENE 3400 ug/kg (SS)
GASOLINE RANGE ORGANICS 520 mg/kg (05')
SB-186
SB-183
SB-185
SB-262
SB-423
SB-260
BENZO(A)PYRENE 2160 ug/kg (0.5')
BENZO(A)PYRENE 5570 ug/kg (1.5')
SB-188
SB-263
MW12A
MW12C
SB-84
SB-187
SB-414
SB-85
BENZO(A)PYRENE 3100 ug/kg (SS)
GASOLINE RANGE ORGANICS 240 mg/kg (05')
SB-87
MW13A
SB-89
SB-264
SB-434
SB-88
SB-189
SB-89
SB-422
SB-86
BENZO(A)PYRENE 530 ug/kg (SS)
SB-261
BENZO(A)PYRENE 1600 ug/kg (1.5')
0 12.525 50 Feet
SB-90

FIGURE 8-1

REMOVAL LIMITS

Legend

- GROUNDWATER MONITORING WELL
- PREVIOUS SOIL SAMPLING LOCATION
- FALL 2007 SOIL SAMPLING LOCATION
- TAX BLOCK
- STRUCTURE
- REC LOCATION APPROXIMATE
- 1 FT
- 2 FT
- 3 FT
- 4 FT
- 5 FT
- 6 FT

Cleanup goal for Arsenic is 12 mg/kg
Cleanup goal for Benzo(A)Pyrene is 400 ug/kg
Cleanup goal for DRO and GRO is 230 mg/kg

Lockheed Martin Middle River Complex
Middle River, Maryland

0 37.5 75 150 Feet

N

DATE MODIFIED: 1/31/08

CREATED BY: LR

Tetra Tech, Inc.

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 excavation dewatering, if necessary and USTs.

9.2.1 Earth-Moving Activities

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

Because the proposed response action will 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 G Lot 1 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.

9.2.3 Underground Storage Tanks

This section describes permits associated with removal of USTs.

MDE OCP will be notified at least 30 days before an UST is removed using the 30-Day Written Notification, Underground Storage System Removal/Abandonment form. MDE may require completion of a Notification for Underground Storage Tanks form if it is determined necessary to properly update MDE records. If so, an amended Notification for Underground Storage Tanks form will also be submitted to the MDE OCP within 30 days after the USTs are removed.

A storage system removal permit issued by the Baltimore County Department of Permits and Development Management will be obtained before any USTs are removed.

UST removal will be performed only with the continuous on-site presence, direction, supervision, and control of an MDE-Certified Underground Storage System Technician or Remover as defined by MDE and Baltimore County. The technician or remover will have proof of certification from the MDE at all times while on site.

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. If free product or other unexpected petroleum contamination is discovered during UST removal, it will be addressed as discussed in Section 8.2.1.

Section 10
Implementation Schedule

The response action proposed in this RAP for Block G Lot 1 is anticipated to take approximately five months to complete. The response actions for the six properties that have RAPs submitted to MDE for review (Blocks B, D, E, F, G, and H) will be executed in sequence. Lockheed Martin is committed to commence 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 G Lot 1 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 timeframe
Soil Removal and Sampling	3 months after commencing work
Demobilization	Within 30 days of completion of soil removal
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 C.

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 C.

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 ($450,000) 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(l)(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: 1938, 1954, 1957, 1960, 1964, 1971, 1979, 1986, and 1989.

2. American Petroleum Institute (API), March 1996. Closure of Underground Petroleum Storage Tanks (API Recommended Practice 1604, Third Edition).

3. Bennett, R.R. and Meyer, R.R., 1952. Geology and Ground-Water Resources of the Baltimore area. Bulletin 4, State of Maryland, Department of Geology, Mines and Water Resources, Baltimore, Maryland.

4. Cassell, J.R., July 1977. Drainage Area Map – Existing Storm Water Drains, Chesapeake Park Plaza/Dark Head Cove Road; Sheet A1 of 7.

5. Earth Tech, Inc., February 2003. Draft Phase I Environmental Assessment, Chesapeake Industrial Park.

6. 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.

7. EPA, 1993. EPA Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analysis.

8. EPA, 1994. EPA Region III Modifications to National Functional Guidelines for Organic Data Review, Multi-Media, Multi-Concentration.

9. 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.

10. MDE, October 2000. 2000 Maryland Stormwater Design Manual Volumes I & II, Maryland Department of the Environment, Water Management Administration.

11. MDE, August 2001. Cleanup Standards for Soil and Groundwater, Interim Final Guidance (Update No. 1).

12. MDE, March 2006. Guidance Document, Voluntary Cleanup Program.

13. Tetra Tech, Inc. (Tetra Tech), August 2004. Historical Research Report, Lockheed Martin Middle River Complex.

14. Tetra Tech, January 2005. 2004 Phase II Environmental Site Assessment, Middle River Complex.

15. Tetra Tech, April 2005. Final Data Report, Site-Wide Phase II Investigation, Middle River Complex.

16. Tetra Tech, May 2006. Site Characterization Report, Revision 1.0, Lockheed Martin Middle River Complex.

17. Tetra Tech, December 2006. Comment Response Document No. 2, Site Characterization Report, Lockheed Martin Middle River Complex.

18. Tetra Tech, November 2007. Soil Characterization Work Plan, Lockheed Martin Middle River Complex.

APPENDIX A - SUMMARY OF DETECTED CONCENTRATIONS IN SOIL

TABLE AG-1
SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-81-SS	SB-82-SS	SB-83-SS	SB-84-SS	SB-85-SS	SB-86-SS	SB-91-SS	SB-92-SS
LABORATORY ID:	04110923-23	04110923-25	04110923-01	04110923-09	04110923-16	04112925-10	04092803-19	04092803-21
SAMPLE DATE:	11/9/2004	11/9/2004	11/2/2004	11/3/2004	11/5/2004	11/15/2004	9/27/2004	9/27/2004
LOCATION:	SB-81	SB-82	SB-83	SB-84	SB-85	SB-86	SB-91	SB-92
INORGANICS (mg/kg)								
ANTIMONY	--	--	--	--	3.9 L	--	--	--
ARSENIC	3.6	2	0.93	2.7	3	3.2	2.1	37
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	--	--	--	--	--	--	5.4	4.1
CADMIUM	--	--	--	--	14	5.7	--	--
CHROMIUM	21	21	15	19	48	30	25 J	34 J
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	14	16	12	20	45	28	15 J	14 J
LEAD	43	47	6.5	210	340	110 J	60 K	93 K
MERCURY	0.22	0.23	--	4.2	1.4	0.41	--	--
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	12	13	14	7.9	13	280 J	21 K	270 K
SELENIUM	--	--	--	--	--	--	4.7	3.7
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	64	73	41 K	93	170	290	84	120
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)								
AROCLOR-1254	--	--	--	--	--	--	--	--
AROCLOR-1260	--	--	--	--	--	410 J	780	--
PETROLEUM HYDROCARBONS (mg/kg)								
DIESEL RANGE ORGANICS	NA	NA	NA	12	NA	120 j	23	12
PETROLEUM HYDROCARBONS (ug/kg)								
GASOLINE RANGE ORGANICS	--	--	--	15000	340	--	--	--
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
2-METHYLNAPHTHALENE	--	--	--	--	--	--	260 J	--
ACENAPHTHENE	--	--	--	320 J	300 J	--	640 J	240 J
ACENAPHTHYLENE	--	--	--	--	--	--	--	--
ANTHRACENE	--	--	--	780 J	730 J	--	2300 K	950 J
BENZO(A)ANTHRACENE	91 J	--	--	3100 J	2900 J	550 J	27000 J	13000 J

TABLE AG-1
SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-81-SS	SB-82-SS	SB-83-SS	SB-84-SS	SB-85-SS	SB-86-SS	SB-91-SS	SB-92-SS
LABORATORY ID:	04110923-23	04110923-25	04110923-01	04110923-09	04110923-16	04112925-10	04092803-19	04092803-21
SAMPLE DATE:	11/9/2004	11/9/2004	11/2/2004	11/3/2004	11/5/2004	11/15/2004	9/27/2004	9/27/2004
LOCATION:	SB-81	SB-82	SB-83	SB-84	SB-85	SB-86	SB-91	SB-92
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg) (Continued)								
BENZO(A)PYRENE	110 J	--	--	3400 J	3100 J	530 J	24000 J	13000 J
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	22000 J	10000 J
BENZO(B+K)FLUORANTHENE	220 J	--	--	7200 J	6700 J	990 J	NA	NA
BENZO(G,H,I)PERYLENE	--	--	--	1600 J	1500 J	--	24000 J	15000 J
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	17000 J	12000 J
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	--	--	--	250 J	320 J	--	--	--
CHRYSENE	130 J	--	--	3600 J	3700 J	600 J	31000 J	16000 J
DIBENZO(A,H)ANTHRACENE	--	--	--	680 J	780 J	--	7200 J	4100 J
DI-N-BUTYL PHTHALATE	--	--	--	--	--	--	--	--
FLUORANTHENE	190 J	220 J	--	5900 J	5600 J	1200 J	21000 K	10000
FLUORENE	--	--	--	270 J	380 J	--	490 J	--
INDENO(1,2,3-CD)PYRENE	--	--	--	1500 J	1400 J	--	17000 J	10000 J
NAPHTHALENE	--	--	--	--	--	--	380 J	230 J
PHENANTHRENE	110 J	--	--	2800 J	3800 J	800 J	13000 K	5500
PHENOL	--	--	--	--	--	--	--	940 J
PYRENE	200 J	--	--	4600 J	6900 J	1000 J	55000 J	27000 J
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,1-DICHLOROETHANE	--	--	--	--	--	--	--	--
1,1-DICHLOROETHENE	--	--	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	--	--	--	--	--	--	--	--
2-BUTANONE	--	--	--	--	--	--	--	--
ACETONE	--	--	--	77 J	--	--	--	--
CARBON DISULFIDE	--	--	--	--	--	--	--	--
ISOPROPYLBENZENE	--	--	--	47 J	--	--	--	--
METHYLENE CHLORIDE	--	7 J	--	--	--	6 J	--	--
NAPHTHALENE	--	--	--	--	6 J	--	--	--
N-PROPYLBENZENE	--	--	--	7 J	--	--	--	--
TOLUENE	--	--	--	--	--	--	--	--
TRICHLOROETHENE	--	--	--	--	--	--	--	--

TABLE AG-1
SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-183-SS	SB-194-SS	SB-195-SS	SB-196-SS	SB-197-SS	SB-198-SS	SB-199-SS	SB-254-SS[12]
LABORATORY ID:	04110923-05	9612748007	9612634005	9612747010	9612747001	9612747007	9612747004	9612748005
SAMPLE DATE:	11/2/2004	5/11/2005	5/10/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005
LOCATION:	SB-183	SB-194	SB-195	SB-196	SB-197	SB-198	SB-199	SB-254
INORGANICS (mg/kg)								
ANTIMONY	NA	0.6 L	2	0.9 L	1 L	0.7 L	1 L	NA
ARSENIC	NA	2 B	2 B	1 B	5	2 B	3 B	NA
BARIUM	NA	34	55	22	74	39	33	NA
BERYLLIUM	NA	0.6	0.7	0.3	1.3	0.5	0.5	NA
CADMIUM	NA	0.1 B	0.2 B	0.2 B	0.3 B	0.2 B	0.1 B	NA
CHROMIUM	NA	11.2	14.7	11.4	19.8	13.1	13.8	NA
COBALT	NA	7.2	15.8	3.2	51.2	5.8	7.6	NA
COPPER	NA	6	9	5	10	7	6	NA
LEAD	NA	5	8	4	13	11	5	NA
MERCURY	NA	0.02	0.02	0.02	0.02	0.04	0.02	NA
MOLYBDENUM	NA	--	0.6 B	--	0.8 B	--	--	NA
NICKEL	NA	11	11	5	18	8	6	NA
SELENIUM	NA	--	--	--	--	--	--	NA
VANADIUM	NA	20.2	25.7	20.9	39.2	22.2	26.2	NA
ZINC	NA	26	32	16	45	23	20	NA
MISCELLANEOUS (S.U.)								
PH	NA	7.1	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)								
AROCLOR-1254	NA	--	--	--	--	12 J	--	NA
AROCLOR-1260	NA	--	--	13 J	--	--	--	NA
PETROLEUM HYDROCARBONS (mg/kg)								
DIESEL RANGE ORGANICS	NA	77.2	29.6	114	32.2	163	139	NA
PETROLEUM HYDROCARBONS (ug/kg)								
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
2-METHYLNAPHTHALENE	NA	--	--	--	--	--	--	NA
ACENAPHTHENE	NA	--	--	--	--	--	--	--
ACENAPHTHYLENE	NA	--	--	76 J	--	--	--	--
ANTHRACENE	NA	36 J	--	100	--	27 J	44 J	--
BENZO(A)ANTHRACENE	NA	335	43 J	757	56 J	117	142	44 J

TABLE AG-1
SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-183-SS	SB-194-SS	SB-195-SS	SB-196-SS	SB-197-SS	SB-198-SS	SB-199-SS	SB-254-SS[12]
LABORATORY ID:	04110923-05	9612748007	9612634005	9612747010	9612747001	9612747007	9612747004	9612748005
SAMPLE DATE:	11/2/2004	5/11/2005	5/10/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005
LOCATION:	SB-183	SB-194	SB-195	SB-196	SB-197	SB-198	SB-199	SB-254
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
BENZO(A)PYRENE	NA	382	56 J	949	59 J	154	117	53 J
BENZO(B)FLUORANTHENE	NA	314	62 J	838	39 J	111	89	42 J
BENZO(B+K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	150	--	273	51 J	92	62 J	49 J
BENZO(K)FLUORANTHENE	NA	402	--	1070	52 J	130	111	47 J
BENZOIC ACID	NA	40.9 B	174 J	49.6 B	74.4 B	80.2 B	40.9 B	NA
CARBAZOLE	NA	--	--	--	--	--	--	NA
CHRYSENE	NA	423	58 J	933	66 J	153	164	58 J
DIBENZO(A,H)ANTHRACENE	NA	50 J	--	95	--	--	--	--
DI-N-BUTYL PHTHALATE	NA	54 B	--	--	35 B	--	--	NA
FLUORANTHENE	NA	504	82 J	1140	92	212	297	63 J
FLUORENE	NA	--	--	--	--	--	21 J	--
INDENO(1,2,3-CD)PYRENE	NA	143	--	264	38 J	86	61 J	38 J
NAPHTHALENE	NA	--	--	--	--	--	--	--
PHENANTHRENE	NA	109	30 J	291	26 J	46 J	280	--
PHENOL	NA	--	--	--	--	--	--	NA
PYRENE	NA	682	91	1720	95	214	332	66 J
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,1-DICHLOROETHANE	NA	--	1 J	--	--	--	--	NA
1,1-DICHLOROETHENE	NA	--	2.5	--	--	--	--	NA
1,2,4-TRIMETHYLBENZENE	NA	--	1.2 J	--	1.5 J	--	0.83 J	NA
2-BUTANONE	NA	3.36 J	14.5	4.16 J	5.52 J	10.9	--	NA
ACETONE	NA	30.5 J	128 J	29.3 J	62.9 J	105 J	10.4 J	NA
CARBON DISULFIDE	NA	1.8 J	2.1 J	--	2.7	1.6 J	6.2	NA
ISOPROPYLBENZENE	NA	--	--	--	--	--	--	NA
METHYLENE CHLORIDE	NA	--	--	--	--	--	--	NA
NAPHTHALENE	--	--	--	--	--	--	2.9	NA
N-PROPYLBENZENE	NA	--	--	--	--	--	--	NA
TOLUENE	--	1.6 J	3.6	0.79 J	2 J	--	1.6 J	NA
TRICHLOROETHENE	NA	--	1.3 J	--	1.1 J	--	0.65 J	NA

TABLE AG-1
SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-254-SS[6]	SB-255-SS[12]	SB-255-SS[6]	SB-256-SS[12]	SB-256-SS[6]	SB-257-SS[12]	SB-257-SS[6]	SB-258-SS[12]
LABORATORY ID:	9612748004	9612634003	9612634002	9612633010	9612633009	9612633006	9612633005	9612630010
SAMPLE DATE:	5/11/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005
LOCATION:	SB-254	SB-255	SB-255	SB-256	SB-256	SB-257	SB-257	SB-258
INORGANICS (mg/kg)								
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)								
AROCLOR-1254	--	NA	--	NA	--	NA	--	NA
AROCLOR-1260	11 J	NA	8.2 J	NA	--	NA	18 J	NA
PETROLEUM HYDROCARBONS (mg/kg)								
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (ug/kg)								
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	--	--	--	--	--	--	--	--
ACENAPHTHYLENE	--	--	--	--	--	--	--	--
ANTHRACENE	--	--	51 J	--	--	--	--	--
BENZO(A)ANTHRACENE	111	--	629	--	23 J	--	66 J	--

TABLE AG-1
SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-254-SS[6]	SB-255-SS[12]	SB-255-SS[6]	SB-256-SS[12]	SB-256-SS[6]	SB-257-SS[12]	SB-257-SS[6]	SB-258-SS[12]
LABORATORY ID:	9612748004	9612634003	9612634002	9612633010	9612633009	9612633006	9612633005	9612630010
SAMPLE DATE:	5/11/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005
LOCATION:	SB-254	SB-255	SB-255	SB-256	SB-256	SB-257	SB-257	SB-258
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
BENZO(A)PYRENE	144	--	937	--	45 J	--	88	--
BENZO(B)FLUORANTHENE	128	--	688	--	39 J	--	95	--
BENZO(B+K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	44 J	--	832	--	--	--	79	--
BENZO(K)FLUORANTHENE	146	--	673	--	24 J	--	76 J	--
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	143	22 J	827	--	27 J	--	76 J	--
DIBENZO(A,H)ANTHRACENE	--	--	205	--	--	--	--	--
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	158	--	792	--	30 J	--	97	--
FLUORENE	--	--	--	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	49 J	--	578	--	--	--	123	--
NAPHTHALENE	--	--	--	--	--	--	--	--
PHENANTHRENE	--	--	192	--	--	--	26 J	--
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	185	39 J	1480	26 J	45 J	--	89	--
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
N-PROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE AG-1
SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-258-SS[6]	SB-259-SS[12]	SB-259-SS[6]	SB-260-SS[12]	SB-260-SS[6]	SB-261-SS[12]	SB-261-SS[6]
LABORATORY ID:	9612630009	9612633003	9612633002	9612630007	9612630006	9612630004	9612630003
SAMPLE DATE:	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005
LOCATION:	SB-258	SB-259	SB-259	SB-260	SB-260	SB-261	SB-261
INORGANICS (mg/kg)							
ANTIMONY	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)							
PH	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)							
AROCLOR-1254	--	NA	--	NA	--	NA	--
AROCLOR-1260	1190 J	NA	101	NA	378	NA	--
PETROLEUM HYDROCARBONS (mg/kg)							
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (ug/kg)							
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)							
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	33 J	--	--	--	--	--	--
ACENAPHTHYLENE	38 J	--	--	--	--	--	--
ANTHRACENE	119	28 J	34 J	73 J	312	--	--
BENZO(A)ANTHRACENE	696	168	255	166	1820	69 J	69 J

TABLE AG-1
SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-258-SS[6]	SB-259-SS[12]	SB-259-SS[6]	SB-260-SS[12]	SB-260-SS[6]	SB-261-SS[12]	SB-261-SS[6]
LABORATORY ID:	9612630009	9612633003	9612633002	9612630007	9612630006	9612630004	9612630003
SAMPLE DATE:	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005
LOCATION:	SB-258	SB-259	SB-259	SB-260	SB-260	SB-261	SB-261
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)							
BENZO(A)PYRENE	821 J	164	292	161	2160 J	80 J	73 J
BENZO(B)FLUORANTHENE	924 J	146	262	173	2510 J	93	91
BENZO(B+K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	175 J	131	236	56 J	393 J	40 J	--
BENZO(K)FLUORANTHENE	1010 J	169	277	173	2410 J	87	94
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	847	190	296	183	2030	79 J	69 J
DIBENZO(A,H)ANTHRACENE	57 J	76 J	88	--	158 J	--	--
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	1390	367	486	401	3290	125	137
FLUORENE	29 J	--	--	28 J	84 J	--	--
INDENO(1,2,3-CD)PYRENE	212 J	167	258	69 J	545 J	47 J	37 J
NAPHTHALENE	--	--	--	--	--	--	--
PHENANTHRENE	471	145	180	313	1180	29 J	47 J
PHENOL	NA	NA	NA	NA	NA	NA	NA
PYRENE	1340	343	554	302	3000	99	105
VOLATILE ORGANIC COMPOUNDS (ug/kg)							
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
N-PROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA

TABLE AG-1
SUMMARY OF DETECTED CONCENTRATIONS IN SURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

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.

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.

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-81-05	SB-82-05	SB-83-05	SB-84-05	SB-85-05	SB-85-10	SB-85-12	SB-86-05
LABORATORY ID:	04110923-24	04110923-26	04110923-02	04110923-10	04110923-17	04112925-14	04112925-15	04112925-11
SAMPLE DATE:	11/9/2004	11/9/2004	11/2/2004	11/3/2004	11/5/2004	11/15/2004	11/15/2004	11/15/2004
LOCATION:	SB-81	SB-82	SB-83	SB-84	SB-85	SB-85	SB-85	SB-86
INORGANICS (mg/kg)								
ANTIMONY	--	--	--	--	--	--	--	--
ARSENIC	2.5	1.2	1.9	3.4	2.2	--	0.98	0.7
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	--	--	--	--	--	3.2	--	--
CADMIUM	--	--	--	--	--	--	--	--
CHROMIUM	9.9	7.6	7.6	19	28	9.3	14	18
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	13	7	5.7	13	19	13	12	30
LEAD	4.7	4.6	9.9	4.5	11	4.1 J	15 J	9.5 J
MERCURY	--	--	--	--	--	--	--	--
NICKEL	7.3	3.4 L	9.8	--	23	46 J	26 J	20 J
SELENIUM	--	--	--	--	--	--	--	--
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	--	--	27 K	--	61	93	110	62
MISCELLANEOUS (mg/kg)								
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)								
AROCLOR-1260	--	--	--	--	--	--	--	--
PETROLEUM HYDROCARBONS (mg/kg)								
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (ug/kg)								
DIESEL RANGE ORGANICS	--	--	--	--	--	--	13000 J	--
GASOLINE RANGE ORGANICS	--	--	--	520000	240000	--	--	--
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	--	--	--	--	--	--	--	--
ACENAPHTHENE	--	--	--	--	--	--	--	--
ACENAPHTHYLENE	--	--	--	--	--	--	--	--
ANTHRACENE	--	--	--	--	--	--	--	--
BENZO(A)ANTHRACENE	--	--	--	--	--	--	--	--

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-81-05	SB-82-05	SB-83-05	SB-84-05	SB-85-05	SB-85-10	SB-85-12	SB-86-05
LABORATORY ID:	04110923-24	04110923-26	04110923-02	04110923-10	04110923-17	04112925-14	04112925-15	04112925-11
SAMPLE DATE:	11/9/2004	11/9/2004	11/2/2004	11/3/2004	11/5/2004	11/15/2004	11/15/2004	11/15/2004
LOCATION:	SB-81	SB-82	SB-83	SB-84	SB-85	SB-85	SB-85	SB-86
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)(Continued)								
BENZO(A)PYRENE	--	--	--	--	--	--	--	--
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B+K)FLUORANTHENE	--	--	--	--	--	--	--	--
BENZO(G,H,I)PERYLENE	--	--	--	--	--	--	--	--
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	--	--	--	--	--	--	--	--
CHRYSENE	--	--	--	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	--	--	--	--	--	--	--	--
DIBENZOFURAN	--	--	--	--	--	--	--	--
DI-N-BUTYL PHTHALATE	--	--	--	--	--	--	--	--
FLUORANTHENE	--	--	--	--	--	--	--	--
FLUORENE	--	--	--	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	--	--	--	--	--	--	--	--
PHENANTHRENE	--	--	--	--	--	--	--	--
PHENOL	1900	1300	--	--	--	1000 J	960 J	1100 J
PYRENE	--	--	--	--	--	--	--	--
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,1-DICHLOROETHENE	--	--	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	--	--	--	--	--	--	--	--
2-BUTANONE	--	--	--	--	--	--	--	--
ACETONE	--	--	--	--	--	--	--	--
BENZENE	--	--	--	--	--	--	--	--
CARBON DISULFIDE	--	--	--	--	--	--	--	--
ETHYLBENZENE	--	--	--	--	--	--	--	--
ISOPROPYLBENZENE	--	--	--	990 J	--	--	--	--
METHYLENE CHLORIDE	--	--	--	--	--	8 J	9 J	10 J
NAPHTHALENE	--	--	--	620 J	160 J	--	--	--
N-BUTYLBENZENE	--	--	--	850 J	--	--	--	--
N-PROPYLBENZENE	--	--	--	2200 J	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	--	--	--	--	--	--	--	--
TOTAL XYLENES	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	--	--	--	--	--	--	--	--

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-86-10	SB-86-12	SB-87-05	SB-88-05	SB-89-05	SB-90-05	SB-91-05	SB-92-04
LABORATORY ID:	04112925-12	04112925-13	04110923-14	04110923-15	04110923-18	04110923-11	04092803-20	04092803-22
SAMPLE DATE:	11/15/2004	11/15/2004	11/5/2004	11/5/2004	11/5/2004	11/3/2004	9/27/2004	9/27/2004
LOCATION:	SB-86	SB-86	SB-87	SB-88	SB-89	SB-90	SB-91	SB-92
INORGANICS (mg/kg)								
ANTIMONY	--	--	NA	NA	NA	NA	--	--
ARSENIC	0.61	--	NA	NA	NA	NA	2.4	1.4
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	--	--	NA	NA	NA	NA	--	--
CADMIUM	--	--	NA	NA	NA	NA	--	--
CHROMIUM	31	11	NA	NA	NA	NA	20 J	26 J
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	9.1	12	NA	NA	NA	NA	17 J	12 J
LEAD	5.8 J	16 J	NA	NA	NA	NA	3.3 K	5.7 K
MERCURY	--	--	NA	NA	NA	NA	--	--
NICKEL	15 J	13 J	NA	NA	NA	NA	5.9 K	10 K
SELENIUM	--	--	NA	NA	NA	NA	--	--
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	34	39	NA	NA	NA	NA	--	--
MISCELLANEOUS (mg/kg)								
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)								
AROCLOR-1260	--	--	NA	NA	NA	NA	--	--
PETROLEUM HYDROCARBONS (mg/kg)								
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (ug/kg)								
DIESEL RANGE ORGANICS	--	--	--	13000	--	--	--	--
GASOLINE RANGE ORGANICS	--	--	NA	NA	NA	NA	--	--
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	--	--	NA	NA	NA	NA	--	--
ACENAPHTHENE	--	--	NA	NA	NA	NA	--	--
ACENAPHTHYLENE	--	--	NA	NA	NA	NA	--	--
ANTHRACENE	--	--	NA	NA	NA	NA	--	--
BENZO(A)ANTHRACENE	--	47 J	NA	NA	NA	NA	--	--

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-86-10	SB-86-12	SB-87-05	SB-88-05	SB-89-05	SB-90-05	SB-91-05	SB-92-04
LABORATORY ID:	04112925-12	04112925-13	04110923-14	04110923-15	04110923-18	04110923-11	04092803-20	04092803-22
SAMPLE DATE:	11/15/2004	11/15/2004	11/5/2004	11/5/2004	11/5/2004	11/3/2004	9/27/2004	9/27/2004
LOCATION:	SB-86	SB-86	SB-87	SB-88	SB-89	SB-90	SB-91	SB-92
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)(								
BENZO(A)PYRENE	--	--	NA	NA	NA	NA	--	--
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	--	--
BENZO(B+K)FLUORANTHENE	--	74 J	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	--	--	NA	NA	NA	NA	--	--
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	--	--
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	--	--	NA	NA	NA	NA	--	--
CHRYSENE	--	51 J	NA	NA	NA	NA	--	60 J
DIBENZO(A,H)ANTHRACENE	--	--	NA	NA	NA	NA	--	--
DIBENZOFURAN	--	--	NA	NA	NA	NA	--	--
DI-N-BUTYL PHTHALATE	--	--	NA	NA	NA	NA	--	--
FLUORANTHENE	--	110 J	NA	NA	NA	NA	--	48 J
FLUORENE	--	--	NA	NA	NA	NA	--	--
INDENO(1,2,3-CD)PYRENE	--	--	NA	NA	NA	NA	--	--
PHENANTHRENE	--	89 J	NA	NA	NA	NA	--	--
PHENOL	1600 J	980 J	NA	NA	NA	NA	--	--
PYRENE	--	89 J	NA	NA	NA	NA	--	78 J
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,1-DICHLOROETHENE	--	--	NA	NA	NA	NA	--	--
1,2,4-TRIMETHYLBENZENE	--	--	NA	NA	NA	NA	--	--
2-BUTANONE	--	--	NA	NA	NA	NA	--	--
ACETONE	--	--	NA	NA	NA	NA	--	--
BENZENE	--	--	--	--	7	--	--	--
CARBON DISULFIDE	--	--	NA	NA	NA	NA	--	--
ETHYLBENZENE	--	--	--	--	100	--	--	--
ISOPROPYLBENZENE	--	--	NA	NA	NA	NA	--	--
METHYLENE CHLORIDE	10 J	11 J	NA	NA	NA	NA	--	--
NAPHTHALENE	--	--	--	270	170	--	--	--
N-BUTYLBENZENE	--	--	NA	NA	NA	NA	--	--
N-PROPYLBENZENE	--	--	NA	NA	NA	NA	--	--
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	--	--	--	4	--	--	--	--
TOTAL XYLENES	NA	NA	--	600	160	--	NA	NA
TRICHLOROETHENE	--	7 L	NA	NA	NA	NA	--	--

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-181-05	SB-182-05	SB-184-05	SB-185-05	SB-186-05	SB-187-05	SB-188-05	SB-189-05
LABORATORY ID:	04110923-03	04110923-04	04110923-06	04110923-07	04110923-08	04110923-12	04110923-13	04110923-19
SAMPLE DATE:	11/2/2004	11/2/2004	11/3/2004	11/3/2004	11/3/2004	11/5/2004	11/5/2004	11/5/2004
LOCATION:	SB-181	SB-182	SB-184	SB-185	SB-186	SB-187	SB-188	SB-189
INORGANICS (mg/kg)								
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (mg/kg)								
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)								
AROCLOR-1260	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	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (ug/kg)								
DIESEL RANGE ORGANICS	--	--	--	--	--	--	--	--
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-181-05	SB-182-05	SB-184-05	SB-185-05	SB-186-05	SB-187-05	SB-188-05	SB-189-05
LABORATORY ID:	04110923-03	04110923-04	04110923-06	04110923-07	04110923-08	04110923-12	04110923-13	04110923-19
SAMPLE DATE:	11/2/2004	11/2/2004	11/3/2004	11/3/2004	11/3/2004	11/5/2004	11/5/2004	11/5/2004
LOCATION:	SB-181	SB-182	SB-184	SB-185	SB-186	SB-187	SB-188	SB-189
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)(								
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B+K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	--	--	--	--	--	--	--	--
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	--	--	--	--	--	--	--	--
ISOPROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	--	--	--	--	--	2	--	--
N-BUTYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-PROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	--	--	--	--	--	--	--	--
TOTAL XYLENES	--	--	--	--	--	3	--	--
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-190-05	SB-191-05	SB-192-05	SB-194-05	SB-194-10	SB-195-05	SB-195-10	SB-196-05
LABORATORY ID:	04110923-20	04110923-21	04110923-22	9612748008	9612748009	9612634006	9612634007	9612748001
SAMPLE DATE:	11/9/2004	11/9/2004	11/9/2004	5/11/2005	5/11/2005	5/10/2005	5/10/2005	5/11/2005
LOCATION:	SB-190	SB-191	SB-192	SB-194	SB-194	SB-195	SB-195	SB-196
INORGANICS (mg/kg)								
ANTIMONY	NA	NA	NA	--	0.4 L	--	--	--
ARSENIC	NA	NA	NA	5	1 B	4	5	2 B
BARIUM	NA	NA	NA	3	3	21	25	18
BERYLLIUM	NA	NA	NA	0.5	0.2	0.8	0.7	0.6
CADMIUM	NA	NA	NA	0.1 B	0.08 B	0.2 B	0.2 B	0.2 B
CHROMIUM	NA	NA	NA	8.9	6.9	27.9	29.1	16.2
COBALT	NA	NA	NA	5.3	2.8	9.3	13.4	4
COPPER	NA	NA	NA	8	4	25	18	10
LEAD	NA	NA	NA	2	1 B	9	11	5
MERCURY	NA	NA	NA	0.01	0.02	0.009	0.008	0.008
NICKEL	NA	NA	NA	5	3	17	13	8
SELENIUM	NA	NA	NA	1	--	--	--	3
VANADIUM	NA	NA	NA	18.7	13.9	68.1	72.7	32.5
ZINC	NA	NA	NA	21	8	16	12	16
MISCELLANEOUS (mg/kg)								
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	5.7	7	NA	NA	NA
PESTICIDES/PCBs (ug/kg)								
AROCLOR-1260	NA	NA	NA	--	--	8.1 J	14 J	--
PETROLEUM HYDROCARBONS (mg/kg)								
DIESEL RANGE ORGANICS	NA	NA	NA	5.1 J	1.9 J	92.3	37.7	55.7
GASOLINE RANGE ORGANICS	NA	NA	NA	--	--	--	--	--
PETROLEUM HYDROCARBONS (ug/kg)								
DIESEL RANGE ORGANICS	--	--	32000	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
1-METHYLNAPHTHALENE	NA	NA	NA	--	--	--	--	--
2-METHYLNAPHTHALENE	NA	NA	NA	--	--	--	--	--
ACENAPHTHENE	NA	NA	NA	--	--	--	--	--
ACENAPHTHYLENE	NA	NA	NA	--	--	--	--	--
ANTHRACENE	NA	NA	NA	--	--	130	--	38 J
BENZO(A)ANTHRACENE	NA	NA	NA	--	--	1130	165	297

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-190-05	SB-191-05	SB-192-05	SB-194-05	SB-194-10	SB-195-05	SB-195-10	SB-196-05
LABORATORY ID:	04110923-20	04110923-21	04110923-22	9612748008	9612748009	9612634006	9612634007	9612748001
SAMPLE DATE:	11/9/2004	11/9/2004	11/9/2004	5/11/2005	5/11/2005	5/10/2005	5/10/2005	5/11/2005
LOCATION:	SB-190	SB-191	SB-192	SB-194	SB-194	SB-195	SB-195	SB-196
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)(								
BENZO(A)PYRENE	NA	NA	NA	--	--	1410	211	370
BENZO(B)FLUORANTHENE	NA	NA	NA	--	--	1270 J	191	275
BENZO(B+K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	--	--	372	66 J	182
BENZO(K)FLUORANTHENE	NA	NA	NA	--	--	1610	221	330
BENZOIC ACID	NA	NA	NA	42.3 B	52.3 B	136 J	134 J	50.8 B
CARBAZOLE	NA	NA	NA	--	--	--	--	--
CHRYSENE	NA	NA	NA	--	--	1390	197	384
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	--	--	108	--	53 J
DIBENZOFURAN	NA	NA	NA	--	--	--	--	--
DI-N-BUTYL PHTHALATE	NA	NA	NA	47 B	51 B	--	--	36 B
FLUORANTHENE	NA	NA	NA	--	--	1470	205	486
FLUORENE	NA	NA	NA	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	--	--	387	69 J	162
PHENANTHRENE	NA	NA	NA	--	--	433	51 J	111
PHENOL	NA	NA	NA	--	--	--	--	--
PYRENE	NA	NA	NA	--	--	1900	319	639
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,1-DICHLOROETHENE	NA	NA	NA	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	--	--	1.1 J	0.82 J	--
2-BUTANONE	NA	NA	NA	--	--	--	--	3.58 J
ACETONE	NA	NA	NA	8.8 J	13 J	6.8 J	3.6 J	39.5 J
BENZENE	--	--	--	--	--	--	--	--
CARBON DISULFIDE	NA	NA	NA	--	--	1.2 J	--	--
ETHYLBENZENE	3	--	--	--	--	--	--	--
ISOPROPYLBENZENE	NA	NA	NA	--	--	--	--	--
METHYLENE CHLORIDE	NA	NA	NA	--	--	--	--	--
NAPHTHALENE	140	--	2	--	--	0.62 J	--	--
N-BUTYLBENZENE	NA	NA	NA	--	--	--	--	--
N-PROPYLBENZENE	NA	NA	NA	--	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	--	--	--	--	--
TOLUENE	--	--	--	3.8	1.4 J	2.8	2 J	--
TOTAL XYLENES	19	--	--	--	--	--	--	--
TRICHLOROETHENE	NA	NA	NA	--	--	0.98 J	0.92 J	--

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-196-10	SB-197-05	SB-197-10	SB-198-05	SB-198-10	SB-199-05	SB-199-10	SB-254-SS[18]
LABORATORY ID:	9612748002	9612747002	9612747003	9612747008	9612747009	9612747005	9612747006	9612748006
SAMPLE DATE:	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005
LOCATION:	SB-196	SB-197	SB-197	SB-198	SB-198	SB-199	SB-199	SB-254
INORGANICS (mg/kg)								
ANTIMONY	0.3 L	--	--	--	--	--	0.7 L	NA
ARSENIC	1 B	5	5	5 B	6	3 B	2 B	NA
BARIUM	21	29	33	35	24	16	20	NA
BERYLLIUM	0.6	0.6	1.8	3.9	3.5	0.6	1.5	NA
CADMIUM	0.1 B	0.2 B	0.3 B	0.7 B	0.4	0.2 B	0.1 B	NA
CHROMIUM	12.5	12.2	32.1	40	35.7	16.3	21.7	NA
COBALT	2.9	68.1	14	11 B	7.6	5.6	12.1	NA
COPPER	9	11	13	25	47	11	13	NA
LEAD	4	8	12	18	11	5	4	NA
MERCURY	0.009	0.007	0.007	0.03	0.009	0.01	0.01	NA
NICKEL	5	9	25	49	35	7	22	NA
SELENIUM	--	--	--	--	--	--	--	NA
VANADIUM	20.1	25.1	46.3	52.6	59	36.7	38.1	NA
ZINC	9	21	43	145	86	15	20	NA
MISCELLANEOUS (mg/kg)								
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)								
AROCLOR-1260	--	--	--	--	--	--	--	NA
PETROLEUM HYDROCARBONS (mg/kg)								
DIESEL RANGE ORGANICS	33.8	50.2	0.84 J	12.3	5.3 J	105	17.5	NA
GASOLINE RANGE ORGANICS	--	--	--	--	--	--	--	NA
PETROLEUM HYDROCARBONS (ug/kg)								
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
1-METHYLNAPHTHALENE	--	--	--	--	--	75.7 J	--	NA
2-METHYLNAPHTHALENE	--	--	--	--	--	48 J	--	NA
ACENAPHTHENE	--	--	--	--	--	75 J	--	--
ACENAPHTHYLENE	--	--	--	--	--	45 J	--	--
ANTHRACENE	--	38 J	--	--	--	315	--	--
BENZO(A)ANTHRACENE	69 J	245	--	38 J	--	838	--	24 J

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-196-10	SB-197-05	SB-197-10	SB-198-05	SB-198-10	SB-199-05	SB-199-10	SB-254-SS[18]
LABORATORY ID:	9612748002	9612747002	9612747003	9612747008	9612747009	9612747005	9612747006	9612748006
SAMPLE DATE:	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005	5/11/2005
LOCATION:	SB-196	SB-197	SB-197	SB-198	SB-198	SB-199	SB-199	SB-254
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)(								
BENZO(A)PYRENE	82 J	249	--	51 J	--	671	--	29 J
BENZO(B)FLUORANTHENE	56 J	169	--	--	--	610	--	--
BENZO(B+K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	69 J	148	--	48 J	--	191	--	--
BENZO(K)FLUORANTHENE	67 J	235	--	50 J	--	682	--	29 J
BENZOIC ACID	56.1 B	55.7 B	67.3 B	69.8 B	54.7 B	64.8 B	70.8 B	NA
CARBAZOLE	--	--	--	--	--	51 J	--	NA
CHRYSENE	85 J	306	--	48 J	--	965	21 J	34 J
DIBENZO(A,H)ANTHRACENE	--	49 J	--	--	--	75 J	--	--
DIBENZOFURAN	--	--	--	--	--	34 J	--	NA
DI-N-BUTYL PHTHALATE	39 B	--	--	34 B	--	--	36 B	NA
FLUORANTHENE	105	424	--	49 J	--	1640	37 J	37 J
FLUORENE	--	--	--	--	--	200	--	--
INDENO(1,2,3-CD)PYRENE	50 J	134	--	--	--	198	--	--
PHENANTHRENE	--	191	--	--	--	2310	23 J	--
PHENOL	--	--	--	--	--	--	--	NA
PYRENE	121	521	--	55 J	--	1950	--	30 J
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,1-DICHLOROETHENE	--	--	0.54 J	--	--	--	--	NA
1,2,4-TRIMETHYLBENZENE	--	--	0.69 J	--	--	--	--	NA
2-BUTANONE	3.64 J	3.85 J	--	8.17 J	--	--	8.24 J	NA
ACETONE	38.5 J	51 J	7.6 J	89.6 J	12 J	8.9 J	38.4 J	NA
BENZENE	--	--	--	--	--	--	--	NA
CARBON DISULFIDE	2.1 J	0.83 J	0.68 J	0.76 J	--	1.2 J	2 J	NA
ETHYLBENZENE	--	--	--	--	--	--	--	NA
ISOPROPYLBENZENE	--	--	--	--	--	--	--	NA
METHYLENE CHLORIDE	--	--	--	--	--	--	--	NA
NAPHTHALENE	--	--	--	--	--	10.3	--	NA
N-BUTYLBENZENE	--	--	--	--	--	--	--	NA
N-PROPYLBENZENE	--	--	--	--	--	--	--	NA
TERTIARY-BUTYL ALCOHOL	--	--	7 J	--	--	6 J	--	NA
TOLUENE	3.9	1.6 J	1.2 J	--	1.2 J	4.2	1.1 J	NA
TOTAL XYLENES	--	--	--	--	--	--	--	NA
TRICHLOROETHENE	1.1 J	0.62 J	1.3 J	--	--	1.5 J	0.82 J	NA

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-255-SS[18]	SB-256-SS[18]	SB-257-SS[18]	SB-258-SS[18]	SB-259-SS[18]	SB-260-SS[18]	SB-261-SS[18]	SB-262-05
LABORATORY ID:	9612634004	9612634001	9612633007	9612633001	9612633004	9612630008	9612630005	9612625007
SAMPLE DATE:	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005
LOCATION:	SB-255	SB-256	SB-257	SB-258	SB-259	SB-260	SB-261	SB-262
INORGANICS (mg/kg)								
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (mg/kg)								
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)								
PH	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)								
AROCLOR-1260	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	NA	NA	NA	NA	NA	NA	NA	--
PETROLEUM HYDROCARBONS (ug/kg)								
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	--	--	--	--	--	386	--	NA
ACENAPHTHYLENE	--	--	--	--	--	--	564	NA
ANTHRACENE	--	--	--	--	54 J	1190	288	NA
BENZO(A)ANTHRACENE	--	--	--	--	233	4730	441	NA

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-255-SS[18]	SB-256-SS[18]	SB-257-SS[18]	SB-258-SS[18]	SB-259-SS[18]	SB-260-SS[18]	SB-261-SS[18]	SB-262-05
LABORATORY ID:	9612634004	9612634001	9612633007	9612633001	9612633004	9612630008	9612630005	9612625007
SAMPLE DATE:	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005
LOCATION:	SB-255	SB-256	SB-257	SB-258	SB-259	SB-260	SB-261	SB-262
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)(								
BENZO(A)PYRENE	--	--	--	--	247	5570 J	1600	NA
BENZO(B)FLUORANTHENE	--	--	--	--	197	6240 J	3040	NA
BENZO(B+K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	--	--	--	--	158	1250 J	737 J	NA
BENZO(K)FLUORANTHENE	--	--	--	--	247	6090 J	1710	NA
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	--	--	--	--	257	5080	2060	NA
DIBENZO(A,H)ANTHRACENE	--	--	--	--	--	577 J	208	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	--	--	--	--	550	8940	383	NA
FLUORENE	--	--	--	--	--	342 J	--	NA
INDENO(1,2,3-CD)PYRENE	--	--	--	--	205	1710 J	795	NA
PHENANTHRENE	--	--	--	--	239	4550	33 J	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	--	--	--	--	450	8150	862	NA
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	--
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	--
ISOPROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	--
N-BUTYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-PROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	--
TOTAL XYLENES	NA	NA	NA	NA	NA	NA	NA	--
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-262-10	SB-263-05	SB-263-10	SB-264-05	SB-264-10
LABORATORY ID:	9612625008	9612625009	9612625010	9612630001	9612630002
SAMPLE DATE:	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005
LOCATION:	SB-262	SB-263	SB-263	SB-264	SB-264
INORGANICS (mg/kg)					
ANTIMONY	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA
MISCELLANEOUS (mg/kg)					
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA
MISCELLANEOUS (S.U.)					
PH	NA	NA	NA	NA	NA
PESTICIDES/PCBs (ug/kg)					
AROCLOR-1260	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (mg/kg)					
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	--	--	--	176	--
PETROLEUM HYDROCARBONS (ug/kg)					
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)					
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-262-10	SB-263-05	SB-263-10	SB-264-05	SB-264-10
LABORATORY ID:	9612625008	9612625009	9612625010	9612630001	9612630002
SAMPLE DATE:	5/10/2005	5/10/2005	5/10/2005	5/10/2005	5/10/2005
LOCATION:	SB-262	SB-263	SB-263	SB-264	SB-264
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)(					
BENZO(A)PYRENE	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA
BENZO(B+K)FLUORANTHENE	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA
BENZOIC ACID	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUNDS (ug/kg)					
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA
BENZENE	--	--	--	--	--
CARBON DISULFIDE	NA	NA	NA	NA	NA
ETHYLBENZENE	--	--	--	--	--
ISOPROPYLBENZENE	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA
NAPHTHALENE	--	--	--	--	--
N-BUTYLBENZENE	NA	NA	NA	NA	NA
N-PROPYLBENZENE	NA	NA	NA	NA	NA
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	NA	NA
TOLUENE	--	--	--	--	--
TOTAL XYLENES	--	--	--	--	--
TRICHLOROETHENE	NA	NA	NA	NA	NA

TABLE AG-2
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL
BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

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.

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.

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-410-0102	SB-410-0203	SB-410-0304	SB-410-0506	SB-410-0708	SB-411-0102	SB-411-0203
LABORATORY ID:	A7J180372001	A7J180372002	A7J180372003	A7J180372004	A7J180372005	A7J180372006	A7J180372007
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-410	SB-410	SB-410	SB-410	SB-410	SB-411	SB-411
DEPTH RANGE:	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3
MISCELLANEOUS (%)							
PERCENT SOLIDS	93.3	91.2	90.2	84.5	83.9	83.9	84.5
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	12 J	10 J	--	--	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-411-0304	SB-411-0506	SB-411-0708	SB-412-0102	SB-412-0203	SB-412-0304	SB-412-0506
LABORATORY ID:	A7J180372008	A7J180372009	A7J180372010	A7J180372011	A7J180372012	A7J180372013	A7J180372014
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-411	SB-411	SB-411	SB-412	SB-412	SB-412	SB-412
DEPTH RANGE:	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6
MISCELLANEOUS (%)							
PERCENT SOLIDS	84.7	82	84.2	88.8	83.7	83.6	68.6
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	820	--	160 J	--	--	16 J
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-412-0708	SB-413-0102	SB-413-0203	SB-413-0304	SB-413-0506	SB-413-0708	SB-414-0102
LABORATORY ID:	A7J180372015	A7J180372016	A7J180372017	A7J180372018	A7J180372019	A7J180372020	A7J180357001
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-412	SB-413	SB-413	SB-413	SB-413	SB-413	SB-414
DEPTH RANGE:	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	81.7	85.1	83.7	85.5	82	81.3	95.9
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	140 J	27 J	43 J	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-414-0203	SB-414-0203DL	SB-414-0304	SB-414-0304DL	SB-414-0506	SB-414-0708	SB-415-0102
LABORATORY ID:	A7J180357002	A7J180357002	A7J180357003	A7J180357003	A7J180357004	A7J180357005	A7J180357006
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-414	SB-414	SB-414	SB-414	SB-414	SB-414	SB-415
DEPTH RANGE:	2 - 3	2 - 3	3 - 4	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	88.2	NA	86.3	NA	79.3	82.1	84.8
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	NA	160 J	NA	--	--	--	NA
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-415-0102DL	SB-415-0203	SB-415-0304	SB-415-0506	SB-415-0708	SB-416-0102	SB-416-0203
LABORATORY ID:	A7J180357006	A7J180357007	A7J180357008	A7J180357009	A7J180357010	A7J180357011	A7J180357012
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-415	SB-415	SB-415	SB-415	SB-415	SB-416	SB-416
DEPTH RANGE:	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3
MISCELLANEOUS (%)							
PERCENT SOLIDS	NA	87.8	85.4	84.5	81.9	92.5	80.5
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	3000	9.5 J	--	--	--	210 J	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-416-0304	SB-416-0506	SB-416-0708	SB-417-0102	SB-417-0102RE	SB-417-0203	SB-417-0304
LABORATORY ID:	A7J180357013	A7J180357014	A7J180357015	A7J180357016	A7J180357016	A7J180357017	A7J180357018
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-416	SB-416	SB-416	SB-417	SB-417	SB-417	SB-417
DEPTH RANGE:	3 - 4	5 - 6	7 - 8	1 - 2	1 - 2	2 - 3	3 - 4
MISCELLANEOUS (%)							
PERCENT SOLIDS	79.6	85	82.5	90.8	NA	87.8	85.7
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	NA	11 J	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-417-0506	SB-417-0708	SB-418-0102	SB-418-0203	SB-418-0304	SB-418-0506	SB-418-0708
LABORATORY ID:	A7J180357019	A7J180357020	A7J180344001	A7J180344002	A7J180344003	A7J180344004	A7J180344005
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-417	SB-417	SB-418	SB-418	SB-418	SB-418	SB-418
DEPTH RANGE:	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8
MISCELLANEOUS (%)							
PERCENT SOLIDS	83.4	80.5	91.8	91.3	91.4	86.3	85.5
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	13 J	32 J	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-419-0102	SB-419-0203	SB-419-0304	SB-419-0506	SB-419-0506RE	SB-419-0708	SB-420-0102
LABORATORY ID:	A7J180344006	A7J180344007	A7J180344008	A7J180344009	A7J180344009	A7J180344010	A7J180344011
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-419	SB-419	SB-419	SB-419	SB-419	SB-419	SB-420
DEPTH RANGE:	1 - 2	2 - 3	3 - 4	5 - 6	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	83.5	84.4	89.4	85.7	NA	89.1	93
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	43 J	--	--	NA	--	--	21 J
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-420-0203	SB-420-0304	SB-420-0506	SB-420-0708	SB-421-0102	SB-421-0203	SB-421-0304
LABORATORY ID:	A7J180344012	A7J180344013	A7J180344014	A7J180344015	A7J180344016	A7J180344017	A7J180344018
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-420	SB-420	SB-420	SB-420	SB-421	SB-421	SB-421
DEPTH RANGE:	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4
MISCELLANEOUS (%)							
PERCENT SOLIDS	91.7	92.8	88.3	83.6	82.9	84.4	83.3
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	--	10 J	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-421-0506	SB-421-0506RE	SB-421-0708	SB-422-0102	SB-422-0203	SB-422-0304	SB-422-0506
LABORATORY ID:	A7J180344019	A7J180344019	A7J180344020	A7J190296001	A7J190296002	A7J190296003	A7J190296004
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-421	SB-421	SB-421	SB-422	SB-422	SB-422	SB-422
DEPTH RANGE:	5 - 6	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6
MISCELLANEOUS (%)							
PERCENT SOLIDS	84.6	NA	83	87.7	91.4	90.2	86.7
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	NA	--	--	--	--	--	61 J
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-422-0708	SB-423-0102	SB-423-0203	SB-423-0304	SB-423-0506	SB-423-0708	SB-424-0102
LABORATORY ID:	A7J190296005	A7J190296006	A7J190296007	A7J190296008	A7J190296009	A7J190296010	A7J190296011
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-422	SB-423	SB-423	SB-423	SB-423	SB-423	SB-424
DEPTH RANGE:	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	86.7	92.2	87.9	85.8	91.3	82.6	89
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	9.9 J	18 J	--	--	--	990
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-424-0203	SB-424-0203DL	SB-424-0304	SB-424-0304DL	SB-424-0506	SB-424-0708	SB-425-0102
LABORATORY ID:	A7J190296012	A7J190296012	A7J190296013	A7J190296013	A7J190296014	A7J190296015	A7J190296016
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-424	SB-424	SB-424	SB-424	SB-424	SB-424	SB-425
DEPTH RANGE:	2 - 3	2 - 3	3 - 4	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	90.6	NA	91	NA	84.5	84.1	93.9
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	NA	4000	NA	1600	19 J	--	75 J
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-425-0203	SB-425-0304	SB-425-0506	SB-425-0708	SB-426-0102	SB-426-0203	SB-426-0304
LABORATORY ID:	A7J190296017	A7J190296018	A7J190296019	A7J190296020	A7J190322001	A7J190322002	A7J190322003
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-425	SB-425	SB-425	SB-425	SB-426	SB-426	SB-426
DEPTH RANGE:	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4
MISCELLANEOUS (%)							
PERCENT SOLIDS	92.1	89.6	86.3	84.1	85.6	84.1	90.1
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	80 J	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-426-0506	SB-426-0708	SB-427-0102	SB-427-0203	SB-427-0304	SB-427-0506	SB-427-0708
LABORATORY ID:	A7J190322004	A7J190322005	A7J190322006	A7J190322007	A7J190322008	A7J190322009	A7J190322010
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007
LOCATION:	SB-426	SB-426	SB-427	SB-427	SB-427	SB-427	SB-427
DEPTH RANGE:	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8
MISCELLANEOUS (%)							
PERCENT SOLIDS	83.5	78.5	90.1	93.3	81.7	85.8	83.6
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	340 J	960	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-428-0102	SB-428-0203	SB-428-0304	SB-428-0506	SB-428-0708	SB-429-0102	SB-429-0203
LABORATORY ID:	A7J190322011	A7J190322012	A7J190322013	A7J190322014	A7J190322015	A7J190322016	A7J190322017
SAMPLE DATE:	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/17/2007	10/18/2007	10/18/2007
LOCATION:	SB-428	SB-428	SB-428	SB-428	SB-428	SB-429	SB-429
DEPTH RANGE:	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3
MISCELLANEOUS (%)							
PERCENT SOLIDS	92.3	88	87.6	87.6	86.5	95.4	94.5
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	64 J	--	35 J	--	--	12 J	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-429-0304	SB-429-0506	SB-429-0708	SB-430-0102	SB-430-0203	SB-430-0304	SB-430-0506
LABORATORY ID:	A7J190322018	A7J190322019	A7J190322020	A7J190302001	A7J190302002	A7J190302003	A7J190302004
SAMPLE DATE:	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007
LOCATION:	SB-429	SB-429	SB-429	SB-430	SB-430	SB-430	SB-430
DEPTH RANGE:	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6
MISCELLANEOUS (%)							
PERCENT SOLIDS	92.1	90.2	86.9	91.1	92.1	93	85.3
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	2000	17 J	--	8.9 J
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-430-0708	SB-431-0102	SB-431-0203	SB-431-0304	SB-431-0506	SB-431-0708	SB-432-0102
LABORATORY ID:	A7J190302005	A7J190302006	A7J190302007	A7J190302008	A7J190302009	A7J190302010	A7J190302011
SAMPLE DATE:	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007
LOCATION:	SB-430	SB-431	SB-431	SB-431	SB-431	SB-431	SB-432
DEPTH RANGE:	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	83.1	92.1	90.5	87.2	86.1	73	92.7
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	14 J	390	93 J	8.3 J	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-432-0203	SB-432-0304	SB-432-0506	SB-432-0708	SB-433-0102	SB-433-0203	SB-433-0304
LABORATORY ID:	A7J190302012	A7J190302013	A7J190302014	A7J190302015	A7J190302016	A7J190302017	A7J190302018
SAMPLE DATE:	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007
LOCATION:	SB-432	SB-432	SB-432	SB-432	SB-433	SB-433	SB-433
DEPTH RANGE:	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4
MISCELLANEOUS (%)							
PERCENT SOLIDS	89.2	92.5	85.6	85.6	95.5	94.7	94.4
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	45 J	17 J	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-433-0506	SB-433-0708	SB-434-0102	SB-434-0203	SB-434-0304	SB-434-0506	SB-434-0708
LABORATORY ID:	A7J190302019	A7J190302020	A7J200207001	A7J200207002	A7J200207003	A7J200207004	A7J200207005
SAMPLE DATE:	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007
LOCATION:	SB-433	SB-433	SB-434	SB-434	SB-434	SB-434	SB-434
DEPTH RANGE:	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8
MISCELLANEOUS (%)							
PERCENT SOLIDS	93.7	87.4	87.2	86.5	86.5	82.6	83
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-435-0102	SB-435-0203	SB-435-0304	SB-435-0506	SB-435-0708	SB-436-0102	SB-436-0203
LABORATORY ID:	A7J200207006	A7J200207007	A7J200207008	A7J200207009	A7J200207010	A7J200207011	A7J200207012
SAMPLE DATE:	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007
LOCATION:	SB-435	SB-435	SB-435	SB-435	SB-435	SB-436	SB-436
DEPTH RANGE:	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3
MISCELLANEOUS (%)							
PERCENT SOLIDS	89.9	86.9	85	82	82.9	87	87.5
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	19 J	--	13 J	--	--	47 J	17 J
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-436-0304	SB-436-0506	SB-436-0708	SB-437-0102	SB-437-0203	SB-437-0304	SB-437-0506
LABORATORY ID:	A7J200207013	A7J200207014	A7J200207015	A7J200207016	A7J200207017	A7J200207018	A7J200207019
SAMPLE DATE:	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007
LOCATION:	SB-436	SB-436	SB-436	SB-437	SB-437	SB-437	SB-437
DEPTH RANGE:	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6
MISCELLANEOUS (%)							
PERCENT SOLIDS	90.6	88	86.2	89.8	88.6	84.8	83.6
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	9.2 J	18 J	--	230 J	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-437-0708	SB-438-0102	SB-438-0203	SB-438-0304	SB-438-0506	SB-438-0708	SB-439-0102
LABORATORY ID:	A7J200207020	A7J200208001	A7J200208002	A7J200208003	A7J200208004	A7J200208005	A7J200208006
SAMPLE DATE:	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007
LOCATION:	SB-437	SB-438	SB-438	SB-438	SB-438	SB-438	SB-439
DEPTH RANGE:	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	80.5	89.8	87.7	84.9	89.9	83.3	86.5
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	--	--	15 J
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-439-0203	SB-439-0304	SB-439-0506	SB-439-0708	SB-440-0102	SB-440-0203	SB-440-0304
LABORATORY ID:	A7J200208007	A7J200208008	A7J200208009	A7J200208010	A7J200208011	A7J200208012	A7J200208013
SAMPLE DATE:	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007	10/18/2007
LOCATION:	SB-439	SB-439	SB-439	SB-439	SB-440	SB-440	SB-440
DEPTH RANGE:	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4
MISCELLANEOUS (%)							
PERCENT SOLIDS	86.2	77.9	81.2	79.6	87.8	83.1	82.1
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-440-0506	SB-441-0102	SB-441-0203	SB-441-0304	SB-441-0506	SB-441-0708	SB-442-0102
LABORATORY ID:	A7J200208014	A7J200208015	A7J200208016	A7J200208017	A7J200208018	A7J200208019	A7J200209001
SAMPLE DATE:	10/18/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007
LOCATION:	SB-440	SB-441	SB-441	SB-441	SB-441	SB-441	SB-442
DEPTH RANGE:	5 - 6	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	75.8	89.1	87.8	88.6	77.8	85.2	84.6
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	120 J	72 J	31 J	900 J	--	15 J
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-442-0203	SB-442-0304	SB-442-0506	SB-442-0708	SB-443-0102	SB-443-0203	SB-443-0304
LABORATORY ID:	A7J200209002	A7J200209003	A7J200209004	A7J200209005	A7J200209006	A7J200209007	A7J200209008
SAMPLE DATE:	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007
LOCATION:	SB-442	SB-442	SB-442	SB-442	SB-443	SB-443	SB-443
DEPTH RANGE:	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4
MISCELLANEOUS (%)							
PERCENT SOLIDS	84.9	86.4	83.6	85.6	87.1	91.5	89.2
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	53 J	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-443-0506	SB-443-0708	SB-444-0102	SB-444-0203	SB-444-0304	SB-444-0506	SB-444-0708
LABORATORY ID:	A7J200209009	A7J200209010	A7J200209011	A7J200209012	A7J200209013	A7J200209014	A7J200209015
SAMPLE DATE:	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007
LOCATION:	SB-443	SB-443	SB-444	SB-444	SB-444	SB-444	SB-444
DEPTH RANGE:	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8
MISCELLANEOUS (%)							
PERCENT SOLIDS	85.3	83	86.7	85.9	87	79.4	79
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	8.6 J	32 J	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-445-0102	SB-445-0203	SB-445-0304	SB-445-0506	SB-445-0708	SB-446-0102	SB-446-0203
LABORATORY ID:	A7J200209016	A7J200209017	A7J200209018	A7J200209019	A7J200209020	A7J200210001	A7J200210002
SAMPLE DATE:	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007
LOCATION:	SB-445	SB-445	SB-445	SB-445	SB-445	SB-446	SB-446
DEPTH RANGE:	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3
MISCELLANEOUS (%)							
PERCENT SOLIDS	82.7	89.2	86.6	83.1	81.1	89.8	89.3
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	17 J	--	--	--	--	110 J	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-446-0304	SB-446-0506	SB-446-0708	SB-447-0102	SB-447-0203	SB-448-0102	SB-448-0203
LABORATORY ID:	A7J200210003	A7J200210004	A7J200210005	A7J200210006	A7J200210007	A7J200210008	A7J200210009
SAMPLE DATE:	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007
LOCATION:	SB-446	SB-446	SB-446	SB-447	SB-447	SB-448	SB-448
DEPTH RANGE:	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	1 - 2	2 - 3
MISCELLANEOUS (%)							
PERCENT SOLIDS	88.6	89.6	83.4	85.7	87.6	87.7	87.5
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	28 J	22 J	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-448-0304	SB-448-0506	SB-448-0708	SB-449-0102	SB-449-0203	SB-449-0304	SB-449-0506
LABORATORY ID:	A7J200210010	A7J200210011	A7J200210012	A7J200210013	A7J200210014	A7J200210015	A7J200210016
SAMPLE DATE:	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007	10/19/2007
LOCATION:	SB-448	SB-448	SB-448	SB-449	SB-449	SB-449	SB-449
DEPTH RANGE:	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6
MISCELLANEOUS (%)							
PERCENT SOLIDS	85.3	85.2	87.5	90.8	90	89.7	85
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	21 J	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-449-0708	SB-450-0102	SB-450-0203	SB-450-0304	SB-450-0506	SB-450-0708	SB-451-0102
LABORATORY ID:	A7J200210017	A7J230247001	A7J230247002	A7J230247003	A7J230247004	A7J230247005	A7J230247006
SAMPLE DATE:	10/19/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-449	SB-450	SB-450	SB-450	SB-450	SB-450	SB-451
DEPTH RANGE:	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	82.1	85.1	86.5	83.4	84	78.6	86.2
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	12 J	--	--	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-451-0203	SB-451-0304	SB-451-0506	SB-451-0708	SB-452-0102	SB-452-0203	SB-452-0304
LABORATORY ID:	A7J230247007	A7J230247008	A7J230247009	A7J230247010	A7J230247011	A7J230247012	A7J230247013
SAMPLE DATE:	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-451	SB-451	SB-451	SB-451	SB-452	SB-452	SB-452
DEPTH RANGE:	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4
MISCELLANEOUS (%)							
PERCENT SOLIDS	87.2	82.4	79.5	84.4	91.4	91.8	87.2
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	120 J	22 J	NA
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-452-0304RE	SB-452-0506	SB-452-0708	SB-453-0102	SB-453-0203	SB-453-0304	SB-453-0506
LABORATORY ID:	A7J230247013	A7J230247014	A7J230247015	A7J230247016	A7J230247017	A7J230247018	A7J230247019
SAMPLE DATE:	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-452	SB-452	SB-452	SB-453	SB-453	SB-453	SB-453
DEPTH RANGE:	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6
MISCELLANEOUS (%)							
PERCENT SOLIDS	NA	86.4	84.9	86.3	84.7	72.2	83.8
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	38 J	--	--	7.9 J	28 J	640	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-453-0708	SB-454-0102	SB-454-0203	SB-454-0304	SB-454-0506	SB-454-0708	SB-455-0102
LABORATORY ID:	A7J230247020	A7J230269001	A7J230269002	A7J230269003	A7J230269004	A7J230269005	A7J230269006
SAMPLE DATE:	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-453	SB-454	SB-454	SB-454	SB-454	SB-454	SB-455
DEPTH RANGE:	7 - 8	1 - 2	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	81.5	81.7	79.9	82	81.4	80.1	85.4
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

SAMPLE ID:	SB-455-0203	SB-455-0304	SB-455-0506	SB-455-0708	SB-456-0102	SB-456-0203	SB-456-0304
LABORATORY ID:	A7J230269007	A7J230269008	A7J230269009	A7J230269010	A7J230269011	A7J230269012	A7J230269013
SAMPLE DATE:	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-455	SB-455	SB-455	SB-455	SB-456	SB-456	SB-456
DEPTH RANGE:	2 - 3	3 - 4	5 - 6	7 - 8	1 - 2	2 - 3	3 - 4
MISCELLANEOUS (%)							
PERCENT SOLIDS	86.5	85.2	81.5	83.2	87.8	85	79.1
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	--	--	--	--	--	--
INORGANICS (mg/kg)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-456-0506	SB-456-0708	SB-457-0000	SB-457-0102	SB-458-0000	SB-458-0102	SB-459-0000
LABORATORY ID:	A7J230269014	A7J230269015	A7J230269016	A7J230269017	A7J230269018	A7J230269019	A7J250151001
SAMPLE DATE:	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-456	SB-456	SB-457	SB-457	SB-458	SB-458	SB-459
DEPTH RANGE:	5 - 6	7 - 8	S	1 - 2	S	1 - 2	S
MISCELLANEOUS (%)							
PERCENT SOLIDS	89.4	90.8	86.4	89.6	88.1	87.7	87.5
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	310 J	300 J	260 J	8.9 J	--	
INORGANICS (mg/kg)							
ARSENIC			1.4	1.6	2.3	2.4	0.91 L

SAMPLE ID:	SB-459-0102	SB-460-0000	SB-460-0102	SB-461-0000	SB-461-0102	SB-494-0000	SB-494-0102
LABORATORY ID:	A7J250151002	A7J250151003	A7J250151004	A7J250151005	A7J250151006	A7J250151007	A7J250151008
SAMPLE DATE:	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-459	SB-460	SB-460	SB-461	SB-461	SB-494	SB-494
DEPTH RANGE:	1 - 2	S	1 - 2	S	1 - 2	S	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	87.6	89.8	90.5	86.4	87.3	88.9	87.9
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE							
INORGANICS (mg/kg)							
ARSENIC	1.8 L	0.99 L	1.9 L	0.8 L	2.5 L	1.3 L	1.6 L

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-456-0506	SB-456-0708	SB-457-0000	SB-457-0102	SB-458-0000	SB-458-0102	SB-459-0000
LABORATORY ID:	A7J230269014	A7J230269015	A7J230269016	A7J230269017	A7J230269018	A7J230269019	A7J250151001
SAMPLE DATE:	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-456	SB-456	SB-457	SB-457	SB-458	SB-458	SB-459
DEPTH RANGE:	5 - 6	7 - 8	S	1 - 2	S	1 - 2	S
MISCELLANEOUS (%)							
PERCENT SOLIDS	89.4	90.8	86.4	89.6	88.1	87.7	87.5
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE	--	310 J	300 J	260 J	8.9 J	--	
INORGANICS (mg/kg)							
ARSENIC			1.4	1.6	2.3	2.4	0.91 L

SAMPLE ID:	SB-459-0102	SB-460-0000	SB-460-0102	SB-461-0000	SB-461-0102	SB-494-0000	SB-494-0102
LABORATORY ID:	A7J250151002	A7J250151003	A7J250151004	A7J250151005	A7J250151006	A7J250151007	A7J250151008
SAMPLE DATE:	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-459	SB-460	SB-460	SB-461	SB-461	SB-494	SB-494
DEPTH RANGE:	1 - 2	S	1 - 2	S	1 - 2	S	1 - 2
MISCELLANEOUS (%)							
PERCENT SOLIDS	87.6	89.8	90.5	86.4	87.3	88.9	87.9
SEMIVOLATILE SOIL (ug/kg)							
BENZO(A)PYRENE							
INORGANICS (mg/kg)							
ARSENIC	1.8 L	0.99 L	1.9 L	0.8 L	2.5 L	1.3 L	1.6 L

TABLE AG-3
SUMMARY OF DETECTED CONCENTRATIONS IN SUBSURFACE SOIL - FALL 2007 RESULTS
TAX BLOCK G LOT 1
SOIL RESPONSE ACTION PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	SB-495-0000	SB-495-0102	SB-496-0000	SB-496-0102
LABORATORY ID:	A7J250151009	A7J250151010	A7J250151011	A7J250151012
SAMPLE DATE:	10/22/2007	10/22/2007	10/22/2007	10/22/2007
LOCATION:	SB-495	SB-495	SB-496	SB-496
DEPTH RANGE:	SB-495	1-2	S	1 - 2
MISCELLANEOUS (%)				
PERCENT SOLIDS	90.6	90.9	89.8	90.3
SEMIVOLATILE SOIL (ug/kg)				
BENZO(A)PYRENE				
INORGANICS (mg/kg)				
ARSENIC	0.92 L	0.92 L	1.2 L	1.1 L

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.

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.
S - Surface sample.

Appendix B

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

Arsenic and carcinogenic polycyclic aromatic hydrocarbons (cPAH) were identified as constituents of concern (COC) in surface and subsurface soil at Block G; Aroclor 1260 was identified as a COP only in surface soil. Vanadium was identified as a COC in subsurface soil.

Arsenic in surface soil is not considered to be within background in the surface soil at Block G. 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. There is one sample location (SB-92) with an arsenic concentration (37 mg/kg) greater than 12 mg/kg (Table B-1). Arsenic meets these criteria in the subsurface soil (Table B-2).

Vanadium in surface and subsurface soil is considered to be within 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 for vanadium must be less than 55 mg/kg. Vanadium meets these criteria in the surface and subsurface soil under current existing conditions (Tables B-1 and B-2).

Although mercury was not identified as a constituent of concern at Block G, a similar approach for evaluating concentrations of these constituents is being applied. For mercury, the UCL concentration must be less than the average typical concentration (ATC) of 0.5 mg/kg. Under current conditions for mercury, the UCL in surface soil exceeds the criterion and meets the criterion in subsurface soil (Tables B-1 and 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.

In addition, soil sample boring locations must be less than the target incremental cancer risk of 1×10^{-5} and the target hazard index of 1.0. Because vanadium meets the background requirements, risks associated with exposure to vanadium are removed from the total risk at each boring. In surface soil, the target cancer risk level is exceeded primarily due to the presence of arsenic, cPAHs, and Aroclor 1260 in soil; the target

hazard index of 1.0 is exceeded primarily due to the presence of arsenic. Surface soil samples at boring locations SB-84, SB-85, SB-86, SB-91, SB-92, SB-194, and SB-196 exceed the target cancer risk levels and surface soil samples at boring location SB-84, SB-85, and SB-92 exceed the target hazard index. In subsurface soil, samples at boring locations SB-195 and SB-199 exceed the target cancer risk levels; no subsurface soil samples exceed the target hazard index. The exceedance of the risks at these locations is primarily due to the presence of cPAH. The maximum benzo[a]pyrene (BaP) concentration remaining following the virtual removal of the listed samples is 370 ug/kg. Using BaP to represent risks associated with cPAH, soil with BaP concentrations greater than 400 ug/kg should be excavated (Tables B-3 and B-4).

Sample locations with BaP concentrations greater than 400 ug/kg are targeted for excavation. These samples are shaded in the attached tables (Tables B-5 and B-6). To determine if the target UCL concentrations are attained for arsenic, vanadium, and mercury, replacement values must be included in the samples that are targeted for removal. The detection limits 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.

The UCLs were calculated using the United States Environmental Protection Agency's ProUCL software. The output of the software and the data used for the calculations are attached (Tables B-9 through B-20).

Removal of soils associated with BaP contamination coincidentally results in the attainment of cleanup standards for arsenic, mercury and Aroclor 1260. Target risks are achieved across the block.

APPENDIX B

TABLE B-1
SUMMARY OF PRE- AND POST-REMOVAL ANALYSES
BLOCK G
SURFACE SOIL

Metal	Pre-Excavation			Post-Excavation			Allowed Maximum	Allowed UCL
	Maximum	UCL	Basis of UCL	Maximum	UCL	Basis of UCL		
Arsenic	37	8.2	95% Chebyshev	5	5	Maximum	12	6
Vanadium	39	31	Student's t	3.9	32	Student's t	91	55
Mercury	4.2	3.5	99% Chebyshev	0.2	0.2	Maximum	--	0.5

APPENDIX B

TABLE B-2
SUMMARY OF PRE- AND POST-REMOVAL ANALYSES
BLOCK G
SUBSURFACE SOIL

Metal	Pre-Excavation			Post-Excavation			Allowed Maximum	Allowed UCL
	Maximum	UCL	Basis of UCL	Maximum	UCL	Basis of UCL		
Arsenic	6	3.3	Approximate Gamma	6	3.2	Approximate Gamma	12	6
Vanadium	72	51	Student's t	73	42	Student's t	91	55
Mercury	0.03	0.03	Maximum	0.03	0.03	Maximum	--	0.5

APPENDIX B

TABLE B-3
PRE- AND POST-RESPONSE ACTION RISKS
BLOCK G
SURFACE SOIL

Surface Soil Boring	Residential Risks (Pre-Response Action) (1)		Residential Risks (Pre-Response Minus Background)(2)		Residential Risks (Post-Response Action) (3)		B[a]P Concentration (ug/kg)(4)
	Cancer	Noncancer	Cancer	Noncancer	Cancer	Noncancer	
SB-81-SS	1.90E-05	0.52	1.90E-05	0.52	8.70E-06	0.36	110
SB-82-SS	1.30E-05	0.42	1.30E-05	0.42	1.90E-06	0.33	ND
SB-83-SS	1.30E-05	0.32	1.30E-05	0.32	1.70E-06	0.28	ND
SB-84-SS	1.00E-04	1.3	1.00E-04	1.3	0	0	3400
SB-85-SS	9.90E-05	1.2	9.90E-05	1.2	0	0	3100
SB-86-SS	4.40E-05	0.96	4.40E-05	0.96	0	0	530
SB-91-SS	1.10E-05	0.4	1.10E-05	0.4	0	0	24000
SB-92-SS	1.10E-04	2.3	1.10E-04	2.3	0	0	13000
SB-194-SS	9.60E-06	0.63	9.60E-06	0.09	0	0	382
SB-195-SS	2.70E-06	0.85	2.70E-06	0.17	0	0	56
SB-196-SS	2.20E-05	0.64	2.20E-05	0.09	0	0	949
SB-197-SS	1.80E-05	1.5	1.80E-05	0.44	3.40E-06	0.21	59
SB-198-SS	4.40E-06	0.68	4.40E-06	0.09	4.40E-06	0.09	154
SB-199-SS	3.80E-06	0.8	3.80E-06	0.11	0	0	117

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

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

APPENDIX B

TABLE B-3
PRE- AND POST-RESPONSE ACTION RISKS
BLOCK G
SURFACE SOIL

Surface Soil Boring	Residential Risks (Pre-Response Action) (1)		Residential Risks (Pre-Response Minus Background)(2)		Residential Risks (Post-Response Action) (3)		B[a]P Concentration (ug/kg)(4)
	Cancer	Noncancer	Cancer	Noncancer	Cancer	Noncancer	
SB-81-SS	1.90E-05	0.52	1.90E-05	0.52	8.70E-06	0.36	110
SB-82-SS	1.30E-05	0.42	1.30E-05	0.42	1.90E-06	0.33	ND
SB-83-SS	1.30E-05	0.32	1.30E-05	0.32	1.70E-06	0.28	ND
SB-84-SS	1.00E-04	1.3	1.00E-04	1.3	0	0	3400
SB-85-SS	9.90E-05	1.2	9.90E-05	1.2	0	0	3100
SB-86-SS	4.40E-05	0.96	4.40E-05	0.96	0	0	530
SB-91-SS	1.10E-05	0.4	1.10E-05	0.4	0	0	24000
SB-92-SS	1.10E-04	2.3	1.10E-04	2.3	0	0	13000
SB-194-SS	9.60E-06	0.63	9.60E-06	0.09	0	0	382
SB-195-SS	2.70E-06	0.85	2.70E-06	0.17	0	0	56
SB-196-SS	2.20E-05	0.64	2.20E-05	0.09	0	0	949
SB-197-SS	1.80E-05	1.5	1.80E-05	0.44	3.40E-06	0.21	59
SB-198-SS	4.40E-06	0.68	4.40E-06	0.09	4.40E-06	0.09	154
SB-199-SS	3.80E-06	0.8	3.80E-06	0.11	0	0	117

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

2 Soil boring location risks as identified in the Site Characterization Report (Tetra Tech, May 2006) minus risks associated with vanadium.

3 Soil boring location risks excluding those attributable to arsenic and vanadium (less than Block G-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)

APPENDIX B

TABLE B-4
PRE- AND POST-RESPONSE ACTION RISKS
BLOCK G
SUBSURFACE SOIL

Subsurface Soil Boring	Residential Risks (Pre-Response Action) (1)		Residential Risks (Pre-Response Minus Background)(2)		Residential Risks (Post-Response Action) (3)		B[a]P Concentration (ug/kg)(4)
	Cancer	Noncancer	Cancer	Noncancer	Cancer	Noncancer	
SB-81	1.70E-05	0.37	9.80E-06	0.26	9.30E-06	0.26	ND
SB-82	1.30E-05	0.31	9.50E-06	0.25	1.70E-06	0.25	ND
SB-83	1.50E-05	0.34	9.50E-06	0.25	0	0.25	ND
SB-84	2.10E-05	0.44	1.10E-05	0.28	0	0.28	ND
SB-85	1.70E-05	0.44	1.10E-05	0.33	0	0.33	ND
SB-86	1.20E-05	0.33	1.00E-05	0.29	3.30E-06	0.29	ND
SB-91	1.70E-05	0.39	1.00E-05	0.28	9.80E-06	0.28	ND
SB-92	1.40E-05	0.37	1.00E-05	0.31	1.00E-05	0.31	ND
SB-194	1.60E-05	0.79	2.00E-06	0.06	2.00E-06	0.06	ND
SB-195	4.60E-05	2.2	2.30E-05	0.09	0	0	1410
SB-196	9.30E-06	0.94	9.30E-06	0.08	0	0	370
SB-197	2.20E-05	1.4	8.00E-06	0.22	8.00E-06	0.21	249
SB-198	2.00E-05	2	3.00E-06	0.22	2.80E-06	0.19	51
SB-199	1.70E-05	1.1	1.70E-05	0.11	0	0	671

1 Soil boring location risks as identified in the Site Characterization Report (Tetra Tech, May 2006).
2 Soil boring location risks as identified in the Site Characterization Report (Tetra Tech, May 2006) minus risks associated with arsenic and vanadium.
3 Soil boring location risks excluding those attributable to arsenic and vanadium (less than Block G-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)

APPENDIX B

TABLE B-5
PRE-RESPONSE ACTION COC CONCENTRATIONS
BLOCK G
SURFACE SOIL

SAMPLE	ARSENIC		VANADIUM		MERCURY	
SB-81-SS	3.6				0.22	
SB-82-SS	2				0.23	
SB-83-SS	0.93				0.11	U
SB-84-SS	2.7				4.2	
SB-85-SS	3				1.4	
SB-86-SS	3.2				0.41	
SB-91-SS	2.1				0.1	U
SB-92-SS	37				0.11	U
SB-194-SS	2	B	20.2		0.02	
SB-195-SS	2	B	25.7		0.02	
SB-196-SS	1	B	20.9		0.02	
SB-197-SS	5		39.2		0.02	
SB-198-SS	2	B	22.2		0.02	
SB-199-SS	3	B	26.2		0.02	

APPENDIX B

TABLE B-6
PRE-RESPONSE ACTION COC CONCENTRATIONS
BLOCK G
SUBSURFACE SOIL

SAMPLE	ARSENIC		VANADIUM		MERCURY	
SB-81-05	2.5				0.11	U
SB-82-05	1.2				0.1	U
SB-83-05	1.9				0.1	U
SB-84-05	3.4				0.12	U
SB-85-05	2.2				0.11	U
SB-85-10					0.11	U
SB-85-12	0.98				0.11	U
SB-86-05	0.7				0.11	U
SB-86-10	0.61				0.11	U
SB-86-12					0.1	U
SB-91-05	2.4				0.11	U
SB-92-04	1.4				0.12	U
SB-194-05	5		18.7		0.01	
SB-194-10	1	B	13.9		0.02	
SB-195-05	4		68.1		0.009	
SB-195-10	5		72.7		0.008	
SB-196-05	2	B	32.5		0.008	
SB-196-10	1	B	20.1		0.008	
SB-197-05	5		25.1		0.007	
SB-197-10	5		46.3		0.007	
SB-198-05	5	B	52.6		0.03	
SB-198-10	6		59		0.009	
SB-199-05	3	B	36.7		0.01	
SB-199-10	2	B	38.1		0.01	

Shaded samples are those targeted for excavation.

APPENDIX B

TABLE B-7
POST-RESPONSE ACTION COC CONCENTRATIONS
BLOCK G
SURFACE SOIL

SAMPLE	ARSENIC		VANADIUM		MERCURY	
SB-81-SS	3.6				0.22	
SB-82-SS	2				0.23	
SB-83-SS	0.93				0.11	U
SB-84-SS	0.5	U			0.002	U
SB-85-SS	0.5	U			0.002	U
SB-86-SS	0.5	U			0.002	U
SB-91-SS	0.5	U			0.002	U
SB-92-SS	0.5	U			0.002	U
SB-194-SS	0.5	U	0.1	U	0.002	U
SB-195-SS	2	B	25.7		0.02	
SB-196-SS	0.5	U	0.1	U	0.002	U
SB-197-SS	5		39.2		0.02	
SB-198-SS	2	B	22.2		0.02	
SB-199-SS	3	B	26.2		0.02	

Shaded samples are those targeted for excavation.
Concentrations of excavated samples are replaced with the following detection limits:
Arsenic 0.5U
Vanadium 0.1 U
Mercury 0.002 U

APPENDIX B

TABLE B-8
POST-RESPONSE ACTION COC CONCENTRATIONS
BLOCK G
SUBSURFACE SOIL

SAMPLE	ARSENIC		VANADIUM		MERCURY	
SB-81-05	2.5				0.11	U
SB-82-05	1.2				0.1	U
SB-83-05	1.9				0.1	U
SB-84-05	3.4				0.12	U
SB-85-05	2.2				0.11	U
SB-85-10					0.11	U
SB-85-12	0.98				0.11	U
SB-86-05	0.7				0.11	U
SB-86-10	0.61				0.11	U
SB-86-12					0.1	U
SB-91-05	2.4				0.11	U
SB-92-04	1.4				0.12	U
SB-194-05	5		18.7		0.01	
SB-194-10	1	B	13.9		0.02	
SB-195-05	0.5	U	0.1	U	0.002	U
SB-195-10	5		72.7		0.008	
SB-196-05	0.5	U	0.1	U	0.002	U
SB-196-10	1	B	20.1		0.008	
SB-197-05	5		25.1		0.007	
SB-197-10	5		46.3		0.007	
SB-198-05	5	B	52.6		0.03	
SB-198-10	6		59		0.009	
SB-199-05	0.5	U	0.1	U	0.002	U
SB-199-10	2	B	38.1		0.01	

Shaded samples are those targeted for excavation.
Concentrations of excavated samples are replaced with the following detection limits:
Arsenic 0.5U
Vanadium 0.1 U
Mercury 0.002 U

APPENDIX B

TABLE B-9
PRO-UCL PRE-REMOVAL ARSENIC CONCENTRATIONS
BLOCK G
SURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SURFACE M	Variable:	ARSENIC
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	14	Shapiro-Wilk Test Statistic	0.416381
Number of Unique Samples	12	Shapiro-Wilk 5% Critical Value	0.874
Minimum	0.5	Data not normal at 5% significance level	
Maximum	37		
Mean	4.609286	95% UCL (Assuming Normal Distribution)	
Median	2.05	Student's-t UCL	9.06248
Standard Deviation	9.408784		
Variance	88.52521	Gamma Distribution Test	
Coefficient of Variation	2.041267	A-D Test Statistic	1.570646
Skewness	3.625045	A-D 5% Critical Value	0.768978
		K-S Test Statistic	0.287572
Gamma Statistics		K-S 5% Critical Value	0.237217
k hat	0.788254	Data does not follow a gamma distribution	
k star (bias corrected)	0.666961	at 5% significance level	
Theta hat	5.847465		
Theta star	6.910875	95% UCLs (Assuming Gamma Distribution)	
nu hat	22.0711	Approximate Gamma UCL	8.711474
nu star	18.67491	Adjusted Gamma UCL	9.519457
Approx.Chi Square Value (.05)	9.880992		
Adjusted Level of Significance	0.03122	Lognormal Distribution Test	
Adjusted Chi Square Value	9.042324	Shapiro-Wilk Test Statistic	0.879142
		Shapiro-Wilk 5% Critical Value	0.874
Log-transformed Statistics		Data are lognormal at 5% significance level	
Minimum of log data	-0.693147		
Maximum of log data	3.610918	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	0.773653	95% H-UCL	8.555596
Standard Deviation of log data	1.042104	95% Chebyshev (MVUE) UCL	8.209478
Variance of log data	1.08598	97.5% Chebyshev (MVUE) UCL	10.23303
		99% Chebyshev (MVUE) UCL	14.20789
		95% Non-parametric UCLs	
		CLT UCL	8.74544
		Adj-CLT UCL (Adjusted for skewness)	11.34859
		Mod-t UCL (Adjusted for skewness)	9.468519
		Jackknife UCL	9.06248
		Standard Bootstrap UCL	8.469227
		Bootstrap-t UCL	31.06438
RECOMMENDATION		Hall's Bootstrap UCL	27.0504
Data are lognormal (0.05)		Percentile Bootstrap UCL	9.323571
		BCA Bootstrap UCL	12.11429
Use 95% Chebyshev (MVUE) UCL		95% Chebyshev (Mean, Sd) UCL	15.57019
		97.5% Chebyshev (Mean, Sd) UCL	20.31298
		99% Chebyshev (Mean, Sd) UCL	29.62927

APPENDIX B

TABLE B-10
PRO-UCL PRE-REMOVAL VANADIUM CONCENTRATIONS
BLOCK G
SURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SURFACE M	Variable:	VANADIUM
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	6	Shapiro-Wilk Test Statistic	0.79125
Number of Unique Samples	6	Shapiro-Wilk 5% Critical Value	0.788
Minimum	20.2	Data are normal at 5% significance level	
Maximum	39.2		
Mean	25.73333	95% UCL (Assuming Normal Distribution)	
Median	23.95	Student's-t UCL	31.52735
Standard Deviation	7.0432		
Variance	49.60667	Gamma Distribution Test	
Coefficient of Variation	0.273699	A-D Test Statistic	0.538675
Skewness	1.816758	A-D 5% Critical Value	0.697234
		K-S Test Statistic	0.271736
Gamma Statistics		K-S 5% Critical Value	0.331789
k hat	18.88336	Data follow approximate gamma distribution	
k star (bias corrected)	9.552793	at 5% significance level	
Theta hat	1.362752		
Theta star	2.693802	95% UCLs (Assuming Gamma Distribution)	
nu hat	226.6004	Approximate Gamma UCL	32.44659
nu star	114.6335	Adjusted Gamma UCL	35.40843
Approx.Chi Square Value (.05)	90.91563		
Adjusted Level of Significance	0.01225	Lognormal Distribution Test	
Adjusted Chi Square Value	83.31074	Shapiro-Wilk Test Statistic	0.850356
		Shapiro-Wilk 5% Critical Value	0.788
Log-transformed Statistics		Data are lognormal at 5% significance level	
Minimum of log data	3.005683		
Maximum of log data	3.668677	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	3.221075	95% H-UCL	32.67588
Standard Deviation of log data	0.24368	95% Chebyshev (MVUE) UCL	36.81539
Variance of log data	0.05938	97.5% Chebyshev (MVUE) UCL	41.63349
		99% Chebyshev (MVUE) UCL	51.09772
		95% Non-parametric UCLs	
		CLT UCL	30.4629
		Adj-CLT UCL (Adjusted for skewness)	32.74165
		Mod-t UCL (Adjusted for skewness)	31.88279
		Jackknife UCL	31.52735
		Standard Bootstrap UCL	30.035
		Bootstrap-t UCL	38.56505
RECOMMENDATION		Hall's Bootstrap UCL	47.95169
Data are normal (0.05)		Percentile Bootstrap UCL	30.61667
		BCA Bootstrap UCL	31.81667
Use Student's-t UCL		95% Chebyshev (Mean, Sd) UCL	38.2668
		97.5% Chebyshev (Mean, Sd) UCL	43.69004
		99% Chebyshev (Mean, Sd) UCL	54.34295

APPENDIX B

TABLE B-11
PRO-UCL PRE-REMOVAL MERCURY CONCENTRATIONS
BLOCK G
SURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SURFACE M	Variable:	MERCURY
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	14	Shapiro-Wilk Test Statistic	0.476022
Number of Unique Samples	8	Shapiro-Wilk 5% Critical Value	0.874
Minimum	0.02	Data not normal at 5% significance level	
Maximum	4.2		
Mean	0.481429	95% UCL (Assuming Normal Distribution)	
Median	0.0525	Student's-t UCL	1.016836
Standard Deviation	1.131219		
Variance	1.279655	Gamma Distribution Test	
Coefficient of Variation	2.349712	A-D Test Statistic	1.624259
Skewness	3.182606	A-D 5% Critical Value	0.81571
		K-S Test Statistic	0.308174
Gamma Statistics		K-S 5% Critical Value	0.24519
k hat	0.384184	Data does not follow a gamma distribution	
k star (bias corrected)	0.349478	at 5% significance level	
Theta hat	1.253119		
Theta star	1.377564	95% UCLs (Assuming Gamma Distribution)	
nu hat	10.75716	Approximate Gamma UCL	1.236743
nu star	9.785388	Adjusted Gamma UCL	1.415133
Approx.Chi Square Value (.05)	3.809171		
Adjusted Level of Significance	0.03122	Lognormal Distribution Test	
Adjusted Chi Square Value	3.328992	Shapiro-Wilk Test Statistic	0.820028
		Shapiro-Wilk 5% Critical Value	0.874
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	-3.912023		
Maximum of log data	1.435085	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	-2.455183	95% H-UCL	3.265764
Standard Deviation of log data	1.768356	95% Chebyshev (MVUE) UCL	1.089396
Variance of log data	3.127084	97.5% Chebyshev (MVUE) UCL	1.419449
		99% Chebyshev (MVUE) UCL	2.067774
		95% Non-parametric UCLs	
		CLT UCL	0.978719
		Adj-CLT UCL (Adjusted for skewness)	1.253496
		Mod-t UCL (Adjusted for skewness)	1.059696
		Jackknife UCL	1.016836
		Standard Bootstrap UCL	0.959794
		Bootstrap-t UCL	4.630185
RECOMMENDATION		Hall's Bootstrap UCL	3.200769
Data are Non-parametric (0.05)		Percentile Bootstrap UCL	1.021071
		BCA Bootstrap UCL	1.284286
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL	1.799258
		97.5% Chebyshev (Mean, Sd) UCL	2.369484
		99% Chebyshev (Mean, Sd) UCL	3.489583

APPENDIX B

TABLE B-12
PRO-UCL PRE-REMOVAL ARSENIC CONCENTRATIONS
BLOCK G
SUBSURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SUBSURFA(	Variable:	ARSENIC
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	22	Shapiro-Wilk Test Statistic	0.877709
Number of Unique Samples	16	Shapiro-Wilk 5% Critical Value	0.911
Minimum	0.5	Data not normal at 5% significance level	
Maximum	6		
Mean	2.467727	95% UCL (Assuming Normal Distribution)	
Median	2.05	Student's-t UCL	3.119434
Standard Deviation	1.776427		
Variance	3.155695	Gamma Distribution Test	
Coefficient of Variation	0.719864	A-D Test Statistic	0.512593
Skewness	0.67537	A-D 5% Critical Value	0.756536
		K-S Test Statistic	0.136377
Gamma Statistics		K-S 5% Critical Value	0.188001
k hat	1.916154	Data follow approximate gamma distribution	
k star (bias corrected)	1.685163	at 5% significance level	
Theta hat	1.287854		
Theta star	1.464385	95% UCLs (Assuming Gamma Distribution)	
nu hat	84.31077	Approximate Gamma UCL	3.307782
nu star	74.14718	Adjusted Gamma UCL	3.382003
Approx.Chi Square Value (.05)	55.31652		
Adjusted Level of Significance	0.0386	Lognormal Distribution Test	
Adjusted Chi Square Value	54.10257	Shapiro-Wilk Test Statistic	0.936074
		Shapiro-Wilk 5% Critical Value	0.911
Log-transformed Statistics		Data are lognormal at 5% significance level	
Minimum of log data	-0.693147		
Maximum of log data	1.791759	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	0.620215	95% H-UCL	3.859774
Standard Deviation of log data	0.806265	95% Chebyshev (MVUE) UCL	4.588196
Variance of log data	0.650063	97.5% Chebyshev (MVUE) UCL	5.480748
		99% Chebyshev (MVUE) UCL	7.233992
		95% Non-parametric UCLs	
		CLT UCL	3.090692
		Adj-CLT UCL (Adjusted for skewness)	3.148962
		Mod-t UCL (Adjusted for skewness)	3.128523
		Jackknife UCL	3.119434
		Standard Bootstrap UCL	3.083919
		Bootstrap-t UCL	3.2167
RECOMMENDATION		Hall's Bootstrap UCL	3.116696
Assuming gamma distribution (0.05)		Percentile Bootstrap UCL	3.121818
		BCA Bootstrap UCL	3.14
Use Approximate Gamma UCL		95% Chebyshev (Mean, Sd) UCL	4.118598
		97.5% Chebyshev (Mean, Sd) UCL	4.83293
		99% Chebyshev (Mean, Sd) UCL	6.236099

APPENDIX B

TABLE B-13
PRO-UCL PRE-REMOVAL VANADIUM CONCENTRATIONS
BLOCK G
SUBSURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SUBSURFA(	Variable:	VANADIUM
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	12	Shapiro-Wilk Test Statistic	0.948563
Number of Unique Samples	12	Shapiro-Wilk 5% Critical Value	0.859
Minimum	13.9	Data are normal at 5% significance level	
Maximum	72.7		
Mean	40.31667	95% UCL (Assuming Normal Distribution)	
Median	37.4	Student's-t UCL	50.49593
Standard Deviation	19.63489		
Variance	385.5288	Gamma Distribution Test	
Coefficient of Variation	0.487017	A-D Test Statistic	0.210993
Skewness	0.333444	A-D 5% Critical Value	0.734886
		K-S Test Statistic	0.117394
Gamma Statistics		K-S 5% Critical Value	0.24628
k hat	4.24051	Data follow approximate gamma distribution	
k star (bias corrected)	3.235938	at 5% significance level	
Theta hat	9.507504		
Theta star	12.45904	95% UCLs (Assuming Gamma Distribution)	
nu hat	101.7722	Approximate Gamma UCL	53.65028
nu star	77.66251	Adjusted Gamma UCL	56.09874
Approx.Chi Square Value (.05)	58.36118		
Adjusted Level of Significance	0.02896	Lognormal Distribution Test	
Adjusted Chi Square Value	55.81398	Shapiro-Wilk Test Statistic	0.954759
		Shapiro-Wilk 5% Critical Value	0.859
Log-transformed Statistics		Data are lognormal at 5% significance level	
Minimum of log data	2.631889		
Maximum of log data	4.286341	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	3.574245	95% H-UCL	58.68614
Standard Deviation of log data	0.536726	95% Chebyshev (MVUE) UCL	68.83896
Variance of log data	0.288075	97.5% Chebyshev (MVUE) UCL	81.03687
		99% Chebyshev (MVUE) UCL	104.9973
		95% Non-parametric UCLs	
		CLT UCL	49.63987
		Adj-CLT UCL (Adjusted for skewness)	50.22284
		Mod-t UCL (Adjusted for skewness)	50.58686
		Jackknife UCL	50.49593
		Standard Bootstrap UCL	49.24375
		Bootstrap-t UCL	51.53493
RECOMMENDATION		Hall's Bootstrap UCL	49.62241
Data are normal (0.05)		Percentile Bootstrap UCL	49.48333
		BCA Bootstrap UCL	49.725
Use Student's-t UCL		95% Chebyshev (Mean, Sd) UCL	65.02336
		97.5% Chebyshev (Mean, Sd) UCL	75.71396
		99% Chebyshev (Mean, Sd) UCL	96.71359

APPENDIX B

TABLE B-14
PRO-UCL PRE-REMOVAL MERCURY CONCENTRATIONS
BLOCK G
SUBSURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SUBSURFA(	Variable:	MERCURY
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	24	Shapiro-Wilk Test Statistic	0.757159
Number of Unique Samples	9	Shapiro-Wilk 5% Critical Value	0.916
Minimum	0.007	Data not normal at 5% significance level	
Maximum	0.06		
Mean	0.032958	95% UCL (Assuming Normal Distribution)	
Median	0.04	Student's-t UCL	0.040902
Standard Deviation	0.022705		
Variance	0.000516	Gamma Distribution Test	
Coefficient of Variation	0.688902	A-D Test Statistic	2.624239
Skewness	-0.074062	A-D 5% Critical Value	0.759813
		K-S Test Statistic	0.295777
Gamma Statistics		K-S 5% Critical Value	0.180936
k hat	1.631811	Data does not follow a gamma distribution	
k star (bias corrected)	1.455612	at 5% significance level	
Theta hat	0.020197		
Theta star	0.022642	95% UCLs (Assuming Gamma Distribution)	
nu hat	78.32691	Approximate Gamma UCL	0.044604
nu star	69.86938	Adjusted Gamma UCL	0.045578
Approx.Chi Square Value (.05)	51.62695		
Adjusted Level of Significance	0.0392	Lognormal Distribution Test	
Adjusted Chi Square Value	50.52414	Shapiro-Wilk Test Statistic	0.75987
		Shapiro-Wilk 5% Critical Value	0.916
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	-4.961845		
Maximum of log data	-2.813411	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	-3.749198	95% H-UCL	0.05627
Standard Deviation of log data	0.910417	95% Chebyshev (MVUE) UCL	0.066239
Variance of log data	0.828858	97.5% Chebyshev (MVUE) UCL	0.079842
		99% Chebyshev (MVUE) UCL	0.106563
		95% Non-parametric UCLs	
		CLT UCL	0.040582
		Adj-CLT UCL (Adjusted for skewness)	0.040507
		Mod-t UCL (Adjusted for skewness)	0.04089
		Jackknife UCL	0.040902
		Standard Bootstrap UCL	0.040237
		Bootstrap-t UCL	0.040677
RECOMMENDATION		Hall's Bootstrap UCL	0.039983
Data are Non-parametric (0.05)		Percentile Bootstrap UCL	0.040542
		BCA Bootstrap UCL	0.040208
Use 95% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL	0.05316
		97.5% Chebyshev (Mean, Sd) UCL	0.061902
		99% Chebyshev (Mean, Sd) UCL	0.079073

APPENDIX B

TABLE B-15
PRO-UCL POST-REMOVAL ARSENIC CONCENTRATIONS
BLOCK G
SURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SURFACE M	Variable:	ARSENIC
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	14	Shapiro-Wilk Test Statistic	0.714725
Number of Unique Samples	7	Shapiro-Wilk 5% Critical Value	0.874
Minimum	0.25	Data not normal at 5% significance level	
Maximum	5		
Mean	1.198571	95% UCL (Assuming Normal Distribution)	
Median	0.59	Student's-t UCL	1.885711
Standard Deviation	1.451799		
Variance	2.107721	Gamma Distribution Test	
Coefficient of Variation	1.211275	A-D Test Statistic	1.165857
Skewness	1.856912	A-D 5% Critical Value	0.761105
		K-S Test Statistic	0.306017
Gamma Statistics		K-S 5% Critical Value	0.235361
k hat	0.973929	Data does not follow a gamma distribution	
k star (bias corrected)	0.812849	at 5% significance level	
Theta hat	1.230656		
Theta star	1.474532	95% UCLs (Assuming Gamma Distribution)	
nu hat	27.27	Approximate Gamma UCL	2.113055
nu star	22.75976	Adjusted Gamma UCL	2.285746
Approx.Chi Square Value (.05)	12.90984		
Adjusted Level of Significance	0.03122	Lognormal Distribution Test	
Adjusted Chi Square Value	11.93449	Shapiro-Wilk Test Statistic	0.811485
		Shapiro-Wilk 5% Critical Value	0.874
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	-1.386294		
Maximum of log data	1.609438	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	-0.413403	95% H-UCL	3.052537
Standard Deviation of log data	1.107362	95% Chebyshev (MVUE) UCL	2.767506
Variance of log data	1.22625	97.5% Chebyshev (MVUE) UCL	3.469246
		99% Chebyshev (MVUE) UCL	4.847677
		95% Non-parametric UCLs	
		CLT UCL	1.836791
		Adj-CLT UCL (Adjusted for skewness)	2.042545
		Mod-t UCL (Adjusted for skewness)	1.917804
		Jackknife UCL	1.885711
		Standard Bootstrap UCL	1.826698
		Bootstrap-t UCL	2.588051
RECOMMENDATION		Hall's Bootstrap UCL	4.874262
Data are Non-parametric (0.05)		Percentile Bootstrap UCL	1.887857
		BCA Bootstrap UCL	2.045
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL	2.889866
		97.5% Chebyshev (Mean, Sd) UCL	3.621691
		99% Chebyshev (Mean, Sd) UCL	5.059219
Recommended UCL exceeds the maximum observation			
Consider using 95% or 97.5% Chebyshev (Mean, Sd) UCL			

APPENDIX B

TABLE B-16
PRO-UCL POST-REMOVAL VANADIUM CONCENTRATIONS
BLOCK G
SURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SURFACE M	Variable:	VANADIUM
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	6	Shapiro-Wilk Test Statistic	0.872728
Number of Unique Samples	5	Shapiro-Wilk 5% Critical Value	0.788
Minimum	0.05	Data are normal at 5% significance level	
Maximum	39.2		
Mean	18.9	95% UCL (Assuming Normal Distribution)	
Median	23.95	Student's-t UCL	31.81914
Standard Deviation	15.70449		
Variance	246.631	Gamma Distribution Test	
Coefficient of Variation	0.830925	A-D Test Statistic	1.045394
Skewness	-0.332348	A-D 5% Critical Value	0.753737
		K-S Test Statistic	0.404373
Gamma Statistics		K-S 5% Critical Value	0.353349
k hat	0.384175	Data does not follow a gamma distribution	
k star (bias corrected)	0.303198	at 5% significance level	
Theta hat	49.19639		
Theta star	62.33542	95% UCLs (Assuming Gamma Distribution)	
nu hat	4.610095	Approximate Gamma UCL	116.0368
nu star	3.638381	Adjusted Gamma UCL	255.229
Approx.Chi Square Value (.05)	0.592617		
Adjusted Level of Significance	0.01225	Lognormal Distribution Test	
Adjusted Chi Square Value	0.269426	Shapiro-Wilk Test Statistic	0.686294
		Shapiro-Wilk 5% Critical Value	0.788
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	-2.995732		
Maximum of log data	3.668677	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	1.214926	95% H-UCL	1.25E+11
Standard Deviation of log data	3.267023	95% Chebyshev (MVUE) UCL	378.5953
Variance of log data	10.67344	97.5% Chebyshev (MVUE) UCL	509.4921
		99% Chebyshev (MVUE) UCL	766.6136
		95% Non-parametric UCLs	
		CLT UCL	29.4457
		Adj-CLT UCL (Adjusted for skewness)	28.51621
		Mod-t UCL (Adjusted for skewness)	31.67416
		Jackknife UCL	31.81914
		Standard Bootstrap UCL	28.7036
		Bootstrap-t UCL	30.89551
RECOMMENDATION		Hall's Bootstrap UCL	27.01967
Data are normal (0.05)		Percentile Bootstrap UCL	28.25833
		BCA Bootstrap UCL	26.86667
Use Student's-t UCL		95% Chebyshev (Mean, Sd) UCL	46.84634
		97.5% Chebyshev (Mean, Sd) UCL	58.93875
		99% Chebyshev (Mean, Sd) UCL	82.69194

APPENDIX B

TABLE B-17
PRO-UCL POST-REMOVAL MERCURY CONCENTRATIONS
BLOCK G
SURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SURFACE M	Variable:	MERCURY
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	14	Shapiro-Wilk Test Statistic	0.565102
Number of Unique Samples	5	Shapiro-Wilk 5% Critical Value	0.874
Minimum	0.001	Data not normal at 5% significance level	
Maximum	0.23		
Mean	0.042286	95% UCL (Assuming Normal Distribution)	
Median	0.0105	Student's-t UCL	0.079623
Standard Deviation	0.078886		
Variance	0.006223	Gamma Distribution Test	
Coefficient of Variation	1.865546	A-D Test Statistic	1.360419
Skewness	2.137483	A-D 5% Critical Value	0.819377
		K-S Test Statistic	0.302284
Gamma Statistics		K-S 5% Critical Value	0.245778
k hat	0.365233	Data does not follow a gamma distribution	
k star (bias corrected)	0.334588	at 5% significance level	
Theta hat	0.115777		
Theta star	0.126381	95% UCLs (Assuming Gamma Distribution)	
nu hat	10.22653	Approximate Gamma UCL	0.111504
nu star	9.368463	Adjusted Gamma UCL	0.128098
Approx.Chi Square Value (.05)	3.552793		
Adjusted Level of Significance	0.03122	Lognormal Distribution Test	
Adjusted Chi Square Value	3.092562	Shapiro-Wilk Test Statistic	0.787991
		Shapiro-Wilk 5% Critical Value	0.874
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	-6.907755		
Maximum of log data	-1.469676	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	-4.9919	95% H-UCL	1.257311
Standard Deviation of log data	2.134574	95% Chebyshev (MVUE) UCL	0.170063
Variance of log data	4.556407	97.5% Chebyshev (MVUE) UCL	0.224247
		99% Chebyshev (MVUE) UCL	0.33068
		95% Non-parametric UCLs	
		CLT UCL	0.076964
		Adj-CLT UCL (Adjusted for skewness)	0.089834
		Mod-t UCL (Adjusted for skewness)	0.08163
		Jackknife UCL	0.079623
		Standard Bootstrap UCL	0.076274
		Bootstrap-t UCL	0.20438
RECOMMENDATION		Hall's Bootstrap UCL	0.248572
Data are Non-parametric (0.05)		Percentile Bootstrap UCL	0.077071
		BCA Bootstrap UCL	0.089286
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL	0.134185
		97.5% Chebyshev (Mean, Sd) UCL	0.17395
		99% Chebyshev (Mean, Sd) UCL	0.25206
Recommended UCL exceeds the maximum observation			
Consider using 95% or 97.5% Chebyshev (Mean, Sd) UCL			

APPENDIX B

TABLE B-18
PRO-UCL POST-REMOVAL ARSENIC CONCENTRATIONS
BLOCK G
SUBSURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SUBSURFA	Variable:	ARSENIC
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	22	Shapiro-Wilk Test Statistic	0.860615
Number of Unique Samples	15	Shapiro-Wilk 5% Critical Value	0.911
Minimum	0.25	Data not normal at 5% significance level	
Maximum	6		
Mean	2.206364	95% UCL (Assuming Normal Distribution)	
Median	1.65	Student's-t UCL	2.89542
Standard Deviation	1.878235		
Variance	3.527767	Gamma Distribution Test	
Coefficient of Variation	0.851281	A-D Test Statistic	0.474592
Skewness	0.778741	A-D 5% Critical Value	0.764192
		K-S Test Statistic	0.138057
Gamma Statistics		K-S 5% Critical Value	0.189544
k hat	1.273071	Data follow approximate gamma distribution	
k star (bias corrected)	1.129773	at 5% significance level	
Theta hat	1.733104		
Theta star	1.952926	95% UCLs (Assuming Gamma Distribution)	
nu hat	56.01511	Approximate Gamma UCL	3.177017
nu star	49.71002	Adjusted Gamma UCL	3.266417
Approx.Chi Square Value (.05)	34.52244		
Adjusted Level of Significance	0.0386	Lognormal Distribution Test	
Adjusted Chi Square Value	33.57758	Shapiro-Wilk Test Statistic	0.927072
		Shapiro-Wilk 5% Critical Value	0.911
Log-transformed Statistics		Data are lognormal at 5% significance level	
Minimum of log data	-1.386294		
Maximum of log data	1.791759	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	0.349731	95% H-UCL	4.475042
Standard Deviation of log data	1.048862	95% Chebyshev (MVUE) UCL	4.996745
Variance of log data	1.100111	97.5% Chebyshev (MVUE) UCL	6.132791
		99% Chebyshev (MVUE) UCL	8.364335
		95% Non-parametric UCLs	
		CLT UCL	2.865031
		Adj-CLT UCL (Adjusted for skewness)	2.93607
		Mod-t UCL (Adjusted for skewness)	2.9065
		Jackknife UCL	2.89542
		Standard Bootstrap UCL	2.849611
		Bootstrap-t UCL	2.995201
RECOMMENDATION		Hall's Bootstrap UCL	2.938418
Assuming gamma distribution (0.05)		Percentile Bootstrap UCL	2.860455
		BCA Bootstrap UCL	2.937273
Use Approximate Gamma UCL		95% Chebyshev (Mean, Sd) UCL	3.951846
		97.5% Chebyshev (Mean, Sd) UCL	4.707117
		99% Chebyshev (Mean, Sd) UCL	6.190702

APPENDIX B

TABLE B-19
PRO-UCL POST-REMOVAL VANADIUM CONCENTRATIONS
BLOCK G
SUBSURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SUBSURFA(	Variable:	VANADIUM
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	12	Shapiro-Wilk Test Statistic	0.927712
Number of Unique Samples	10	Shapiro-Wilk 5% Critical Value	0.859
Minimum	0.05	Data are normal at 5% significance level	
Maximum	72.7		
Mean	28.8875	95% UCL (Assuming Normal Distribution)	
Median	22.6	Student's-t UCL	41.67398
Standard Deviation	24.66397		
Variance	608.3114	Gamma Distribution Test	
Coefficient of Variation	0.853794	A-D Test Statistic	1.291691
Skewness	0.390445	A-D 5% Critical Value	0.796958
		K-S Test Statistic	0.286226
Gamma Statistics		K-S 5% Critical Value	0.260741
k hat	0.438164	Data does not follow a gamma distribution	
k star (bias corrected)	0.384178	at 5% significance level	
Theta hat	65.92858		
Theta star	75.19297	95% UCLs (Assuming Gamma Distribution)	
nu hat	10.51592	Approximate Gamma UCL	76.94287
nu star	9.220277	Adjusted Gamma UCL	90.48073
Approx.Chi Square Value (.05)	3.461669		
Adjusted Level of Significance	0.02896	Lognormal Distribution Test	
Adjusted Chi Square Value	2.943729	Shapiro-Wilk Test Statistic	0.692576
		Shapiro-Wilk 5% Critical Value	0.859
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	-2.995732		
Maximum of log data	4.286341	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	1.88323	95% H-UCL	351395.7
Standard Deviation of log data	2.983599	95% Chebyshev (MVUE) UCL	825.8936
Variance of log data	8.901864	97.5% Chebyshev (MVUE) UCL	1106.362
		99% Chebyshev (MVUE) UCL	1657.288
		95% Non-parametric UCLs	
		CLT UCL	40.59865
		Adj-CLT UCL (Adjusted for skewness)	41.45613
		Mod-t UCL (Adjusted for skewness)	41.80772
		Jackknife UCL	41.67398
		Standard Bootstrap UCL	40.13452
		Bootstrap-t UCL	42.84325
RECOMMENDATION		Hall's Bootstrap UCL	41.0725
Data are normal (0.05)		Percentile Bootstrap UCL	39.85833
		BCA Bootstrap UCL	41.3625
Use Student's-t UCL		95% Chebyshev (Mean, Sd) UCL	59.92232
		97.5% Chebyshev (Mean, Sd) UCL	73.3511
		99% Chebyshev (Mean, Sd) UCL	99.72936

APPENDIX B

TABLE B-20
PRO-UCL POST-REMOVAL MERCURY CONCENTRATIONS
BLOCK G
SUBSURFACE SOIL

Data File:	BLOCK G PRE POST AS V HG SUBSURFA	Variable:	MERCURY
Raw Statistics		Normal Distribution Test	
Number of Valid Samples	24	Shapiro-Wilk Test Statistic	0.787683
Number of Unique Samples	10	Shapiro-Wilk 5% Critical Value	0.916
Minimum	0.001	Data not normal at 5% significance level	
Maximum	0.06		
Mean	0.031958	95% UCL (Assuming Normal Distribution)	
Median	0.04	Student's-t UCL	0.040331
Standard Deviation	0.023932		
Variance	0.000573	Gamma Distribution Test	
Coefficient of Variation	0.748848	A-D Test Statistic	1.890997
Skewness	-0.121995	A-D 5% Critical Value	0.772082
		K-S Test Statistic	0.290721
Gamma Statistics		K-S 5% Critical Value	0.183033
k hat	0.995704	Data does not follow a gamma distribution	
k star (bias corrected)	0.899018	at 5% significance level	
Theta hat	0.032096		
Theta star	0.035548	95% UCLs (Assuming Gamma Distribution)	
nu hat	47.79378	Approximate Gamma UCL	0.047407
nu star	43.15289	Adjusted Gamma UCL	0.048769
Approx.Chi Square Value (.05)	29.09053		
Adjusted Level of Significance	0.0392	Lognormal Distribution Test	
Adjusted Chi Square Value	28.27829	Shapiro-Wilk Test Statistic	0.787238
		Shapiro-Wilk 5% Critical Value	0.916
Log-transformed Statistics		Data not lognormal at 5% significance level	
Minimum of log data	-6.907755		
Maximum of log data	-2.813411	95% UCLs (Assuming Lognormal Distribution	
Mean of log data	-4.023334	95% H-UCL	0.114254
Standard Deviation of log data	1.388904	95% Chebyshev (MVUE) UCL	0.108962
Variance of log data	1.929054	97.5% Chebyshev (MVUE) UCL	0.137201
		99% Chebyshev (MVUE) UCL	0.19267
		95% Non-parametric UCLs	
		CLT UCL	0.039994
		Adj-CLT UCL (Adjusted for skewness)	0.039864
		Mod-t UCL (Adjusted for skewness)	0.04031
		Jackknife UCL	0.040331
		Standard Bootstrap UCL	0.03999
		Bootstrap-t UCL	0.040109
RECOMMENDATION		Hall's Bootstrap UCL	0.039928
Data are Non-parametric (0.05)		Percentile Bootstrap UCL	0.039583
		BCA Bootstrap UCL	0.039417
Use 99% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL	0.053252
		97.5% Chebyshev (Mean, Sd) UCL	0.062466
		99% Chebyshev (Mean, Sd) UCL	0.080564
Recommended UCL exceeds the maximum observation			
Consider using 95% or 97.5% Chebyshev (Mean, Sd) UCL			

APPENDIX C – FIELD DOCUMENTATION NOTES AND BORINGS LOGS

TAX

BLOCK G

2007- SOIL BORINGS

410

MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MK
Project No.:

Sample ID No.: SB-410
Sample Location: Block G
Sampled By: ICSK
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	0935	1-2	See logs	
	0937	2-3		
	0939	3-4		
Monitor Readings (Range in ppm): 0	0941	5-6		
	0943	7-8		
	~~0945~~			

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1 x 4oz jar sample		

OBSERVATIONS / NOTES:

Samples SB-410 -0102
-0203
-0304
-0506
-0708

MAP:

Circle if Applicable:

MS/MSD 0102

Duplicate ID No.:

Signature(s):

411

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-411-
Sample Location: Block G
Sampled By: ICSL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17
Method:
Monitor Readings (Range in ppm): 0

Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
0948	1-2	see logs	
0950	2-3		
0952	3-4		
0954	5-6		
0956	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a)pyrene	1 x 4 oz per sample		

OBSERVATIONS / NOTES:

0102
0203
0304
0506
0708

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

412

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-410
Sample Location: Block C
Sampled By: KSH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: AM	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1000	1-2	See logs	
	1002	2-3		
Monitor Readings (Range in ppm): 0	1004	3-4		
	1006	5-6		
	1008	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (g) perylene	1x4oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

413

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-413
Sample Location: Block G
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: NM	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1030	1-2	See logs	
	1032	2-3		
	1034	3-4		
Monitor Readings (Range in ppm): 0	1036	5-6		
	1038	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4 oz jar		

OBSERVATIONS / NOTES:

SB-413 - 0102
- 0203
- 0304
- 0506
- 0709

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC GR
Project No.:

Sample ID No.: SB-414
Sample Location: Block 6
Sampled By: KJK
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: N/A	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 11/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1050	1-2	see Logs	
Method:	1052	2-3		
	1054	3-4		
Monitor Readings	1056	4-6		
(Range in ppm):	1058	7-8		
1.2 to 9.7				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a) pyrene	1x 4oz jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

415
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-415-
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: NA			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/17	1115	1-2	see logs	
Method:	1117	2-3		
	1119	3-4		
Monitor Readings	1121	~~7-5~~ 5-6		MS/SD
(Range in ppm):	1123	7-8		
1.2 to 9.4 @ 38 inches				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a) pyrene	1 x 4 oz jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
-0506	

Signature(s):

12+8 per COC
330-966-5725
Pat Omera

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MK
Project No.:

Sample ID No.: SB-416
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: N/A			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1225	1-2	see	Logs
Method:	1227	2-3	↓	
	1229	3-4		
Monitor Readings	1231	5-6		
(Range in ppm):	1233	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1 x 4oz jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-417
Sample Location: Block G
Sampled By: KSK
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1235	1-2	See	Logs
Method:	1237	2-3		
	1239	3-4		
Monitor Readings	1241	5-6		
(Range in ppm):	1243	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4 oz jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

418

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MA
Project No.:

Sample ID No.: SB-418
Sample Location: Block 6
Sampled By: KSL
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17
Method:
Monitor Readings (Range in ppm): 0

Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
1547	1-2	See logs	
1549	2-3		
1551	3-4		
1553	5-6		
1555	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1 x 4oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

Sample ID No.: SR-419
Sample Location: Block G
Sampled By: JCSLF
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1335	1-2	See log	
	1337	2-3	↓	
	1339	3-4		
Monitor Readings (Range in ppm): 0	1341	5-6		
	1343	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1x4 oz jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

420
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB420
Sample Location: Block G
Sampled By: NAM
C.O.C. No.:

[X] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: N/A	→		
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/17	1402	1-2	See	Log
Method:	1404	2-3	↓	
	1406	3-4		
Monitor Readings	1408	5-6		
(Range in ppm):	1410	7-8		
Q				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a)pyrene	4oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

0203

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-421
Sample Location: Block G
Sampled By: KJK
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1422	1-2	See logs	
	1424	2-3	↓	
	1426	3-4		
Monitor Readings	1428	5-6	↓	
(Range in ppm):	1430	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1 x 4oz jar sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

422

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

Sample ID No.: SA-422
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17
Method:
Monitor Readings (Range in ppm): 0

Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
1432	1-2	See log	
1434	2-3	↓	
1436	3-4		
1438	5-6		
1440	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4 oz per	sample	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC
Project No.:

Sample ID No.: SB-423
Sample Location: Block G
Sampled By: ICSH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1447	1-2	see	logs
	1449	2-3		
	1451	3-4		
Monitor Readings	1453	5-6		
(Range in ppm):	1455	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1 x 4oz per	sample	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

424

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 424
Sample Location: Block G
Sampled By: VAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method: VA			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/17	15:07	1-2	See Log	
Method:	15:09	2-3		
	15:11	3-4		
Monitor Readings	15:13	5-6		
(Range in ppm):	15:15	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a) pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

4/25
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 425
Sample Location: Block G
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: / Time: / Method: / Monitor Reading (ppm):	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
N/A →			

COMPOSITE SAMPLE DATA:

Date: 10/17
Method:
Monitor Readings (Range in ppm): 0

Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
15:40	1-2	See	log
15:42	2-3	↓	
15:44	3-4		
15:46	5-6		
15:48	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo (a) Pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:
MS/MSD
0203

Duplicate ID No.:

Signature(s):

426

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 426
Sample Location: Block G
Sampled By: NAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	→		
Method: N/A			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/17	16:12	1-2	See	log
Method:	16:14	2-3		
	16:16	3-4	↓	
Monitor Readings	16:18	5-6		
(Range in ppm):	16:20	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo (a) pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

427

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-427
Sample Location: Block C
Sampled By: RSK
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1625	1-2	see log	
Method:	1627	2-3		
	1629	3-4		
Monitor Readings	1631	5-6		
(Range in ppm):	1633	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1 x 4oz jar per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-428
Sample Location: Block C
Sampled By: KSH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/17	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1641	1-7	See logs	
Method:	1643	2-3		
	1645	3-4		
Monitor Readings	1647	5-6		
(Range in ppm):	1649	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1-4oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

429
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 429
Sample Location: Block G
Sampled By: NMM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA →			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/18	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	7:35	1-2	See log ↓	
	7:37	2-3		
	7:39	3-4		
Monitor Readings	7:41	5-6		
(Range in ppm):	7:43	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a)pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:
MS/MSD
0203

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 430
Sample Location: Block G
Sampled By: NAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method: NA →			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/12	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	8:15	1-2	See log	
	8:17	2-3	↓	
	8:19	3-4		
Monitor Readings	8:21	5-6		
(Range in ppm):	8:23	7-8		
Q				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a) pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

431

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 431
Sample Location: Block G
Sampled By: NAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA →			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/18	8:40	1-2	See Log →	
Method:	8:42	2-3		
	8:44	3-4	↓	
Monitor Readings	8:46	5-6		
(Range in ppm):	8:48	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a)pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page ___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 432
Sample Location: Block G
Sampled By: NAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA →			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/18	9:15	1-2	See Log	
Method:	9:17	2-3	↓	
	9:19	3-4		
Monitor Readings	9:21	5-6		
(Range in ppm):	9:23	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo (a) pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

433
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: _____
Project No.: _____

Sample ID No.: SB 433
Sample Location: Block G
Sampled By: _____
C.O.C. No.: _____

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other: _____
[] QA Sample Type: _____

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method: NA →			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/18	9:55	1-2		
Method:	9:57	2-3		
	9:59	3-4		
Monitor Readings	10:01	5-6		
(Range in ppm):	10:03	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a) pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD
0102

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page ___ of ___

Project Site Name: LMC MZ
Project No.:

Sample ID No.: SB 434
Sample Location: Block G
Sampled By: NAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method: NA			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/18	10:28	1-2	See Log	
Method:	10:30	2-3		
	10:32	3-4		
Monitor Readings	10:34	5-6		
(Range in ppm):	10:36	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a) pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

435

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page ___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 435
Sample Location: Block G
Sampled By: NAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
6/18	15:25	1-2	see Log	
Method:	15:27	2-3		
	15:29	3-4	↓	
Monitor Readings	15:31	5-6		
(Range in ppm):	15:33	7-8		
Ø				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo (a) pyrene	4oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: CMC MA
Project No.:

Sample ID No.: SB-436
Sample Location: Block G
Sampled By: GSF
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: N/A			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/19
Method:
Monitor Readings (Range in ppm): 0

Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
~~0916~~		See logs	
1555	0-2		
1557	2-3		
1559	3-4		
1601	5-6		
1603	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1x4oz jar	Sample	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

437 MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MW
Project No.:

Sample ID No.: SB-437
Sample Location: Block G
Sampled By: ESH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/18	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1610	1-2	see logs	
	1612	2-3	↓	
	1614	3-4		
Monitor Readings (Range in ppm): 0	1616	5-6		
	1618	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~base~~			
benzo(a)pyrene	1 x 4 oz		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD 0506

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 438
Sample Location: Block G
Sampled By: NAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA →			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/18	16:30	1-2	See logs	
Method:	16:32	2-3		
	16:34	3-4		
Monitor Readings	16:36	5-6		
(Range in ppm):	16:38	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a)pyrene	4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

439

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-439
Sample Location: Block G
Sampled By: KSL
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/18	1638	1-2	see logs	
Method:	1639	2-3		
	1641	3-4		
Monitor Readings	1643	5-6		
(Range in ppm):	1645	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1 x 4 oz per	sample	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

440

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-440
Sample Location: Block 6
Sampled By: KCH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: NA			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/18	1647	1-2	see logs	
Method:	1649	2-3		
	1651	3-4		
Monitor Readings	1653	5-6		
(Range in ppm):	1655	7-8		Refusal @ 6 ft
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
barres (a) pyrene	~~see logs~~		
	1 x 4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Y41
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: CMC MR
Project No.:

Sample ID No.: SB 441
Sample Location: Block G
Sampled By: NAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA	→		
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/19	0935	1-2	See logs	
Method:	0937	2-3	↓	
	0934	3-4		
Monitor Readings	0941	5-6		
(Range in ppm):	0943	7-8		
Q				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a)Pyrene	1x 4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:
MS/MSD 0708
Duplicate ID No.:

Signature(s):

442

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-442
Sample Location: North C
Sampled By: ICF
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/19	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1009	0-1-2	See logs	
	1011	2-3		
	1013	3-4		
Monitor Readings	1015	5-6		
(Range in ppm):	1017	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
* benzo (a) pyrene	1 x 4oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

443

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

Sample ID No.: SS-443
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/19	1020	1-2	See 1075	
Method:	1022	2-3		
	1024	3-4		
Monitor Readings	1026	5-6		
(Range in ppm):	1028	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4oz		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

444

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MA
Project No.:

Sample ID No.: SB-444
Sample Location: Block G
Sampled By: KSF
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/14	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1030	1-2	See logs	
	1034	2-3		
	1034	3-4		
Monitor Readings	1036	5-6		
(Range in ppm):	1038	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4oz jar	sample	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

445
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-445
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: AM	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/19	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1045	1-2	Same log 5	
	1047	2-3		
	1049	3-4		
Monitor Readings	1051	5-6		
(Range in ppm):	1053	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
0304	

Signature(s):

446

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-446
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: NA			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/19	1100	1-2	See logs	
Method:	1102	2-3	↓	
	1104	3-4 ~~Retusal~~		
Monitor Readings	1106	~~4-5~~ 5-6		
(Range in ppm):	1107	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

447

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: ~~Tetra Tech~~ LMC MA
Project No.:

Sample ID No.: SB-447
Sample Location: Block G
Sampled By: ICSV
C.O.C. No.:

[] Surface Soil
[X] ~~Subsurface Soil~~
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: NA	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/19	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1111	1-2	see logs	
	1113	2-3		
Monitor Readings (Range in ppm): 0		Refusal @ 3ft		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4 oz per	sample	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

448

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-448
Sample Location: Block B
Sampled By: KSL
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: N/A	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/19	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1120	1-2	see logs	
	1122	2-3		
	1124	3-4		
Monitor Readings	1126	5-6		
(Range in ppm):	1128	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo(a)pyrene	1 x 4 oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

449
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MK
Project No.:

Sample ID No.: SB-449
Sample Location:
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/14	1137	1-2	See logs	
Method:	1139	2-3		
	1141	3-4		
Monitor Readings	1143	5-6		
(Range in ppm):	1145	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4oz jar	Grab	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
0304	

Signature(s):

450

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-450
Sample Location: Block 6
Sampled By: ICSL
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: NM	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			→
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/22	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	0948	1-2	See logs	
	0950	2-3	↓	
Monitor Readings (Range in ppm): 0	0952	3-4		
	0954	5-6		
	0956	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 + 4oz glass per sample		

OBSERVATIONS / NOTES:

Sample #s
SB-450 -0102
-0203
-0304
-0506
-0708

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

451

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-451
Sample Location: Block G
Sampled By: KSV
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/22
Method:
Monitor Readings (Range in ppm): 0

Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
1025	1-2	See Log	
1027	2-3	↓	
1029	3-4		
1031	5-6		
1033	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4 oz per Sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

452

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-452
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22	1036	0102	see logs	
Method:	1038	0203		
	1040	0304		
Monitor Readings	1042	0506		
(Range in ppm):	1044	0708		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
bonzo (a) pyrene	1 x 4oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

453
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB 453
Sample Location: Block G
Sampled By: JAM
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: NA	→		
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/22	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1130	1-2	See	Log
Method:	1132	2-3		
	1134	3-4	↓	
Monitor Readings	1136	5-6		
(Range in ppm):	1138	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Benzo(a) Pyrene	1 x 4oz per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
0506	

Signature(s):

454

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-454
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/22	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1150	1-2	see logs	
	1152	2-3	↓	
	1154	3-4		
Monitor Readings	1156	5-6		
(Range in ppm):	1158	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4oz pe		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

455

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-455
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: NM			
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22	1317	1-2	See logs	
Method:	1319	2-3		
	1321	3-4		
Monitor Readings	1323	5-6		
(Range in ppm):	1325	7-8		
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 4oz glass jar per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

456

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MA
Project No.:

Sample ID No.: SB-456
Sample Location: Block G
Sampled By: KSV
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: / Time: / Method: / Monitor Reading (ppm):	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

COMPOSITE SAMPLE DATA:

Date: 10/22
Method:
Monitor Readings (Range in ppm): 0

Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
1336	0+1-2	see logs	
1338	2-3	↓	
1340	3-4		
1342	5-6		
1344	7-8		

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
benzo (a) pyrene	1 x 40z glass jar per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

457

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LMC MW
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-457
Sample Location: Block E
Sampled By: KSH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: N/A			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/22	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1406	00	see logs	
	1408	0102		
Monitor Readings (Range in ppm): 0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Arsenic	1 x 402 jar		

OBSERVATIONS / NOTES:

SB 457-0000
-0102

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

458
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-458
Sample Location: Block G
Sampled By: KSL
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/22	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1412	0000	See logs	
	1416	01-02	J	
Monitor Readings (Range in ppm): 0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TS	1x 4oz jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD 0102

Duplicate ID No.:

Signature(s):

459

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-459
Sample Location: Block 6
Sampled By: kst
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/22	1618	0000	see log	
Method:	1620	0102	"	
Monitor Readings				
(Range in ppm):				
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
AS	1 x 4oz jar	sample	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

460

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-460
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/22	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:	1424	0000	see logs	
	1426	0102		
Monitor Readings (Range in ppm): 0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
As	1 + 4 oz pe		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MR
Project No.:

Sample ID No.: SB-461
Sample Location: Block G
Sampled By: KSL
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/22	1429	0000	see 1095	
Method:	1431	0102	↓	
Monitor Readings (Range in ppm):				
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
As	1 x 4oz glass per sample		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

494

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Lake Mk
Project No.:

Sample ID No.: SB-494
Sample Location: Block 6
Sampled By: KSH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/22	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1436	0000	5YR log	
Method:	1438	0102	J	
Monitor Readings				
(Range in ppm):				
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
As	1x 4oz glass		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

~~459~~ 495

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: LMC MA
Project No.:

Sample ID No.: ~~SB-459~~ 495
Sample Location: Block G
Sampled By: KSK
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date: 10/22	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	1442	0000	see log	
Method:	1444	0102		
Monitor Readings				
(Range in ppm):				
0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL	1x 4oz jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Y86
MS/SD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Lmc mfl
Project No.:

Sample ID No.: SB-Y96
Sample Location: Block G
Sampled By: KSH
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:			
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
10/22	1442	0000	see log	
Method:	1444	0102	1	
Monitor Readings (Range in ppm): 0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
AS	1 x 40z per	Sample	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
0102	

Signature(s):

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 410

PROJECT NUMBER: _____ DATE: 10/17/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	9"	Soft	Br	Silt w/ org						
			80%		Soft	Red Br	Sand Fine Grain w/ gravel Dry						
				33"			Dark gray silt lense						
				39" ~		Red Br	Sand Fine Grain						
				? ~									
			4-8				Same as above Wet						
			85%										

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 411
DATE: 10/17/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	8"	Soft	Br	Silt w/ ore						
			90%		Soft	Red	Silt w/ gravel						
1							Dry						
				20"									
2					Stiff	Red	Clay						
							Med Plasticity						
3													
				42"									
				?									
4													
			4-8	54"	Soft	Br	Sand Fine Grain						
			95%				Wet						
5				62"	Stiff	Red	Silt						
6													
				73"	Stiff	Red	Clay						
							Med Plast.						
7													
8													

* When rock coring, enter rock brokeness.

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

Remarks: _____

Drilling Area Background (ppm): ____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 412

PROJECT NUMBER: _____ DATE: 10/17/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	2"	Soft	Br	Silt w/ org			0			
			75%	6"			gravel			↓			
1					Soft	Red Br	Silt						
2				20"	Stiff	Red	Clay						
							low plast						
3				35"~									
				2'									
4				~									
			4-8										
			50%				Same as above						
5							w/ gravel						
6				72"~									
7				2'									
8				~									

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 413
DATE: 10/17/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	4"	Soft	Brn	Silt w/ org gravel						
			100%	6"	Soft	Red	Clayey Silt w/ gravel		Dry				
				20"	Stiff	Red	Silty Clay low plast						
				~ 52"	Stiff	Red	Clay Med Plast						
				68"	Stiff	Tan	Clay High Plast						
				82"	Soft	Brown	Sand VF Wet						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 914

PROJECT NUMBER: _____ DATE: 10/17/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole **	Driller BZ **
			0-4		Soft	Br	Silt w/ org			0			
			100%	6"	Soft	Lt Br	Silt						
1							Dry						
2				23"	Soft	Lt Gray	Silt						
				28"			organics (asphalt?)						
				30"									
3					Stiff	Br	Gray Silty Clay		1.2-9.9	38"			
							low plast			0			
4							Damp						
5				60"	Stiff	Red Br	clay						
							Med Plast						
6				66"	Stiff	Red	Clay						
							Lt Gray Clay						
							Med Plast						
7													
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 4/5
DATE: 10/17/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			04	2"	Soft	Br	Silt w/ org			0			
			7%				gravel			↓			
1				12"	Stiff	Br	Sand F. grain						
2				24"	Stiff	Red Br	Silty Clay						
3													
				38"~									
				?									
4				~									
			48	50"	Soft	Lt gray	Silt						
			100%	54"	Stiff	Red Br	Fine sand						
5							wet						
6													
7													
8							Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): _____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 416

PROJECT NUMBER: _____ DATE: 10/17/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0.9		soft	Br	Silt w/ org			0			
			80%	10"			gravel		Dry	↓			
1				12"	stiff	Lt Br	Silt w/ gravel						
2				26"	Stiff	Red Br	Silty Clay						
							Low plast						
3													
				42" ~ 2 ~									
4			4.8	50"	Soft	Br	Silt						
			100%				Wet						
5													
6													
7													
							Same as above						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 417
PROJECT NUMBER: _____ DATE: 10/17/07
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	9"	Soft	Br	Silt w/ org						
			80%		Soft	Red Br	Clayey Silt Dry						
1													
				18"									
					Stiff	Br Red	Sand						
2							Med Grain	Damp					
							Some gravel						
3													
				39" ~ 2 ~									
4													
			4-8				Same as above						
			100%	58"	Soft	Red Br	Clay						
5							Med Plast	Damp					
6													
7				89"		Red Br	Fine grain Sand						
							Wet						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 418
DATE: 10/17/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	10"	Soft	Br	Silt w/ org						
			85%		Soft	Lt Br							
1													
				17"									
2					Stiff	Dk Br	F sand						
3													
				39" ~									
				3' ~									
4													
			4-8	56"			Same as above						
			100%				Damp						
5					Soft	Red Br	Sand F						
							w/ gravel Damp						
6													
				77"			Wet						
7				85"	Stiff	Red Br	Silt Damp						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME:
PROJECT NUMBER:
DRILLING COMPANY:
DRILLING RIG:

BORING No.: SB 419
DATE: 10/17/07
GEOLOGIST:
DRILLER:

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	9"	Soft	Br	Silt w/ org			0			
			100%	13"	Stiff	Lt Br	Silt			↓			
1				18"	Stiff	Red	Clay		Dry				
							Low plasticity						
2				29"	Stiff	Lt Br	Clayey Silt						
				↳	Stiff	Or Br	Silty Clay						
3													
				42"	Stiff	Or Br	F Sand						
4							Damp						
			4-8										
			100%										
5							Some gravel						
6													
7													
8							Same as above						

* When rock coring, enter rock brokeness.

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

Remarks:

Drilling Area Background (ppm):

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 420

PROJECT NUMBER: _____ DATE: 10/17/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	6"	Soft	Br	Silt w/ org						
			100%		Soft	Lt Br	Silt						
1							Dry						
2													
				34"	Stiff	Red Br	F Sand						
3							Damp						
4			4-8										
5													
6													
7													
8							Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 421

PROJECT NUMBER: _____ DATE: 10/17/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4		Stiff	Br	Clay w/ org			0			
			75%				Black clay near 14"			↓			
1				14"					Dry				
						Red Br	Silty Clay						
2				24"	Soft		Tan/Br clay Damp						
							Black clay						
3				36"~									
				?									
4				~									
			4-8										
			100%										
5					Soft	Red Br	Clayey Silt						
6				72"			Wet						
7													
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 422
DATE: 10/17/07
GEOLOGIST: _____
DRILLER: _____

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1				0-4	2"	Stiff	Br	Silt w/ org			0			
				100%		Soft	Lt Br	Silt			↓			
					18"									
2						Stiff	Dk Br	Clayey Silt						
3														
					43"		Dark Red	Sand VF Damp						
4				4-8				Same as above						
				100%	57"		Lt tan/Lt Br	Silt						
5					62"		Wet							
6														
7														
8								Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ☐

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 423
DATE: 10/17/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	5"	Stiff	Br	Silt w/ org			0			
			100%		Stiff	Lt Br	Silt (Clayey)			↓			
1													
2				22"	Stiff	Dk Br	Sand Med Grain Damp						
3													
4													
			4-8										
			100%										
5													
				66"	Soft	Red Br	Silt Wet						
6													
7					Soft	Lt Br	Silt Wet						
8													

* When rock coring, enter rock brokeness.

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

Remarks: _____

Drilling Area Background (ppm): _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 424

PROJECT NUMBER: _____ DATE: 10/17/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	8"	Soft	Br	Silt w/ org + gravel			0			
			100%		Soft	Lt Br	Silt			↓			
1							Dry						
				17"	Stiff	Dk Br	Clayey Silt						
2													
3													
4				47"	Soft	Lt Gray	Silty Clay						
			4-8				Low Plast						
			100%	60"	Stiff	Red Br	Sand Med Grain						
5													
6				72"	Stiff	Red	Clay						
							High Plast						
7													
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 425
DATE: 10/17/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	8"	Soft	Br	Silt w/ org			0			
			100%		Soft	Red Br	Silt			↓			
1							Dry						
				21"									
2					Soft	Lt Br	Silt						
3													
				40"									
4					Soft	Red Br	Fine Sand						
			4-8										
			100%										
5													
6													
				77"									
7						Damp							
8							Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 426
DATE: 10/17
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	4"	Soft	Br	Silt w/ org			0			
			82%		Stiff	Red Br	Clayey Silt	Dry		↓			
1													
				18"									
2				24"	Stiff	Lt Br	Silt						
					Stiff	Br Red	Sand Med Grain						
3													
				39" ~									
				?									
4				~									
				54"			Damp						
5													
6				70"		Wet	Some Gravel						
7													
8							Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 427

PROJECT NUMBER: _____ DATE: 10/17

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4		Soft	Br	Silt w/ org						
			100%	12"									
1					Stiff	Lt Br	Silt						
2													
				31"	Stiff	Red Br	Sand F						
3													
				39"	Dump								
4													
			4-8										
			100%										
5													
6							gravel						
7													
							Same as above						
8				90"		Red	Clay						
							Med Plast						

* When rock coring, enter rock brokeness.

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

Drilling Area

Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 428

PROJECT NUMBER: _____ DATE: 10/17/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	6"	Soft	Br	Silt w/ org						
			100%		Soft	Red Br	Sand VF						
1				14"	Soft	Lt Br	Silt						
							Dry						
2													
				31"									
					Stiff	Or Br	Silt						
3													
				42"									
4					Stiff	Red Br	Sand F						
			4-8										
			100%										
5				61"	Stiff	Red Br	Sand F Wet						
6													
7													
8							Same as Above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ☐

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 429

PROJECT NUMBER: _____ DATE: 10/18

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4		Soft	Br	Silt w/ org			0			
			85%	10"	Soft	Lt Br	Silt			↓			
1							Clay increasing w/ depth						
2													
3													
				4½" ~									
				?									
4				~									
			4-8				Same as above						
			100%	56"									
5					Stiff	Red Br	Clay						
							Med Plast						
6													
7													
							Same as above						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 430

PROJECT NUMBER: _____ DATE: 10/18

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			6-4		Soft	Br	Silt w/ org			0			
			78%				Dry			↓			
				12"	Soft	Lt Br	Silt						
				38" ~									
				? ~									
			4-8		Stiff	Red Br	Silty Clay						
			100%				↓ decreasing silt						
							Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): [ ]

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 431
PROJECT NUMBER: _____ DATE: 10/18
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4		Soft	Br	Silt w/ some			0			
			88%				w/ gravel			↓			
1				14"									
					Stiff	Red	Clay w/ Lt gray clay		low plast				
2				24"									
					Stiff	Lt Br	Silt						
							Dry						
3				38"									
				42"	Stiff	Or Br	Clayey Silt						
4				?									
			4-8										
			100%				Damp						
5							Same as above						
				70"									
6					Stiff	Red	Clay						
							Lt Gray Clay lenses						
7							Med Plast.						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): [ ]

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 432
DATE: 10/18
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	7"	Soft	Br	Silt w/ fine sand						
			86%		Soft	Dk Br	Clayey Silt						
1				16"									
					Stiff	Lt Br	Clayey Silt		Dry				
2				24"									
				28"	Stiff	Dk Br	Silty Clay						
					Stiff	Red Br	Sand Med						
3													
				41" ~									
4													
			48				Same as above						
			100%										
5				60"			Wet						
6													
				78"									
					Stiff	Red	Clay						
7							Lt gray clay lenses						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING NO: SB 433
DATE: 10/18
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	6"	Soft	Br	Silt w/org						
			70%		Soft	Lt Br	Silt w/org						
1													
2													
3				34" ~									
				?									
4				~									
			4-8				Same as above						
			100%	56"	Stiff	Red Br	Sand M						
5													
6													
				74"			Moist						
7													
				90"									
8					Stiff	Red	Clay Med Plast						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 434

PROJECT NUMBER: _____ DATE: 10/18

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	4"	Soft	Br	Silt Wet						
			62%		Soft	Lt Br	Silt						
1													
2				25"									
					Soft	Red Br	Sand Lower Fine						
				30" ~									
3				2									
4				~									
			4-8										
			100%										
5													
6				74"	Soft	Lt Br	Silt						
7													
8							Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 435
PROJECT NUMBER: _____ DATE: 10/18/07
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	4"	Stiff	Red	Clay Med Plast.			0			
					Stiff	Lt Br	Silty Clay						
				14"									
					Stiff	Green Br	Silty Clay						
				26"	Stiff	Red Br	Clay						
				3"	~~Stiff~~								
				2.									
				70"			Wet						
				72"		Red Br	Sand F Wet						
				79"									
						Red Br	Clay						
							w/ Lt gray clay						

0-8" Weathered Asphalt Slag
Shift 0-4 down 8"
1 2 3 4 5 6 7 8

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 436
DATE: 10/18
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	8"			Weathered asphalt/slag						
			85%		Stiff	Red Br							
1													
2													
				26"	Stiff	Gr Brown							
				28"	Stiff	Red Br Silt							
3													
				45" ~ ?									
4													
			4-8	62"			Same as above						
			100%			Red Br Clay low plast							
5							some silt						
							decreasing silt						
							↓						
6													
7													
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 437
DATE: 10/18/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt						
			95%	12"									
1					Stiff	Br	Silty Clay w/ cement gravel						
							Gravel						
2				22"			Gr Br Silty Clay						
				26"			↓ decreasing silt						
3													
4													
			4-8										
			95%	58"		Br	Red Sand F Wet						
5													
6													
7													
8							Same as above						

* When rock coring, enter rock brokeness.

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

Remarks: _____

Drilling Area Background (ppm): ____

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

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: _____ BORING No.: SB 438
PROJECT NUMBER: _____ DATE: 10/18/07
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole **	Driller BZ **
							Weathered Asphalt			0			
							Slag			↓			
1													
				19"	Stiff	Green Br	Sand VF						
2													
3				34"			Damp						
				42"	Soft	Red Br	sand F						
4													
							some gravel						
5													
				67"			Wet						
6													
7													
							Same as above						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 439
PROJECT NUMBER: _____ DATE: 10/18/07
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt			0			
							Slag			↓			
				20"	Soft	Br	Sand F gravel						
				26"	Stiff	Green Brown	Silty Clay ↓ decreasing silt						
			0-8										
				56"			Wet						
				70"			Red Clay w/ lt gray clay lenses Med Plasticity						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 440
DATE: 10/16/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	22"			Weathered Asphalt						
			100%				Slag						
1													
2													
						Red Br	Sand MF						
							Wet						
3													
4													
			4-8										
			50%				Saturated						
5													
				72"			Same as above						
6							Refusal						
7													
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 441
DATE: 10/19/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt			0			
			100%	8"			←Slag?			↓			
1						Red Br	Clayey Silt	CL	gravel				
				17"									
2						Gr Brown	Silty Clay		low plast				
				30"		Red Brown	Silty Clay						
3													
4				~									
			4-8	?									
			75%	60" ~									
5						Green Br	VF Sand	Wet					
							Moist						
6													
				74"									
						Or Br	Silt						
7													
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): [ ]

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 442
DATE: 10/19/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt			0			
										↓			
1				12"									
						DK Gray	Silty Clay						
2				20"		Red Br	Clay Low plast						
3				88"									
4						Black	Clay Wet						
			4-8										
						Red Br	Sand F						
5													
6													
7				88"									
						Tan	Sand						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm) [ ]

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 443
PROJECT NUMBER: _____ DATE: 10/19/07
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered			0			
			100%				Asphalt			0			
1													
				18"									
				21"			Lt Br Silty Clay loam plast						
2							Or Br Sand F						
3													
4													
			4-8										
			100%										
5													
				66"			Moist						
6													
7													
							Same as above.						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): [ ]

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 444
DATE: 10/19/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt			0			
			100%							↓			
1				16"			Green Br Silty Clay						
							Dk Br						
2							Lt Grey						
3													
				40"			Moist						
4													
			4-8										
			100%	54"			Red Clay Med Plast						
5							Lt gray clay lenses						
6													
7													
8							Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 445
DATE: 10/19/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt						
1													
				17"	Soft	DK Green	Clay High Plast						
				20"	Stiff	Gr Br	Clay		OIS				
2													
				34"									
3					St. ff	Or Br	Silty Clay						
							Decreasing Silt						
4			4-8										
5													
6													
7													
				88"			Wet						
8				92"	Soft	Lt Gray	Silty Clay						

* When rock coring, enter rock brokeness.

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

Remarks: _____

Drilling Area Background (ppm): ____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No. SB446
DATE: 10/19/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt			0			
			100%							↓			
1				14"									
					Soft	Br	Silt w/ gravel						
2													
3													
4													
			4-8										
			100%										
5													
6				72"			Damp						
				81"			Wet						
7													
8							Same as above						

* When rock coring, enter rock brokeness.

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

Remarks: _____

Drilling Area Background (ppm): [ ]

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 447
DATE: 10/19/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
				11"	Soft	OrBr	Sand F Damp						
				29"	Stiff	Green Br	Sand F						
				36"			Refusal Organics						

1
2
3
4
5
6
7
8

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 448
DATE: 10/19/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4	7"			Weathered Asphalt			0			
			100%			Green Br				↓			
				34"									
						Or Br	Sand F	Damp					
			4-8										
			100%										
							Some Gravel						
							Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 449
PROJECT NUMBER: _____ DATE: 10/19/07
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt			0			
			100%							↓			
1				14"									
					Soft	Green Br	Sand VF						
2													
				29"	Stiff	LtBr	Silty Clay ↓ Grain Size Increasing						
3													
4													
			4-8	52"									
			100%		Soft	Red Br	Sand Fine	Moist					
5													
6													
7				87"	Stiff	LtBr	Silty Clay						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: ~~SB 25~~ SB 450
DATE: 10/22/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt						
			100%	10"			Slag						
1				15"	Stiff	Red Br	Silty Clay						
					Soft	Red Br	Low Plast → Sand F						
2				24"									
				27"	Stiff	Red Br	Clay Med. Plast						
						Lt Br	Silty Clay						
3							↓ Decreasing Silt						
4			4-8	54"									
			100%		Stiff	Red Br	Sand F						
5							Some Gravel						
6													
				78"	Soft	Gray	Sand F Moist						
7							Some Gravel						
				88"	Stiff	Red	Clay Med. Plast						
8							Lt gray clay lenses						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: ~~SB 45~~ SB 45

PROJECT NUMBER: _____ DATE: 10/22/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt			0			
			100%							↓			
1				14"	Stiff	Red	Clay Med Plast						
							Some Silt						
2				24"	Stiff	Gray	Clay						
3													
				36"	Stiff	Gray	Silt Damp						
							↓ Increasing Grain Size						
4			4-8										
			100%				Saturated						
5				60"			Wet						
				70"	Stiff	Red	Silty Clay						
6													
							↓ Decreasing Silt						
7													
					Stiff	Red	Clay						
8													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 452
DATE: 10/22/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt						
				12"	Soft	Lt Gray	Silt Dry						
							Damp						
				44"									
			4-8		Soft	Red Br	Sand F		Saturated				
							some gravel						
				60"			Wet						
				66"			Damp						
							Same as above						

1 2 3 4 5 6 7 8

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 453
DATE: 10/22/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			04	28"			Weathered Asphalt						
			100%										
1													
2													
					Stiff	Lt Br	Clay Med Plast						
3													
4			4-8		Soft	Lt Br	Silty Clay Damp						
							Decreasing Silt ↓						
5													
6													
7													
8					Soft		Red + Lt Gray Clay						
							High Plast						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): [ ]

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 454
PROJECT NUMBER: _____ DATE: 10/22/07
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			04				Weathered Asphalt						
			100%										
1				19"									
					Soft	Lt Gray Br	Clay						
2													
3													
4			48										
			100%	59"			Same as above						
5					Stiff	Red	Sand F w/ gravel						
				68"									
					Stiff	Red	Clay						
6							Med Plast						
7													
8							Same as above						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ☐

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 455
PROJECT NUMBER: _____ DATE: _____
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
				0-4				Weathered Asphalt			0			
				100%							↓			
1					14									
							Red	Br Sand F						
2														
3					36"		Red	Br Clay Some SM						
								Some Lt Gray Clay						
4				4-8										
				100%										
5					62"			Most						
6					74"									
							Red	Clay Med Plast						
7														
8														

* When rock coring, enter rock brokeness.

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

Drilling Area
Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 456
DATE: 10/22/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			0-4				Weathered Asphalt						
				20"	Soft	Lt Br	Silty Clay						
				32"	Soft	Red Br	Sand VF						
			4-8				Damp						
							Moist						
							Damp						
							Same as above						

1
2
3
4
5
6
7
8

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 457
DATE: 10/22/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Weathered Asphalt			0			
Native Soil 1	→		6"		Stiff	Lt Br	Clayey Silt			↓			
				19"									
2							End of Core						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 458
DATE: 10/22/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Weathered Asphalt w/ limestone gravel						
Native Soil →				11"		DK	Red Clay			↑			
							W/ Black clay			0			
				17"						↓			
2					Stiff		Green Br Clay/low plast						
				31"									
3							End of Core						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ☐

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: SB 459

PROJECT NUMBER: _____ DATE: 10/22/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Weathered Asphalt			0			
Native Soil →				0"			Limestone Gravel			↓			
1							Soft Red clay w/ DK Brown Clay						
				18"			Green Br Silty Clay						
2													
				30"			End of Core						
3													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 460

PROJECT NUMBER: _____ DATE: 10/22/06

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
Native Soil →				9"			Weathered Asphalt / Limestone gravel			0			
1					Stiff	Red Br	Clay low Plast						
				15"									
					Stiff	Green Brown	Silty Clay						
2													
				33'									
3							End of Core						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 401

PROJECT NUMBER: _____ DATE: 10/22/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
Native Soil				8"			Weathered Asphalt/Lt. Stone Gravel			0			
1						Red Br	Clay low plast			↓			
				15"		Green Br	Silty Clay						
2													
				30"			End of Core						
3													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 494
DATE: 10/22/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	PID/FID Reading (ppm): Sampler BZ	PID/FID Reading (ppm): Borehole**	PID/FID Reading (ppm): Driller BZ**
							Weathered Asphalt & Stone Gravel			0			
Native Soil →				9" ↗			Red Silty Clay			↓			
1				14" ↗			Green Brn Silty Clay Organics						
2													
3				37"									
							End of Core						
4													

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____
PROJECT NUMBER: _____
DRILLING COMPANY: _____
DRILLING RIG: _____

BORING No.: SB 495
DATE: 10/22/07
GEOLOGIST: _____
DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
				Surface			Red Br Sand F						
				1-2"			Same as above						
							Hand Core						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

Tetra Tech NUS, Inc.

Page ___ of ___

BORING LOG

PROJECT NAME: _____ BORING No.: SB 496

PROJECT NUMBER: _____ DATE: 10/22/07

DRILLING COMPANY: _____ GEOLOGIST: _____

DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
				Surface		Red Br	Sand F						
				1-2'			Same as above						
							Hand Core						

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): ____

Remarks: _____

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

APPENDIX E - ADMINISTRATIVE REQUIREMENTS
Written Agreement
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

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): 7J18344

SAMPLES: 20/Soil/

SB-418-0102	SB-418-0203	SB-418-0304	SB-418-0506	SB-418-0708
SB-419-0102	SB-419-0203	SB-419-0304	SB-419-0506	SB-419-0708
SB-420-0102	SB-420-0203	SB-420-0304	SB-420-0506	SB-420-0708
SB-421-0102	SB-421-0203	SB-421-0304	SB-421-0506	SB-421-0708

Overview

The sample set for SDG 7J18344, 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 17, 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 for benzo(a)pyrene therefore no evaluation of the matrix spike could be performed.

As noted in the laboratory narrative, sample SB-420-0304 had one surrogate recovery fraction outside acceptance limits. However, since the recovery was greater than 10% and all associated QC met criteria, no action was taken.

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: 00885

SDG: 7J18344 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-418-0102	nsample	SB-418-0203	nsample	SB-418-0304
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180344001	lab_id	A7J180344002	lab_id	A7J180344003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	91.8	Pct_Solids	91.3	Pct_Solids	91.4
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	13	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	32	J	P

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

PROJ_NO: 00885

SDG: 7J18344 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-418-0506	nsample	SB-418-0708	nsample	SB-419-0102
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180344004	lab_id	A7J180344005	lab_id	A7J180344006
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	86.0	Pct_Solids	85.0	Pct_Solids	84.0
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	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	43	J	P

PROJ_NO: 00885

SDG: 7J18344 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-419-0203	nsample	SB-419-0304	nsample	SB-419-0506RE
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180344007	lab_id	A7J180344008	lab_id	A7J180344009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	84.0	Pct_Solids	89.0	Pct_Solids	86.0
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	1.5	U	

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

PROJ_NO: 00885

SDG: 7J18344 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-419-0708	nsample	SB-420-0102	nsample	SB-420-0203
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180344010	lab_id	A7J180344011	lab_id	A7J180344012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	89.0	Pct_Solids	93.0	Pct_Solids	91.7
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	21	J	P

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

PROJ_NO: 00885

SDG: 7J18344 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-420-0304	nsample	SB-420-0506	nsample	SB-420-0708
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180344013	lab_id	A7J180344014	lab_id	A7J180344015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	92.8	Pct_Solids	88.0	Pct_Solids	84.0
DUP_OF:		DUP_OF:		DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J18344 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-421-0102	nsample	SB-421-0203	nsample	SB-421-0304
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180344016	lab_id	A7J180344017	lab_id	A7J180344018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	84.0	Pct_Solids	83.0
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	10	J	P

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

PROJ_NO: 00885

SDG: 7J18344 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-421-0506RE	nsample	SB-421-0708
samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180344019	lab_id	A7J180344020
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	85.0	Pct_Solids	83.0
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	

Tetra Tech NUS, Inc

Client Sample ID: SB-418-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-001 **Work Order #...:** J9AWA1AD **Matrix.....:** SO
Date Sampled...: 10/17/07 12:47 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 8.2 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**13 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	70	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	79	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-418-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-002 **Work Order #...:** J9AWQ1AD **Matrix.....:** SO
Date Sampled...: 10/17/07 12:49 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 8.7 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**32 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	69	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	78	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Tetra Tech NUS, Inc

Client Sample ID: SB-418-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-003 **Work Order #...:** J9AWV1AD **Matrix.....:** SO
Date Sampled...: 10/17/07 12:51 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 8.6 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	66	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	98	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	72	(26 - 110)
2,4,6-Tribromophenol	83	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-418-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-004 **Work Order #...:** J9AW01AD **Matrix.....:** SO
Date Sampled...: 10/17/07 12:53 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	85	(41 - 119)
Phenol-d5	70	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-418-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-005 **Work Order #...:** J9AW31AD **Matrix.....:** SO
Date Sampled...: 10/17/07 12:55 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	71	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-419-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-006 **Work Order #...:** J9AW71AD **Matrix.....:** SO
Date Sampled...: 10/17/07 13:35 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**43 J**	**400**	**ug/kg**	**1.6**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	69	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-419-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-007 **Work Order #...:** J9AW81AD **Matrix.....:** SO
Date Sampled...: 10/17/07 13:37 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	60	(34 - 110)
Terphenyl-d14	81	(41 - 119)
Phenol-d5	71	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	73	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-419-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-008 **Work Order #...:** J9AXA1AD **Matrix.....:** SO
Date Sampled...: 10/17/07 13:39 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	49	(24 - 112)
2-Fluorobiphenyl	51	(34 - 110)
Terphenyl-d14	81	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	54	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-419-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-009 **Work Order #...:** J9AXE2AD **Matrix.....:** SO
Date Sampled...: 10/17/07 13:41 **Date Received..:** 10/18/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/30/07
Prep Batch #...: 7299047
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	73	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	95	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	74	(26 - 110)
2,4,6-Tribromophenol	44	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-419-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-010 **Work Order #...:** J9AXG1AD **Matrix.....:** SO
Date Sampled...: 10/17/07 13:43 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	66	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	72	(28 - 110)
2-Fluorophenol	70	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-420-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-011 **Work Order #...:** J9AXH1AD **Matrix.....:** SO
Date Sampled...: 10/17/07 14:02 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 7.0 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**21 J**	**350**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	37	(24 - 112)
2-Fluorobiphenyl	45	(34 - 110)
Terphenyl-d14	65	(41 - 119)
Phenol-d5	48	(28 - 110)
2-Fluorophenol	39	(26 - 110)
2,4,6-Tribromophenol	60	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-420-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-012 **Work Order #...:** J9AXK1AD **Matrix.....:** SO
Date Sampled...: 10/17/07 14:04 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 8.3 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	39	(24 - 112)
2-Fluorobiphenyl	50	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	54	(28 - 110)
2-Fluorophenol	44	(26 - 110)
2,4,6-Tribromophenol	71	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-420-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-013 **Work Order #...:** J9A0R1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:06 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 7.2 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	14 *	(24 - 112)
2-Fluorobiphenyl	37	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	39	(28 - 110)
2-Fluorophenol	22 *	(26 - 110)
2,4,6-Tribromophenol	56	(10 - 118)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-420-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-014 **Work Order #...:** J9A0T1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:08 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	55	(24 - 112)
2-Fluorobiphenyl	57	(34 - 110)
Terphenyl-d14	85	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	59	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-420-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-015 **Work Order #...:** J9A0W1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:10 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	70	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	69	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-421-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-016 **Work Order #...:** J9A0X1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:22 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	35	(24 - 112)
2-Fluorobiphenyl	40	(34 - 110)
Terphenyl-d14	78	(41 - 119)
Phenol-d5	47	(28 - 110)
2-Fluorophenol	41	(26 - 110)
2,4,6-Tribromophenol	63	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-421-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-017 **Work Order #...:** J9A001AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:24 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**10 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	59	(34 - 110)
Terphenyl-d14	81	(41 - 119)
Phenol-d5	70	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	77	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-421-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-018 **Work Order #...:** J9A021AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:26 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	53	(24 - 112)
2-Fluorobiphenyl	54	(34 - 110)
Terphenyl-d14	80	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-421-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-019 **Work Order #...:** J9A032AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:28 **Date Received..:** 10/18/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7299047
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	70	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	88	(41 - 119)
Phenol-d5	74	(28 - 110)
2-Fluorophenol	78	(26 - 110)
2,4,6-Tribromophenol	59	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-421-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180344-020 **Work Order #...:** J9A041AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:30 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7296336
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	70	(28 - 110)
2-Fluorophenol	69	(26 - 110)
2,4,6-Tribromophenol	77	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG 7J18344

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-420-0708	A7J180344015	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-420-0203	A7J180344012	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-421-0708	A7J180344020	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-421-0506	A7J180344019	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-421-0304	A7J180344018	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-420-0102	A7J180344011	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-421-0102	A7J180344016	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-420-0506	A7J180344014	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-420-0304	A7J180344013	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-418-0102	A7J180344001	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-419-0506	A7J180344009	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-418-0304	A7J180344003	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-418-0506	A7J180344004	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-418-0708	A7J180344005	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-419-0102	A7J180344006	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-419-0203	A7J180344007	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-419-0304	A7J180344008	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-418-0203	A7J180344002	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-419-0708	A7J180344010	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-421-0203	A7J180344017	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-420-0102	A7J180344011	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-421-0506RE	A7J180344019	NM	10/17/2007	10/26/2007	10/31/2007	9	5	14
OS	%	SB-421-0304	A7J180344018	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-421-0203	A7J180344017	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-421-0102	A7J180344016	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-420-0708	A7J180344015	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-420-0304	A7J180344013	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-418-0102	A7J180344001	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-420-0506	A7J180344014	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-419-0708	A7J180344010	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-419-0506RE	A7J180344009	NM	10/17/2007	10/26/2007	10/30/2007	9	4	13
OS	%	SB-419-0304	A7J180344008	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-419-0203	A7J180344007	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	%	SB-419-0102	A7J180344006	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-418-0708	A7J180344005	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-418-0506	A7J180344004	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-420-0203	A7J180344012	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-418-0203	A7J180344002	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-421-0708	A7J180344020	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-418-0304	A7J180344003	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-420-0102	A7J180344011	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-421-0708	A7J180344020	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-421-0506RE	A7J180344019	NM	10/17/2007	10/26/2007	10/31/2007	9	5	14
OS	UG/KG	SB-421-0304	A7J180344018	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-421-0203	A7J180344017	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-421-0102	A7J180344016	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-420-0708	A7J180344015	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-420-0506	A7J180344014	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-418-0102	A7J180344001	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-420-0203	A7J180344012	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-418-0203	A7J180344002	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	SB-419-0708	A7J180344010	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-419-0506RE	A7J180344009	NM	10/17/2007	10/26/2007	10/30/2007	9	4	13
OS	UG/KG	SB-419-0304	A7J180344008	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-419-0203	A7J180344007	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-419-0102	A7J180344006	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-418-0708	A7J180344005	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-418-0506	A7J180344004	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-418-0304	A7J180344003	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-420-0304	A7J180344013	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Mahn	Date: 10/17/07	Chain of Custody Number: 322432
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 1 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: S. Hadley	Lab Contact: K. Ives	
Project Name and Location (State): LMC MD	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112IC00485			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): #4 8270	Special Instructions/ Conditions of Receipt
SB-418-0102	10/17	1347				X	1						X	*Benzo (a) pyrene
-0203		1349												
-0304		1351												
-0506		1353												
418-0708		1355												
419-0102		1335												
-0203		1337												
-0304		1339												
-0506		1341												
419-0708		1343												
420-0102		1402												
SB 420-0203	10/17	1404				X	1						X	*Benzo (a) pyrene

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/17/07	1615	1. Received By	10-17-07	1615
2. Relinquished By			2. Received By	10-18-07	9:10
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

15

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Mahin	Date: 10/17/07	Chain of Custody Number: 322433
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 2 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: S. Bailey	Lab Contact: K. Ives	
Project Name and Location (State): LMC MR	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112IC 00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
SB-420-0203 MS/SD	10/17	1404				X	1						X 8270	Block G
-0304		1406												X benzo(a)pyrene
-0506		1408												
420 -0708		1410												
421 -0102		1422												
-0203		1424												
-0304		1426												
-0506		1428												
SB-421-0708	10/17	1430												

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other SEND

QC Requirements (Specify)

1. Relinquished By	Date: 10/17/07	Time: 1615	1. Received By	Date: 10/17/07	Time: 1615
2. Relinquished By	Date:	Time:	2. Received By	Date: 10-18-07	Time: 9:10
3. Relinquished By	Date:	Time:	3. Received By	Date:	Time:

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

16

CASE NARRATIVE

7J18344

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 18, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J180344.

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 01, 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 4.1 and 5.3°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-420-0203 had RPD's and recoveries 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) 7299047 had RPD's and recoveries 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-420-0304 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.

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

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18344

Lot #: A7J180344

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-418-0102	61	65	90	70	64	79	00
02	SB-418-0203	58	62	87	69	62	78	00
03	SB-418-0304	66	68	98	75	72	83	00
04	SB-418-0506	63	62	85	70	67	74	00
05	SB-418-0708	60	62	86	66	63	71	00
06	SB-419-0102	59	61	84	69	65	74	00
07	SB-419-0203	60	60	81	71	66	73	00
08	SB-419-0304	49	51	81	61	54	70	00
09	SB-419-0708	66	65	87	72	70	74	00
10	SB-420-0102	37	45	65	48	39	60	00
11	SB-420-0203	39	50	84	54	44	71	00
12	SB-420-0304	14 *	37	89	39	22 *	56	02
13	SB-420-0506	55	57	85	64	59	74	00
14	SB-420-0708	62	61	84	70	67	69	00
15	SB-421-0102	35	40	78	47	41	63	00
16	SB-421-0203	57	59	81	70	67	77	00
17	SB-421-0304	53	54	80	65	60	74	00
18	SB-421-0708	64	63	87	70	69	77	00
19	METHOD BLK. J9L5C1AA	73	77	100	76	75	61	00
20	LCS J9L5C1AC	77	75	93	76	75	79	00
21	SB-420-0203 D	57	63	83	67	61	79	00
22	SB-420-0203 S	36	54	83	55	40	76	00

SURROGATES		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

FORM II

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9L5C1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN SDG Number:7J18344

Lab File ID: J9L5C1AA. Lot Number: A7J180344

Date Analyzed: 10/24/07 Time Analyzed: 15:50

Matrix: SOLID Date Extracted:10/23/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-418-0102	J9AWA1AD	J9AWA1AD.	10/24/07	18:25
02	SB-418-0203	J9AWQ1AD	J9AWQ1AD.	10/24/07	18:42
03	SB-418-0304	J9AWV1AD	J9AWV1AD.	10/24/07	18:59
04	SB-418-0506	J9AW01AD	J9AW01AD.	10/24/07	19:17
05	SB-418-0708	J9AW31AD	J9AW31AD.	10/24/07	19:34
06	SB-419-0102	J9AW71AD	J9AW71AD.	10/24/07	19:51
07	SB-419-0203	J9AW81AD	J9AW81AD.	10/24/07	20:08
08	SB-419-0304	J9AXA1AD	J9AXA1AD.	10/24/07	20:25
09	SB-419-0708	J9AXG1AD	J9AXG1AD.	10/24/07	21:00
10	SB-420-0102	J9AXH1AD	J9AXH1AD.	10/24/07	21:17
11	SB-420-0203	J9AXK1AD	J9AXK1AD.	10/24/07	21:34
12	SB-420-0203	J9AXK1AL S	J9AXK1AL.	10/24/07	21:52
13	SB-420-0203	J9AXK1AM D	J9AXK1AM.	10/24/07	22:09
14	SB-420-0304	J9A0R1AC	J9A0R1AC.	10/24/07	22:26
15	SB-420-0506	J9A0T1AC	J9A0T1AC.	10/24/07	22:43
16	SB-420-0708	J9A0W1AC	J9A0W1AC.	10/24/07	23:01
17	SB-421-0102	J9A0X1AC	J9A0X1AC.	10/24/07	17:33
18	SB-421-0203	J9A001AC	J9A001AC.	10/24/07	17:50
19	SB-421-0304	J9A021AC	J9A021AC.	10/24/07	18:08
20	SB-421-0708	J9A041AC	J9A041AC.	10/24/07	23:35
21	CHECK SAMPLE	J9L5C1AC C	J9L5C1AC.	10/24/07	16:07
22					
23					
24					
25					
26					
27					
28					
29					
30					

COMMENTS:

FORM IV

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9WJ21AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J18344

Lab File ID: J9WJ21AA.

Lot Number: A7J180344

Date Analyzed: 10/30/07

Time Analyzed: 13:27

Matrix: SOLID

Date Extracted:10/26/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-419-0506	J9AXE2AD	J9AXE2AD.	10/30/07	22:49
02	SB-421-0506	J9A032AC	J9A032AC.	10/31/07	20:10
03	INTRA-LAB QC	J9VMT1A5	J9VMT1A5.	10/30/07	17:11
04	LAB MS/MSD	J9VMT1D8 S	J9VMT1D8.	10/30/07	17:30
05	LAB MS/MSD	J9VMT1D9 D	J9VMT1D9.	10/31/07	00:22
06	INTRA-LAB QC	J9V0X1AC	J9V0X1AC.	10/30/07	19:04
07	LAB MS/MSD	J9V0X1AH S	J9V0X1AH.	10/30/07	19:23
08	LAB MS/MSD	J9V0X1AJ D	J9V0X1AJ.	10/30/07	19:42
09	CHECK SAMPLE	J9WJ21AC C	J9WJ21AC.	10/30/07	13:45
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
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.: 7J18344

Lab File ID: 2DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4AG2 DFTPP Injection Time: 1212

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.5
68	Less than 2.0% of mass 69	0.6 (1.6)1
69	Mass 69 relative abundance	40.3
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	50.2
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	24.7
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	10.9
442	Greater than 40.0% of mass 198	79.1
443	17.0 - 23.0% of mass 442	14.9 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD009	L9	2SHHH1024	10/24/07	1223
02	SSTD008	L8	2SHH1024	10/24/07	1240
03	SSTD007	L7	2SH1024	10/24/07	1257
04	SSTD006	L6	2SMH1024	10/24/07	1315
05	SSTD005	L5	2SMM1024	10/24/07	1332
06	SSTD004	L4	2SM1024	10/24/07	1349
07	SSTD003	L3	2SML1024	10/24/07	1406
08	SSTD002	L2	2SL1024	10/24/07	1424
09	SSTD001	L1	2SLL1024	10/24/07	1441
10	J9L5CBLK	J9L5C1AA	J9L5C1AA	10/24/07	1550
11	J9L5CCHK	J9L5C1AC	J9L5C1AC	10/24/07	1607
12	SB-421-0102	J9A0X1AC	J9A0X1AC	10/24/07	1733
13	SB-421-0203	J9A001AC	J9A001AC	10/24/07	1750
14	SB-421-0304	J9A021AC	J9A021AC	10/24/07	1808
15	SB-418-0102	J9AWA1AD	J9AWA1AD	10/24/07	1825
16	SB-418-0203	J9AWQ1AD	J9AWQ1AD	10/24/07	1842
17	SB-418-0304	J9AWV1AD	J9AWV1AD	10/24/07	1859
18	SB-418-0506	J9AW01AD	J9AW01AD	10/24/07	1917
19	SB-418-0708	J9AW31AD	J9AW31AD	10/24/07	1934
20	SB-419-0102	J9AW71AD	J9AW71AD	10/24/07	1951
21	SB-419-0203	J9AW81AD	J9AW81AD	10/24/07	2008
22	SB-419-0304	J9AXA1AD	J9AXA1AD	10/24/07	2025

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.: 7J18344

Lab File ID: 2DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4AG2 DFTPP Injection Time: 1212

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.5
68	Less than 2.0% of mass 69	0.6 (1.6)1
69	Mass 69 relative abundance	40.3
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	50.2
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	24.7
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	10.9
442	Greater than 40.0% of mass 198	79.1
443	17.0 - 23.0% of mass 442	14.9 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-419-0708	J9AXG1AD	J9AXG1AD	10/24/07	2100
02	SB-420-0102	J9AXH1AD	J9AXH1AD	10/24/07	2117
03	SB-420-0203	J9AXK1AD	J9AXK1AD	10/24/07	2134
04	SB-420-0203	J9AXK1AL	J9AXK1AL	10/24/07	2152
05	SB-420-0203	J9AXK1AM	J9AXK1AM	10/24/07	2209
06	SB-420-0304	J9A0R1AC	J9A0R1AC	10/24/07	2226
07	SB-420-0506	J9A0T1AC	J9A0T1AC	10/24/07	2243
08	SB-420-0708	J9A0W1AC	J9A0W1AC	10/24/07	2301
09	SB-421-0708	J9A041AC	J9A041AC	10/24/07	2335
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J18344

Lab File ID: 8DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4HP8 DFTPP Injection Time: 1405

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.3
68	Less than 2.0% of mass 69	0.2 (0.4)1
69	Mass 69 relative abundance	53.0
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	51.9
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	6.5
275	10.0 - 30.0% of mass 198	26.5
365	Greater than 1.0% of mass 198	3.3
441	Present, but less than mass 443	8.3
442	Greater than 40.0% of mass 198	52.9
443	17.0 - 23.0% of mass 442	9.8 (18.6)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	L5	8SMM1024	10/24/07	1522
02	SSTD004	L4	8SM1024	10/24/07	1541
03	SSTD003	L3	8SML1024	10/24/07	1600
04	SSTD002	L2	8SL1024	10/24/07	1619
05	SSTD001	L1	8SLL1024	10/24/07	1638
06	SSTD009	L9	8HHH1024	10/24/07	1656
07	SSTD008	L8	8SHH1024	10/24/07	1715
08	SSTD007	L7	8SH1024	10/24/07	1734
09	SSTD006	L6	8SMH1024	10/24/07	1753
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J18344

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	30.0 - 60.0% of mass 198	46.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.0
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	40.0 - 60.0% of mass 198	51.2
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	6.6
275	10.0 - 30.0% of mass 198	25.9
365	Greater than 1.0% of mass 198	4.1
441	Present, but less than mass 443	10.0
442	Greater than 40.0% of mass 198	63.0
443	17.0 - 23.0% of mass 442	12.0 (19.0)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1030	10/30/07	1253
02	J9WJ2BLK	J9WJ21AA	J9WJ21AA	10/30/07	1327
03	J9WJ2CHK	J9WJ21AC	J9WJ21AC	10/30/07	1345
04	SB-419-0506	J9AXE2AD	J9AXE2AD	10/30/07	2249
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J18344

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	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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME 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-421-0506	J9A032AC	J9A032AC	10/31/07	2010
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-2007 15:56
End Cal Date : 24-OCT-2007 14:41
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m
Last Edit : 24-Oct-2007 15:10 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						
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
146 Benzo(a)pyrene	1.13356	0.91950	0.94978	0.99564	1.01295	1.09296			
	1.09655	1.13883	1.25011				1.06554	9.852	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.11314	0.98476	1.04225	1.09901	1.11743	1.20553			
	1.21453	1.25502	1.37265				1.15604	10.210	
150 Dibenz(a,h)anthracene	0.95549	0.85855	0.90658	0.93889	0.95736	1.03913			
	1.04814	1.07257	1.18011				0.99520	9.898	
151 Benzo(g,h,i)perylene	1.07565	0.85637	0.88607	0.92765	0.94183	1.01237			
	1.02211	1.05245	1.14437				0.99099	9.537	
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

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

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	1.16862	0.94500	0.99660	1.06264	1.04702	1.14009			
	1.17535	1.24000	1.40500				1.13115	12.298	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.15525	1.02036	1.08130	1.16366	1.14381	1.23994			
	1.26288	1.32864	1.47228				1.20757	11.285	
150 Dibenz(a,h)anthracene	0.98770	0.87713	0.89316	0.96975	0.95807	1.05400			
	1.09661	1.15927	1.28968				1.03171	12.905	
151 Benzo(g,h,i)perylene	1.12101	0.90918	0.87601	0.98078	0.94801	1.00857			
	1.02246	1.07093	1.17786				1.01275	9.694	
232 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

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
Method file : \\cansvr11\dd\chem\MSS\a4hp8.i\71031a.b\8270P.m
Last Edit : 01-Nov-2007 08:44 gruberj
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	1.00609	0.85680	0.92839	1.01385	1.07984	1.14780			
	1.21126	1.27667	+++++				1.06509	13.342	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.05215	0.94193	1.02882	1.10916	1.16710	1.23713			
	1.28978	1.35821	1.49504				1.18659	14.808	
150 Dibenz(a,h)anthracene	0.91651	0.79502	0.83997	0.94796	0.97157	1.06074			
	1.12563	1.18816	1.32919				1.01942	16.918	
151 Benzo(g,h,i)perylene	1.06388	0.84710	0.86775	0.94119	0.96347	0.98910			
	1.03120	1.08506	1.18240				0.99679	10.714	
232 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i Injection Date: 24-OCT-2007 14:58
Lab File ID: ICVTCL.D Init. Cal. Date(s): 17-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:56 14:41
Lab Sample ID: ICVTCL Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
146 Benzo(a)pyrene	1.06554	1.07342	1.07342	0.010	-0.73884	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.15604	1.19424	1.19424	0.010	-3.30446	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.99520	1.01975	1.01975	0.010	-2.46670	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.99099	1.00616	1.00616	0.010	-1.53089	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.30387	0.30964	0.30964	0.010	-1.89859	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.19376	1.21496	1.21496	0.010	-1.77571	50.00000	Averaged
$ 156 Terphenyl-d14	0.81794	0.86512	0.86512	0.010	-5.76860	50.00000	Averaged
$ 157 Phenol-d5	1.52843	1.55336	1.55336	0.010	-1.63160	50.00000	Averaged
$ 158 2-Fluorophenol	1.19836	1.20601	1.20601	0.010	-0.63807	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.15460	0.16200	0.16200	0.010	-4.78170	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.30490	1.32129	1.32129	0.010	-1.25577	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82867	0.84382	0.84382	0.010	-1.82788	50.00000	Averaged
M 195 Cresols, total	2.49329	2.52607	2.52607	0.010	-1.31481	50.00000	Averaged
101 Diphenylamine	0.51130	0.49768	0.49768	0.010	2.66310	50.00000	Averaged

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
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: icvtcl Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71024a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.28668	1.28668	0.010	-0.81506	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.11216	1.11216	0.010	1.67860	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.20643	1.20643	0.010	0.09417	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.02848	1.02848	0.010	0.31240	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	0.96293	0.96293	0.010	4.91974	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.56331	0.56331	0.010	8.63212	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.48504	0.48504	0.010	2.45568	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.25695	1.25695	0.010	2.13125	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.79942	0.79942	0.010	-0.26527	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.81077	1.81077	0.010	2.60337	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.22639	1.22639	0.010	4.19358	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14093	0.14093	0.010	1.19563	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.20697	1.20697	0.010	2.13638	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.82261	0.82261	0.010	0.39586	50.00000	Averaged
M 195 Cresols, total	2.85006	2.88600	2.88600	0.010	-1.26094	50.00000	Averaged
101 Diphenylamine	0.50153	0.49164	0.49164	0.010	1.97267	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 30-OCT-2007 12:53
Lab File ID: 8SMH1030.D Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71030a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.54331	1.54331	0.010	-20.92199	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.32237	1.32237	0.010	-16.90488	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.41719	1.41719	0.010	-17.35859	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.25451	1.25451	0.010	-21.59545	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.12170	1.12170	0.010	-10.75761	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.59338	0.59338	0.010	3.75595	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.55672	0.55672	0.010	-11.95991	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.44671	1.44671	0.010	-12.64378	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.87588	0.87588	0.010	-9.85482	50.00000	Averaged
$ 157 Phenol-d5	1.85917	2.00280	2.00280	0.010	-7.72523	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.25462	1.25462	0.010	1.98805	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14849	0.14849	0.010	-4.10635	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.30017	1.30017	0.010	-5.42043	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.89032	0.89032	0.010	-7.80245	50.00000	Averaged
M 195 Cresols, total	2.85006	3.09760	3.09760	0.010	-8.68528	50.00000	Averaged
101 Diphenylamine	0.50153	0.56898	0.56898	0.010	-13.44825	50.00000	Averaged

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

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.31598	1.31479	1.31479	0.010	0.09048	50.00000	Averaged
146 Benzo(a)pyrene	1.06509	1.14284	1.14284	0.010	-7.30045	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.18659	1.23697	1.23697	0.010	-4.24562	50.00000	Averaged
150 Dibenz(a,h)anthracene	5.00000	5.03216	1.05822	0.010	-0.64321	0.000e+000	Quadratic
151 Benzo(g,h,i)perylene	0.99679	0.99112	0.99112	0.010	0.56931	50.00000	Averaged
198 1,4-Dioxane	0.59367	0.58021	0.58021	0.010	2.26632	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.44581	0.46280	0.46280	0.010	-3.81005	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.31614	1.32545	1.32545	0.010	-0.70694	50.00000	Averaged
$ 156 Terphenyl-d14	0.77529	0.80908	0.80908	0.010	-4.35732	50.00000	Averaged
$ 157 Phenol-d5	1.75954	1.73764	1.73764	0.010	1.24445	50.00000	Averaged
$ 158 2-Fluorophenol	1.21919	1.21403	1.21403	0.010	0.42366	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	5.00000	5.06941	0.15059	0.010	-1.38825	0.000e+000	Quadratic
$ 186 2-Chlorophenol-d4	1.22310	1.18894	1.18894	0.010	2.79346	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82744	0.82746	0.82746	0.010	-0.00269	50.00000	Averaged
M 195 Cresols, total	2.80785	2.76041	2.76041	0.010	1.68951	50.00000	Averaged
101 Diphenylamine	5.00000	5.20967	0.50019	0.010	-4.19348	0.000e+000	Quadratic

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18344

Lab File ID (Standard): 2SMH1024 Date Analyzed: 10/24/07

Instrument ID: A4AG2 Time Analyzed: 1315

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	478896	3.65	2079705	4.54	1030566	5.81
	UPPER LIMIT	957792	4.15	4159410	5.04	2061132	6.31
	LOWER LIMIT	239448	3.15	1039853	4.04	515283	5.31
	EPA SAMPLE NO.						
01	J9L5CBLK	445530	3.64	1920983	4.54	983927	5.81
02	J9L5CCHK	429514	3.65	1908485	4.54	990251	5.81
03	SB-421-0102	354897	3.64	1639029	4.54	912147	5.81
04	SB-421-0203	365609	3.65	1779850	4.54	988494	5.81
05	SB-421-0304	361429	3.65	1755934	4.54	987986	5.81
06	SB-418-0102	407131	3.65	1843445	4.54	1031911	5.81
07	SB-418-0203	348531	3.64	1612509	4.54	886272	5.81
08	SB-418-0304	406200	3.65	1847567	4.54	1017590	5.81
09	SB-418-0506	386563	3.65	1784580	4.54	1006126	5.81
10	SB-418-0708	414996	3.65	1848491	4.54	1001731	5.81
11	SB-419-0102	367038	3.65	1751976	4.54	1005899	5.81
12	SB-419-0203	385820	3.65	1834647	4.54	1035956	5.81
13	SB-419-0304	428107	3.65	2036367	4.54	1159293	5.81
14	SB-419-0708	395364	3.65	1807925	4.54	1000192	5.81
15	SB-420-0102	393215	3.64	1800745	4.54	1060791	5.81
16	SB-420-0203	444423	3.65	2040596	4.54	1132089	5.81
17	SB-420-0203	371679	3.64	1780916	4.54	1015370	5.81
18	SB-420-0203	411709	3.65	1989149	4.54	1109901	5.81
19	SB-420-0304	458104	3.64	2032175	4.54	1112319	5.81
20	SB-420-0506	455145	3.65	2021745	4.54	1132063	5.81
21	SB-420-0708	420550	3.65	1935434	4.54	1106377	5.81
22	SB-421-0708	463897	3.65	2132415	4.54	1185249	5.81

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18344

Lab File ID (Standard): 2SMH1024 Date Analyzed: 10/24/07

Instrument ID: A4AG2 Time Analyzed: 1315

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	1759575	6.91	1606980	8.88	1547927	10.40
	UPPER LIMIT	3519150	7.41	3213960	9.38	3095854	10.90
	LOWER LIMIT	879788	6.41	803490	8.38	773964	9.90
	EPA SAMPLE NO.						
01	J9L5CBLK	1691696	6.91	1546159	8.88	1494796	10.40
02	J9L5CCHK	1743458	6.91	1619092	8.88	1559791	10.40
03	SB-421-0102	1677437	6.90	1597332	8.88	1594508	10.40
04	SB-421-0203	1779768	6.91	1681986	8.88	1629875	10.40
05	SB-421-0304	1823164	6.90	1733731	8.88	1656916	10.40
06	SB-418-0102	1897964	6.91	1798733	8.88	1697025	10.40
07	SB-418-0203	1642211	6.90	1567542	8.88	1522593	10.40
08	SB-418-0304	1881608	6.91	1785633	8.88	1737655	10.40
09	SB-418-0506	1873787	6.91	1798788	8.88	1737519	10.40
10	SB-418-0708	1859540	6.90	1740005	8.88	1677319	10.40
11	SB-419-0102	1887619	6.91	1743207	8.88	1673975	10.40
12	SB-419-0203	1933119	6.91	1767177	8.88	1730100	10.41
13	SB-419-0304	2185486	6.91	2005102	8.88	1970801	10.41
14	SB-419-0708	1804963	6.91	1698857	8.88	1596584	10.40
15	SB-420-0102	2022923	6.91	1925674	8.88	1886650	10.40
16	SB-420-0203	2076313	6.90	1917937	8.88	1840674	10.40
17	SB-420-0203	1828066	6.91	1734799	8.88	1638721	10.40
18	SB-420-0203	2021469	6.91	1896068	8.88	1813373	10.40
19	SB-420-0304	2073560	6.91	1955750	8.88	1837130	10.40
20	SB-420-0506	2098935	6.91	1958002	8.88	1837932	10.40
21	SB-420-0708	2028549	6.91	1912884	8.88	1803955	10.40
22	SB-421-0708	2236531	6.90	2076891	8.88	2000504	10.40

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18344

Lab File ID (Standard): 8SMH1030 Date Analyzed: 10/30/07

Instrument ID: A4HP8 Time Analyzed: 1253

	EPA SAMPLE NO.	IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) 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
01	J9WJ2BLK	127596	3.55	515422	4.44	287161	5.71
02	J9WJ2CHK	141970	3.54	575288	4.44	317693	5.71
03	SB-419-0506	103958	3.54	416222	4.44	237261	5.71
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18344

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 NO.						
01	J9WJ2BLK	544600	6.80	538934	8.86	457471	10.37
02	J9WJ2CHK	616157	6.79	616788	8.81	487681	10.31
03	SB-419-0506	473120	6.80	475206	8.78	394544	10.27
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18344

Lab File ID (Standard): 8SMH1031 Date Analyzed: 10/31/07

Instrument ID: A4HP8 Time Analyzed: 1833

	EPA SAMPLE NO.	IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	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
01	SB-421-0506	213725	3.56	873461	4.45	485292	5.72
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18344

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-421-0506	938124	6.81	948540	8.81	813617	10.31
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

SAMPLE CALC SAMPLE ID: SB-418-0203 COMPOUND: BAP

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
1522593	1	177546	2	2000	1.0655	0.913	0.5	31.76

Sample Amount (g)
30.19

Tetra Tech NUS, Inc

Client Sample ID: SB-418-0203

GC/MS Semivolatiles

Lot-Sample #...:	A7J180344-002	**Work Order #...:**	J9AWQ1AD	**Matrix.....:**	SO
Date Sampled...:	10/17/07 12:49	**Date Received..:**	10/18/07		
Prep Date.....:	10/23/07	**Analysis Date..:**	10/24/07		
Prep Batch #...:	7296336				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.19 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	8.7	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**32 J**	**360**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	69	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	78	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\J9AWQ1AD.D
Lab Smp Id: J9AWQ1AD Client Smp ID: SB-418-0203
Inj Date : 24-OCT-2007 18:42
Operator : 046900 Inst ID: a4ag2.i
Smp Info : J9AWQ1AD,71024A.b,8270P,BAP.SUB
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m
Meth Date : 26-Oct-2007 05:57 hulat Quant Type: ISTD
Cal Date : 24-OCT-2007 12:23 Cal File: 2SHHH1024.D
Als bottle: 24
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	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.190	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	CONCENTRATIONS FINAL (ug/kg)
* 1 1,4-Dichlorobenzene-d4	152	3.642	3.648	(1.000)	348531	2.00000	(Q)
* 2 Naphthalene-d8	136	4.542	4.548	(1.000)	1612509	2.00000	
* 3 Acenaphthene-d10	164	5.813	5.818	(1.000)	886272	2.00000	
* 4 Phenanthrene-d10	188	6.901	6.907	(1.000)	1642211	2.00000	
* 5 Chrysene-d12	240	8.877	8.889	(1.000)	1567542	2.00000	
* 6 Perylene-d12	264	10.395	10.401	(1.000)	1522593	2.00000	
146 Benzo(a)pyrene	252	10.324	10.348	(0.993)	177546	0.21887	28.999
$ 154 Nitrobenzene-d5	82	4.019	4.030	(0.885)	706442	2.88351	382.05
$ 155 2-Fluorobiphenyl	172	5.301	5.301	(0.912)	1652167	3.12320	413.80
$ 156 Terphenyl-d14	244	8.048	8.054	(0.907)	2780769	4.33765	574.71
$ 157 Phenol-d5	99	3.348	3.348	(0.919)	1373501	5.15671	683.23
$ 158 2-Fluorophenol	112	2.801	2.772	(0.769)	965043	4.62113	612.27
$ 159 2,4,6-Tribromophenol	330	6.383	6.395	(1.098)	400706	5.84878	774.93
$ 186 2-Chlorophenol-d4	132	3.489	3.495	(0.958)	1113874	4.89832	649.00
$ 187 1,2-Dichlorobenzene-d4	152	3.754	3.760	(1.031)	393254	2.72319	360.81(Q)

QC Flag Legend

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. MARTIN**	**DATE:**	**JANUARY 8, 2008**
FROM:	**PRESTON SMITH**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – BENZO(a)PYRENE**
LOCKHEED MIDDLE RIVER COMPLEX
SAMPLE DELIVERY GROUP (SDG): 7J18357

SAMPLES: 20/Soil/

SB-414-0102	SB-414-0203
SB-414-0304	SB-414-0506
SB-414-0708	SB-415-0102
SB-415-0203	SB-415-0304
SB-415-0506	SB-415-0708
SB-416-0102	SB-416-0203
SB-416-0304	SB-416-0506
SB-416-0708	SB-417-0102
SB-417-0203	SB-417-0304
SB-417-0506	SB-417-0708

Overview

The sample set for SDG 7J18357, 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 17, 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 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.

Benzo(a)pyrene

Major Problems

- None.

Minor Problems

- The positive results less than the CRQL reported for benzo(a)pyrene in samples SB-414-0203, SB-415-0203, SB-416-0102, and SB-417-0102 were qualified estimated (J) due to uncertainty near the detection limit.

Notes

The MS/MSD and the check sample recovery were not spiked with the target compound benzo(a)pyrene. No validation action was required because the other surrogate recoveries were within permissible limits.

The surrogate recovery for nitrobenzene-d5 in sample SB-414-0506 was lightly higher than the upper recovery limit. No action was taken for this noncompliance because the other four surrogate recoveries wee within the quality control limits.

The surrogate recovery for nitrobenzene-d5 in samples SB-414-0203 and SB-414-0304 were below the lower recovery limit. No action was taken for these noncompliances because the samples were diluted by a factor of five and ten times respectively.

Executive Summary

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: The positive results less than the CRQL reported for benzo(a)pyrene were qualified due to uncertainty near the detection limit.

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
Preston R. Smith
Environmental Scientist/Data Validator

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:

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: 00885

SDG: 7J18357 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-414-0102
samp_date	10/17/2007
lab_id	A7J180357001
qc_type	NM
units	UG/KG
Pct_Solids	95.9
DUP_OF:	

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

nsample	SB-414-0203DL
samp_date	10/17/2007
lab_id	A7J180357002
qc_type	NM
units	UG/KG
Pct_Solids	88.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	160	J	P

nsample	SB-414-0304DL
samp_date	10/17/2007
lab_id	A7J180357003
qc_type	NM
units	UG/KG
Pct_Solids	86.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	15	U	

PROJ_NO: 00885

SDG: 7J18357 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-414-0506	nsample	SB-414-0708	nsample	SB-415-0102DL
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180357004	lab_id	A7J180357005	lab_id	A7J180357006
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	85.0
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	3000		

PROJ_NO: 00885

SDG: 7J18357 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-415-0203
samp_date	10/17/2007
lab_id	A7J180357007
qc_type	NM
units	UG/KG
Pct_Solids	88.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	9.5	J	P

nsample	SB-415-0304
samp_date	10/17/2007
lab_id	A7J180357008
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

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

nsample	SB-415-0506
samp_date	10/17/2007
lab_id	A7J180357009
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J18357 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-415-0708
samp_date	10/17/2007
lab_id	A7J180357010
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

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

nsample	SB-416-0102
samp_date	10/17/2007
lab_id	A7J180357011
qc_type	NM
units	UG/KG
Pct_Solids	92.5
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	210	J	P

nsample	SB-416-0203
samp_date	10/17/2007
lab_id	A7J180357012
qc_type	NM
units	UG/KG
Pct_Solids	81.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J18357 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-416-0304	nsample	SB-416-0506	nsample	SB-416-0708
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180357013	lab_id	A7J180357014	lab_id	A7J180357015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	80.0	Pct_Solids	85.0	Pct_Solids	82.0
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	1.5	U	

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

PROJ_NO: 00885

SDG: 7J18357 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-417-0102RE	nsample	SB-417-0203	nsample	SB-417-0304
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180357016	lab_id	A7J180357017	lab_id	A7J180357018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	90.8	Pct_Solids	88.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

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

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: 7J18357 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-417-0506	nsample	SB-417-0708
samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180357019	lab_id	A7J180357020
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	81.0
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

Tetra Tech NUS, Inc

Client Sample ID: SB-414-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-001 **Work Order #...:** J9A161AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:50 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 4.1 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	340	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	66	(24 - 112)
2-Fluorobiphenyl	75	(34 - 110)
Terphenyl-d14	94	(41 - 119)
Phenol-d5	69	(28 - 110)
2-Fluorophenol	70	(26 - 110)
2,4,6-Tribromophenol	59	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-414-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-002 **Work Order #...:** J9A2A1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:52 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295398
Dilution Factor: 5
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**160 J**	**1900**	**ug/kg**	**7.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	0.0 DIL,*	(24 - 112)
2-Fluorobiphenyl	78 DIL	(34 - 110)
Terphenyl-d14	90 DIL	(41 - 119)
Phenol-d5	86 DIL	(28 - 110)
2-Fluorophenol	55 DIL	(26 - 110)
2,4,6-Tribromophenol	71 DIL	(10 - 118)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-414-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-003 **Work Order #...:** J9A2D1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:54 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295398
Dilution Factor: 10
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	3800	ug/kg	15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	0.0 DIL,*	(24 - 112)
2-Fluorobiphenyl	63 DIL	(34 - 110)
Terphenyl-d14	80 DIL	(41 - 119)
Phenol-d5	54 DIL	(28 - 110)
2-Fluorophenol	55 DIL	(26 - 110)
2,4,6-Tribromophenol	46 DIL	(10 - 118)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-414-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-004 **Work Order #...:** J9A2E1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:56 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 21 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	114 *	(24 - 112)
2-Fluorobiphenyl	76	(34 - 110)
Terphenyl-d14	102	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	76	(26 - 110)
2,4,6-Tribromophenol	83	(10 - 118)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-414-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-005 **Work Order #...:** J9A2F1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:58 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	74	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	97	(41 - 119)
Phenol-d5	73	(28 - 110)
2-Fluorophenol	79	(26 - 110)
2,4,6-Tribromophenol	77	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-415-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-006 **Work Order #...:** J9A2H1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 11:15 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295398
Dilution Factor: 2.5
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**3000**	**970**	**ug/kg**	**3.8**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	67 DIL	(24 - 112)
2-Fluorobiphenyl	79 DIL	(34 - 110)
Terphenyl-d14	90 DIL	(41 - 119)
Phenol-d5	73 DIL	(28 - 110)
2-Fluorophenol	73 DIL	(26 - 110)
2,4,6-Tribromophenol	71 DIL	(10 - 118)

NOTE(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-415-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-007 **Work Order #...:** J9A2K1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 11:17 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**9.5 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	59	(34 - 110)
Terphenyl-d14	76	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	53	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-415-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-008 **Work Order #...:** J9A2M1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 11:19 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	95	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	68	(26 - 110)
2,4,6-Tribromophenol	66	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-415-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-009 **Work Order #...:** J9A2P1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 11:21 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	79	(24 - 112)
2-Fluorobiphenyl	76	(34 - 110)
Terphenyl-d14	99	(41 - 119)
Phenol-d5	76	(28 - 110)
2-Fluorophenol	81	(26 - 110)
2,4,6-Tribromophenol	73	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-415-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-010 **Work Order #...:** J9A2Q1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 11:23 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	72	(24 - 112)
2-Fluorobiphenyl	73	(34 - 110)
Terphenyl-d14	96	(41 - 119)
Phenol-d5	74	(28 - 110)
2-Fluorophenol	79	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-416-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-011 **Work Order #...:** J9A2V1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 12:25 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 7.5 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**210 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	80	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	42	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-416-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-012 **Work Order #...:** J9A231AC **Matrix.....:** SO
Date Sampled...: 10/17/07 11:27 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 19 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	70	(24 - 112)
2-Fluorobiphenyl	73	(34 - 110)
Terphenyl-d14	96	(41 - 119)
Phenol-d5	72	(28 - 110)
2-Fluorophenol	76	(26 - 110)
2,4,6-Tribromophenol	78	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-416-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-013 **Work Order #...:** J9A251AC **Matrix.....:** SO
Date Sampled...: 10/17/07 11:29 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 20 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	96	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	69	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-416-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-014 **Work Order #...:** J9A281AC **Matrix.....:** SO
Date Sampled...: 10/17/07 11:31 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	77	(24 - 112)
2-Fluorobiphenyl	75	(34 - 110)
Terphenyl-d14	104	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	81	(26 - 110)
2,4,6-Tribromophenol	81	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-416-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-015 **Work Order #...:** J9A291AC **Matrix.....:** SO
Date Sampled...: 10/17/07 11:33 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	77	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	95	(41 - 119)
Phenol-d5	76	(28 - 110)
2-Fluorophenol	80	(26 - 110)
2,4,6-Tribromophenol	67	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-417-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-016 **Work Order #...:** J9A3C2AC **Matrix.....:** SO
Date Sampled...: 10/17/07 12:35 **Date Received..:** 10/18/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/28/07
Prep Batch #...: 7297362
Dilution Factor: 1
% Moisture.....: 9.2 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**11 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	78	(24 - 112)
2-Fluorobiphenyl	80	(34 - 110)
Terphenyl-d14	99	(41 - 119)
Phenol-d5	81	(28 - 110)
2-Fluorophenol	78	(26 - 110)
2,4,6-Tribromophenol	77	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-417-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-017 **Work Order #...:** J9A3E1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 12:37 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
Terphenyl-d14	100	(41 - 119)
Phenol-d5	60	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	50	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-417-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-018 **Work Order #...:** J9A3F1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 12:39 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	49	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-417-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-019 **Work Order #...:** J9A3G1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 12:41 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	52	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-417-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-020 **Work Order #...:** J9A3H1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 12:43 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295398
Dilution Factor: 1
% Moisture.....: 19 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	69	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	96	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	72	(26 - 110)
2,4,6-Tribromophenol	44	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

PROJECT NO. 112IC00885

LMC MR
SDG #: 7J18357

Michael Martin

Tetra Tech NUS Inc
20251 Century Blvd
Suite 200
Germantown, MD 20874

TESTAMERICA LABORATORIES, INC.

Patrick J. O'Meara
Project Manager

November 7, 2007

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

CASE NARRATIVE

7J18357

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 18, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID: A7J180357.

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 October 31, 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 4.1 and 5.3°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.

Sample(s) SB-414-0506 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.

Sample(s) SB-414-0203 and SB-414-0304 had elevated reporting limits due to matrix interferences.

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

- 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.

ANALYTICAL METHODS SUMMARY

7J18357

PARAMETER	ANALYTICAL METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C
Total Residue as Percent Solids	MCAWW 160.3 MOD

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

7J18357 : A7J180357

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
J9A16	001	SB-414-0102	10/17/07	10:50
J9A2A	002	SB-414-0203	10/17/07	10:52
J9A2D	003	SB-414-0304	10/17/07	10:54
J9A2E	004	SB-414-0506	10/17/07	10:56
J9A2F	005	SB-414-0708	10/17/07	10:58
J9A2H	006	SB-415-0102	10/17/07	11:15
J9A2K	007	SB-415-0203	10/17/07	11:17
J9A2M	008	SB-415-0304	10/17/07	11:19
J9A2P	009	SB-415-0506	10/17/07	11:21
J9A2Q	010	SB-415-0708	10/17/07	11:23
J9A2V	011	SB-416-0102	10/17/07	12:25
J9A23	012	SB-416-0203	10/17/07	11:27
J9A25	013	SB-416-0304	10/17/07	11:29
J9A28	014	SB-416-0506	10/17/07	11:31
J9A29	015	SB-416-0708	10/17/07	11:33
J9A3C	016	SB-417-0102	10/17/07	12:35
J9A3E	017	SB-417-0203	10/17/07	12:37
J9A3F	018	SB-417-0304	10/17/07	12:39
J9A3G	019	SB-417-0506	10/17/07	12:41
J9A3H	020	SB-417-0708	10/17/07	12:43

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.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

SHIPPING AND RECEIVING DOCUMENTS

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Mahn	Date: 10/17/07	Chain of Custody Number: 322430
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 1 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: S. Hadley	Lab Contact: K. Ives	
Project Name and Location (State): LMC MA	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: #6 8270	Special Instructions/ Conditions of Receipt
SB-414-0102	10/17	1050				X	1						X	Block G
-0203		1052												
-0304		1054												
-0506		1056												
414-0708		1058												
415-0102		1115												
0203		1117												
0304		1119												
0506		1121												
415-0708		1123												
415-0506 MS/SD		1121												
SB-416-0102	10/17	1225				X	1						X	# benzo(a)pyrene

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other 28D

QC Requirements (Specify):

1. Relinquished By	Date: 10/17/07	Time: 1615	1. Received By	Date: 10/17/07	Time: 1615
2. Relinquished By	Date:	Time:	2. Received By	Date: 10-18-07	Time: 9:10
3. Relinquished By	Date:	Time:	3. Received By	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

15

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

16

STL-4124 (0901)

Client: Tetra tech	Project Manager: M. Mahn	Date: 10/17/07	Chain of Custody Number: 322431
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 2 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: S. Hadley	Lab Contact: K. Ives	
Project Name and Location (State): LMC MA	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: *11 8270	Special Instructions/ Conditions of Receipt
SB-416-0203	10/17	1127				X	1						X	*benzo (a) pyrene
0304		1127												
0506		1131												
416-0708		1133												
417-0102		1235												
-0203		1237												
-0304		1239												
-0506		1241												
SB 417-0708	10/17	1243				X	1						X	*benzo (a) pyrene

JCW 10/17

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Stnd

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/17/07	1615	1. Received By	10/17/07	1615
2. Relinquished By			2. Received By	10-18-07	9:10
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample: PINK - Field Copy

TestAmerica North Canton

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18357

Lot #: A7J180357

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-414-0102	66	75	94	69	70	59	00
02	SB-414-0203	0.0D	78 D	90 D	86 D	55 D	71 D	01
03	SB-414-0304	0.0D	63 D	80 D	54 D	55 D	46 D	01
04	SB-414-0506	114*	76	102	75	76	83	01
05	SB-414-0708	74	74	97	73	79	77	00
06	SB-415-0102	67 D	79 D	90 D	73 D	73 D	71 D	00
07	SB-415-0203	60	59	76	58	62	53	00
08	SB-415-0304	61	64	95	65	68	66	00
09	SB-415-0506	79	76	99	76	81	73	00
10	SB-415-0708	72	73	96	74	79	72	00
11	SB-416-0102	59	66	80	63	63	42	00
12	SB-416-0203	70	73	96	72	76	78	00
13	SB-416-0304	63	63	96	65	69	74	00
14	SB-416-0506	77	75	104	75	81	81	00
15	SB-416-0708	77	74	95	76	80	67	00
16	SB-417-0102 RE-1	78	80	99	81	78	77	00
17	SB-417-0203	58	61	100	60	60	50	00
18	SB-417-0304	60	66	86	63	64	49	00
19	SB-417-0506	58	62	89	61	61	52	00
20	SB-417-0708	69	74	96	75	72	44	00
21	INTRA-LAB QC	69	76	92	78	72	81	00
22	METHOD BLK. J9KC21AA	64	68	92	63	65	47	00
23	METHOD BLK. J9PNE1AA	79	82	100	82	80	70	00
24	LCS J9KC21AC	75	77	93	76	76	80	00
25	LCS J9PNE1AC	73	76	90	75	71	78	00
26	SB-415-0506 D	79	75	94	81	84	80	00
27	LAB MS/MSD D	66	72	88	74	68	77	00

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18357

Lot #: A7J180357

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-415-0506 S	69	66	93	73	73	78	00
02	LAB MS/MSD S	67	76	90	74	67	81	00

SURROGATES		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

FORM II

SW846 8270C CHECK SAMPLE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18357

Lot #: A7J220000 WO #: J9KC21AC

BATCH: 7295398

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
1,2,4-Trichlorobenzene	670	470	71	43- 110	
Acenaphthene	670	520	77	46- 110	
2,4-Dinitrotoluene	670	630	94	55- 116	
Pyrene	670	560	84	58- 113	
N-Nitrosodi-n-propylamine	670	520	77	40- 114	
1,4-Dichlorobenzene	670	440	66	38- 110	
Pentachlorophenol	670	350	52	10- 110	
Phenol	670	500	75	39- 110	
2-Chlorophenol	670	480	73	39- 110	
4-Chloro-3-methylphenol	670	500	76	42- 110	
4-Nitrophenol	670	400	59	24- 117	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III

SW846 8270C CHECK SAMPLE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18357

Lot #: A7J240000 WO #: J9PNE1AC
BATCH: 7297362

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
1,2,4-Trichlorobenzene	670	500	74	43 - 110	
Acenaphthene	670	450	67	46 - 110	
2,4-Dinitrotoluene	670	550	82	55 - 116	
Pyrene	670	500	75	58 - 113	
N-Nitrosodi-n-propylamine	670	460	69	40 - 114	
1,4-Dichlorobenzene	670	440	66	38 - 110	
Pentachlorophenol	670	420	63	10 - 110	
Phenol	670	450	68	39 - 110	
2-Chlorophenol	670	460	69	39 - 110	
4-Chloro-3-methylphenol	670	490	73	42 - 110	
4-Nitrophenol	670	480	72	24 - 117	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18357

Matrix Spike ID: SB-415-0506

Lot #: A7J180357 WO #: J9A2P1AH
BATCH: 7295398

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
1,2,4-Trichlorobenzene	790	ND	470	60	33 - 110	
Acenaphthene	790	ND	520	67	10 - 200	
2,4-Dinitrotoluene	790	ND	760	96	42 - 118	
Pyrene	790	ND	670	85	10 - 200	
N-Nitrosodi-n-propylamine	790	ND	580	74	30 - 121	
1,4-Dichlorobenzene	790	ND	390	49	26 - 110	
Pentachlorophenol	790	ND	140	17	10 - 182	
Phenol	790	ND	540	69	10 - 144	
2-Chlorophenol	790	ND	540	69	32 - 110	
4-Chloro-3-methylphenol	790	ND	610	78	32 - 117	
4-Nitrophenol	790	ND	440	55	10 - 125	

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: 0 out of 0 outside limits
Spike Recovery: 0 out of 11 outside limits

COMMENTS:

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18357

Matrix Spike ID: SB-415-0506

Lot #: A7J180357 WO #: J9A2P1AJ
BATCH: 7295398

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
1,2,4-Trichlorobenzene	790	540	68	13	30	33- 110	
Acenaphthene	790	580	73	9.5	30	10- 200	
2,4-Dinitrotoluene	790	750	95	1.9	30	42- 118	
Pyrene	790	680	87	1.5	30	10- 200	
N-Nitrosodi-n-propylamine	790	650	83	11	30	30- 121	
1,4-Dichlorobenzene	790	480	61	21	30	26- 110	
Pentachlorophenol	790	130	17	4.6	30	10- 182	
Phenol	790	610	78	12	30	10- 144	
2-Chlorophenol	790	620	78	13	30	32- 110	
4-Chloro-3-methylphenol	790	620	79	1.0	30	32- 117	
4-Nitrophenol	790	440	55	0.28	30	10- 125	

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: 0 out of 11 outside limits
Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18357

Matrix Spike ID: LAB MS/MSD Level: (low/med) LOW

Lot #: A7J230200 WO #: J9L5M1FM
BATCH: 7297362

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
1,2,4-Trichlorobenzene	750	ND	510	67	33 - 110	
Acenaphthene	750	8.2	510	67	10 - 200	
2,4-Dinitrotoluene	750	ND	590	79	42 - 118	
Pyrene	750	230	770	73	10 - 200	
N-Nitrosodi-n-propylamine	750	ND	490	66	30 - 121	
1,4-Dichlorobenzene	750	ND	470	62	26 - 110	
Pentachlorophenol	750	ND	380	50	10 - 182	
Phenol	750	ND	500	66	10 - 144	
2-Chlorophenol	750	ND	500	67	32 - 110	
4-Chloro-3-methylphenol	750	ND	600	79	32 - 117	
4-Nitrophenol	750	ND	520	69	10 - 125	

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: 0 out of 0 outside limits
Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18357

Matrix Spike ID: LAB MS/MSD Level: (low/med) LOW

Lot #: A7J230200 WO #: J9L5M1FN
BATCH: 7297362

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD		QC LIMITS RPD	QC LIMITS REC	QUAL
1,2,4-Trichlorobenzene	760	560	75	11		30	33 - 110	
Acenaphthene	760	550	72	8.0		30	10 - 200	
2,4-Dinitrotoluene	760	640	85	7.6		30	42 - 118	
Pyrene	760	770	72	0.56		30	10 - 200	
N-Nitrosodi-n-propylamine	760	560	74	12		30	30 - 121	
1,4-Dichlorobenzene	760	510	67	8.2		30	26 - 110	
Pentachlorophenol	760	440	58	15		30	10 - 182	
Phenol	760	560	74	10		30	10 - 144	
2-Chlorophenol	760	560	74	11		30	32 - 110	
4-Chloro-3-methylphenol	760	660	87	10		30	32 - 117	
4-Nitrophenol	760	590	77	12		30	10 - 125	

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: 0 out of 11 outside limits
Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III

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.: 7J18357

Lab File ID: 8DF1016 DFTPP Injection Date: 10/16/07

Instrument ID: A4HP8 DFTPP Injection Time: 1650

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	53.3
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	52.5
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	24.7
365	Greater than 1.0% of mass 198	2.9
441	Present, but less than mass 443	7.5
442	Greater than 40.0% of mass 198	49.8
443	17.0 - 23.0% of mass 442	9.7 (19.5)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	L5	8SMM1016	10/16/07	1710
02	SSTD004	L4	8SM1016	10/16/07	1729
03	SSTD003	L3	8SML1016	10/16/07	1748
04	SSTD002	L2	8SL1016	10/16/07	1808
05	SSTD001	L1	8SLL1016	10/16/07	1827
06	SSTD009	L9	8HHH1016	10/16/07	1846
07	SSTD008	L8	8SHH1016	10/16/07	1906
08	SSTD007	L7	8SH1016	10/16/07	1925
09	SSTD006	L6	8SMH1016	10/16/07	1944
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 16-OCT-2007 17:10
End Cal Date : 16-OCT-2007 22:38
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp8.i\71016a.b\8270P.m
Last Edit : 17-Oct-2007 09:51 a4hp8.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						
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
146 Benzo(a)pyrene	1.09789	0.93728	0.97166	1.04898	1.03500	1.10609			
	1.17063	1.20971	1.35324				1.10339	11.592	
148 3-Methylcholanthrene	+++++	0.41095	0.39801	0.42634	0.44824	0.48910			
	0.52060	0.52935	0.56965				0.47403	13.174	<-
149 Indeno(1,2,3-cd)pyrene	1.18934	0.98521	1.08853	1.13005	1.13030	1.19988			
	1.26258	1.29819	1.44163				1.19175	11.091	
150 Dibenz(a,h)anthracene	1.04565	0.84785	0.88174	0.95110	0.96584	1.02985			
	1.09214	1.12227	1.25828				1.02163	12.459	
151 Benzo(g,h,i)perylene	1.01487	0.85356	0.90988	0.96675	0.94005	0.97439			
	1.02852	1.04556	1.14714				0.98675	8.637	
232 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 16-OCT-2007 20:04
Lab File ID: ICVTCL.D Init. Cal. Date(s): 16-OCT-2007 16-OCT-2007
Analysis Type: Init. Cal. Times: 17:10 22:38
Lab Sample ID: icvtcl Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71016a.b\8270P.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.23616	1.25987	1.25987	0.010	-1.91832	50.00000	Averaged
146 Benzo(a)pyrene	1.10339	1.10717	1.10717	0.010	-0.34244	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.19175	1.19223	1.19223	0.010	-0.04094	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.02163	1.01878	1.01878	0.010	0.27955	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.98675	0.96659	0.96659	0.010	2.04267	50.00000	Averaged
198 1,4-Dioxane	0.63519	0.61083	0.61083	0.010	3.83518	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.47233	0.48118	0.48118	0.010	-1.87420	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.26616	1.23457	1.23457	0.010	2.49464	50.00000	Averaged
$ 156 Terphenyl-d14	0.78903	0.76520	0.76520	0.010	3.02019	50.00000	Averaged
$ 157 Phenol-d5	1.90787	1.90971	1.90971	0.010	-0.09668	50.00000	Averaged
$ 158 2-Fluorophenol	1.25879	1.28166	1.28166	0.010	-1.81723	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	5.00000	5.11465	0.12570	0.010	-2.29293	0.000e+000	Quadratic
$ 186 2-Chlorophenol-d4	1.23391	1.23552	1.23552	0.010	-0.13048	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.80509	0.81434	0.81434	0.010	-1.14927	50.00000	Averaged
M 195 Cresols, total	2.93583	2.97042	2.97042	0.010	-1.17811	50.00000	Averaged
101 Diphenylamine	0.50562	0.50744	0.50744	0.010	-0.36029	50.00000	Averaged

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.: 7J18357

Lab File ID: 8DF1023 DFTPP Injection Date: 10/23/07

Instrument ID: A4HP8 DFTPP Injection Time: 1022

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.8
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	48.6
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	40.0 - 60.0% of mass 198	49.5
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	6.9
275	10.0 - 30.0% of mass 198	26.4
365	Greater than 1.0% of mass 198	2.9
441	Present, but less than mass 443	8.8
442	Greater than 40.0% of mass 198	59.8
443	17.0 - 23.0% of mass 442	11.7 (19.6)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1023	10/23/07	1041
02	SB-414-0506	J9A2E1AC	J9A2E1AC	10/23/07	1806
03	SB-414-0708	J9A2F1AC	J9A2F1AC	10/23/07	1825
04	SB-415-0203	J9A2K1AC	J9A2K1AC	10/23/07	1844
05	SB-415-0304	J9A2M1AC	J9A2M1AC	10/23/07	1903
06	SB-415-0708	J9A2Q1AC	J9A2Q1AC	10/23/07	1922
07	SB-416-0203	J9A231AC	J9A231AC	10/23/07	1941
08	SB-416-0304	J9A251AC	J9A251AC	10/23/07	2000
09	SB-416-0506	J9A281AC	J9A281AC	10/23/07	2020
10	SB-416-0708	J9A291AC	J9A291AC	10/23/07	2039
11	SB-415-0506	J9A2P1AC	J9A2P1AC	10/23/07	2057
12	SB-415-0506	J9A2P1AH	J9A2P1AH	10/23/07	2116
13	SB-415-0506	J9A2P1AJ	J9A2P1AJ	10/23/07	2136
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i
Lab File ID: 8SMH1023.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71023a.b\8270p.m

Injection Date: 23-OCT-2007 10:41
Init. Cal. Date(s): 16-OCT-2007 16-OCT-2007
Init. Cal. Times: 17:10 22:38
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.23616	1.35747	1.35747	0.010	-9.81347	50.00000	Averaged
146 Benzo(a)pyrene	1.10339	1.17655	1.17655	0.010	-6.63058	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.19175	1.24625	1.24625	0.010	-4.57308	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.02163	1.07725	1.07725	0.010	-5.44417	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.98675	1.03133	1.03133	0.010	-4.51788	50.00000	Averaged
198 1,4-Dioxane	0.63519	0.57617	0.57617	0.010	9.29135	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.47233	0.50679	0.50679	0.010	-7.29666	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.26616	1.28963	1.28963	0.010	-1.85364	50.00000	Averaged
$ 156 Terphenyl-d14	0.78903	0.82759	0.82759	0.010	-4.88682	50.00000	Averaged
$ 157 Phenol-d5	1.90787	1.99287	1.99287	0.010	-4.45534	50.00000	Averaged
$ 158 2-Fluorophenol	1.25879	1.36693	1.36693	0.010	-8.59061	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	5.00000	5.03714	0.12357	0.010	-0.74282	0.000e+000	Quadratic
$ 186 2-Chlorophenol-d4	1.23391	1.30009	1.30009	0.010	-5.36359	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.80509	0.85027	0.85027	0.010	-5.61245	50.00000	Averaged
M 195 Cresols, total	2.93583	3.05402	3.05402	0.010	-4.02580	50.00000	Averaged
101 Diphenylamine	0.50562	0.53310	0.53310	0.010	-5.43614	50.00000	Averaged

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.: 7J18357

Lab File ID: 8DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4HP8 DFTPP Injection Time: 1405

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.3
68	Less than 2.0% of mass 69	0.2 (0.4)1
69	Mass 69 relative abundance	53.0
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	51.9
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	6.5
275	10.0 - 30.0% of mass 198	26.5
365	Greater than 1.0% of mass 198	3.3
441	Present, but less than mass 443	8.3
442	Greater than 40.0% of mass 198	52.9
443	17.0 - 23.0% of mass 442	9.8 (18.6)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	L5	8SMM1024	10/24/07	1522
02	SSTD004	L4	8SM1024	10/24/07	1541
03	SSTD003	L3	8SML1024	10/24/07	1600
04	SSTD002	L2	8SL1024	10/24/07	1619
05	SSTD001	L1	8SLL1024	10/24/07	1638
06	SSTD009	L9	8HHH1024	10/24/07	1656
07	SSTD008	L8	8SHH1024	10/24/07	1715
08	SSTD007	L7	8SH1024	10/24/07	1734
09	SSTD006	L6	8SMH1024	10/24/07	1753
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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

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	1.16862	0.94500	0.99660	1.06264	1.04702	1.14009			
	1.17535	1.24000	1.40500				1.13115	12.298	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.15525	1.02036	1.08130	1.16366	1.14381	1.23994			
	1.26288	1.32864	1.47228				1.20757	11.285	
150 Dibenz(a,h)anthracene	0.98770	0.87713	0.89316	0.96975	0.95807	1.05400			
	1.09661	1.15927	1.28968				1.03171	12.905	
151 Benzo(g,h,i)perylene	1.12101	0.90918	0.87601	0.98078	0.94801	1.00857			
	1.02246	1.07093	1.17786				1.01275	9.694	
232 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

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
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: icvtcl Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71024a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.28668	1.28668	0.010	-0.81506	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.11216	1.11216	0.010	1.67860	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.20643	1.20643	0.010	0.09417	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.02848	1.02848	0.010	0.31240	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	0.96293	0.96293	0.010	4.91974	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.56331	0.56331	0.010	8.63212	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.48504	0.48504	0.010	2.45568	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.25695	1.25695	0.010	2.13125	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.79942	0.79942	0.010	-0.26527	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.81077	1.81077	0.010	2.60337	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.22639	1.22639	0.010	4.19358	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14093	0.14093	0.010	1.19563	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.20697	1.20697	0.010	2.13638	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.82261	0.82261	0.010	0.39586	50.00000	Averaged
M 195 Cresols, total	2.85006	2.88600	2.88600	0.010	-1.26094	50.00000	Averaged
101 Diphenylamine	0.50153	0.49164	0.49164	0.010	1.97267	50.00000	Averaged

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.: 7J18357

Lab File ID: 8DF1024A DFTPP Injection Date: 10/24/07

Instrument ID: A4HP8 DFTPP Injection Time: 1831

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	49.2
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	50.0
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	25.6
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	8.3
442	Greater than 40.0% of mass 198	52.6
443	17.0 - 23.0% of mass 442	10.1 (19.1)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH024A	10/24/07	1850
02	J9KC2BLK	J9KC21AA	J9KC21AA	10/24/07	1909
03	J9KC2CHK	J9KC21AC	J9KC21AC	10/24/07	1929
04	SB-417-0304	J9A3F1AC	J9A3F1AC	10/25/07	0332
05	SB-417-0506	J9A3G1AC	J9A3G1AC	10/25/07	0352
06	SB-417-0708	J9A3H1AC	J9A3H1AC	10/25/07	0411
07	SB-416-0102	J9A2V1AC	J9A2V1AC	10/25/07	0430
08	SB-414-0102	J9A161AC	J9A161AC	10/25/07	0449
09	SB-415-0102	J9A2H1AC	J9A2H1AC	10/25/07	0509
10	SB-414-0203	J9A2A1AC	J9A2A1AC	10/25/07	0528
11	SB-414-0304	J9A2D1AC	J9A2D1AC	10/25/07	0547
12	SB-417-0203	J9A3E1AC	J9A3E1AC	10/25/07	0607
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 24-OCT-2007 18:50
Lab File ID: 8SMH024A.D Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71024b.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.29509	1.29509	0.010	-1.47383	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.16736	1.16736	0.010	-3.20127	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.25840	1.25840	0.010	-4.20901	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.07928	1.07928	0.010	-4.61089	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.03520	1.03520	0.010	-2.21580	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.59923	0.59923	0.010	2.80650	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.50470	0.50470	0.010	-1.49839	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.32854	1.32854	0.010	-3.44284	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.82165	0.82165	0.010	-3.05357	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.80727	1.80727	0.010	2.79164	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.26893	1.26893	0.010	0.87050	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14359	0.14359	0.010	-0.66803	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.23641	1.23641	0.010	-0.25067	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.83081	0.83081	0.010	-0.59745	50.00000	Averaged
M 195 Cresols, total	2.85006	2.81030	2.81030	0.010	1.39505	50.00000	Averaged
101 Diphenylamine	0.50153	0.51579	0.51579	0.010	-2.84175	50.00000	Averaged

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.: 7J18357

Lab File ID: 9DF1026A DFTPP Injection Date: 10/26/07

Instrument ID: A4HP9 DFTPP Injection Time: 1704

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.8
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	76.8
70	Less than 2.0% of mass 69	0.3 (0.3)1
127	40.0 - 60.0% of mass 198	51.1
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	6.5
275	10.0 - 30.0% of mass 198	29.2
365	Greater than 1.0% of mass 198	3.6
441	Present, but less than mass 443	1.6
442	Greater than 40.0% of mass 198	70.0
443	17.0 - 23.0% of mass 442	13.4 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	9SMH1026	10/26/07	1721
02	SSTD005	L5	9SMM1026	10/26/07	1741
03	SSTD004	L4	9SM1026	10/26/07	1801
04	SSTD003	L3	9SML1026	10/26/07	1821
05	SSTD002	L2	9SL1026	10/26/07	1841
06	SSTD001	L1	9SLL1026	10/26/07	1901
07	SSTD007	L7	9SH1026	10/26/07	1921
08	SSTD008	L8	9SHH1026	10/26/07	1941
09	SSTD009	L9	9HHH1026	10/26/07	2001
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 26-OCT-2007 17:21
End Cal Date : 26-OCT-2007 23:02
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp9.i\71026a.b\8270p.m
Last Edit : 28-Oct-2007 11:22 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	0.82242	0.86812	0.88042	0.99971	1.06496	1.08195			
	1.08269	1.12415	1.25518				1.01996	13.776	
148 3-Methylcholanthrene	+++++	0.34532	0.39283	0.39596	0.43177	0.46357			
	0.49893	0.50350	0.54719				0.44738	15.186	<-
149 Indeno(1,2,3-cd)pyrene	0.88033	0.90525	0.99128	1.01115	1.20656	1.19263			
	1.20634	1.27469	1.39702				1.11836	15.896	
150 Dibenz(a,h)anthracene	0.72403	0.73304	0.77054	0.82641	0.93302	0.93574			
	0.99202	1.03801	1.14672				0.89995	16.282	
151 Benzo(g,h,i)perylene	0.93708	0.82003	0.86849	0.92502	1.02023	1.00865			
	1.00411	1.04139	1.14717				0.97469	10.090	
230 2-Chloroacetophenone	+++++	0.55040	0.63824	0.67093	0.66163	0.71387			
	0.73812	0.75027	0.81188				0.69192	11.546	<-
199 3-Picoline	+++++	1.57245	1.79989	1.79874	1.76363	1.91933			
	1.96657	1.97569	2.24643				1.88034	10.514	<-
200 N,N-Dimethylacetamide	+++++	0.76103	0.86033	0.91015	0.88009	0.94499			
	0.96407	0.96819	1.09307				0.92274	10.467	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

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.: 7J18357

Lab File ID: 9DF1028C DFTPP Injection Date: 10/28/07

Instrument ID: A4HP9 DFTPP Injection Time: 1202

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	67.5
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	47.2
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	6.5
275	10.0 - 30.0% of mass 198	29.5
365	Greater than 1.0% of mass 198	3.3
441	Present, but less than mass 443	1.0
442	Greater than 40.0% of mass 198	73.6
443	17.0 - 23.0% of mass 442	13.8 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	9SMH1028	10/28/07	1218
02	J9PNEBLK	J9PNE1AA	J9PNE1AA	10/28/07	1306
03	J9PNECHK	J9PNE1AC	J9PNE1AC	10/28/07	1325
04	SB-417-0102	J9A3C2AC	J9A3C2AC	10/28/07	1605
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp9.i Injection Date: 28-OCT-2007 12:18
Lab File ID: 9SMH1028.D Init. Cal. Date(s): 26-OCT-2007 26-OCT-2007
Analysis Type: Init. Cal. Times: 17:21 23:02
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp9.i\71028a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.20495	1.19912	1.19912	0.010	0.48352	50.00000	Averaged
146 Benzo(a)pyrene	1.01996	1.08670	1.08670	0.010	-6.54361	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	5.00000	5.21421	1.22085	0.010	-4.28414	0.000e+000	Quadratic
150 Dibenz(a,h)anthracene	5.00000	5.16988	0.97080	0.010	-3.39751	0.000e+000	Quadratic
151 Benzo(g,h,i)perylene	0.97469	1.02173	1.02173	0.010	-4.82698	50.00000	Averaged
198 1,4-Dioxane	0.80187	0.72049	0.72049	0.010	10.14896	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.54239	0.52055	0.52055	0.010	4.02742	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.24497	1.26094	1.26094	0.010	-1.28258	50.00000	Averaged
$ 156 Terphenyl-d14	0.79964	0.83373	0.83373	0.010	-4.26356	50.00000	Averaged
$ 157 Phenol-d5	2.06397	2.00436	2.00436	0.010	2.88804	50.00000	Averaged
$ 158 2-Fluorophenol	1.39829	1.30602	1.30602	0.010	6.59871	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	5.00000	5.40686	0.19888	0.010	-8.13727	0.000e+000	Quadratic
$ 186 2-Chlorophenol-d4	1.25440	1.19739	1.19739	0.010	4.54539	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.84784	0.80860	0.80860	0.010	4.62797	50.00000	Averaged
M 195 Cresols, total	3.01177	2.90182	2.90182	0.010	3.65087	50.00000	Averaged
101 Diphenylamine	0.48745	0.48780	0.48780	0.010	-0.07341	50.00000	Averaged

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9KC21AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J18357

Lab File ID: J9KC21AA.

Lot Number: A7J180357

Date Analyzed: 10/24/07

Time Analyzed: 19:09

Matrix: SOLID

Date Extracted:10/23/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-414-0102	J9A161AC	J9A161AC.	10/25/07	04:49
02	SB-414-0203	J9A2A1AC	J9A2A1AC.	10/25/07	05:28
03	SB-414-0304	J9A2D1AC	J9A2D1AC.	10/25/07	05:47
04	SB-414-0506	J9A2E1AC	J9A2E1AC.	10/23/07	18:06
05	SB-414-0708	J9A2F1AC	J9A2F1AC.	10/23/07	18:25
06	SB-415-0102	J9A2H1AC	J9A2H1AC.	10/25/07	05:09
07	SB-415-0203	J9A2K1AC	J9A2K1AC.	10/23/07	18:44
08	SB-415-0304	J9A2M1AC	J9A2M1AC.	10/23/07	19:03
09	SB-415-0506	J9A2P1AC	J9A2P1AC.	10/23/07	20:57
10	SB-415-0506	J9A2P1AH S	J9A2P1AH.	10/23/07	21:16
11	SB-415-0506	J9A2P1AJ D	J9A2P1AJ.	10/23/07	21:36
12	SB-415-0708	J9A2Q1AC	J9A2Q1AC.	10/23/07	19:22
13	SB-416-0102	J9A2V1AC	J9A2V1AC.	10/25/07	04:30
14	SB-416-0203	J9A231AC	J9A231AC.	10/23/07	19:41
15	SB-416-0304	J9A251AC	J9A251AC.	10/23/07	20:00
16	SB-416-0506	J9A281AC	J9A281AC.	10/23/07	20:20
17	SB-416-0708	J9A291AC	J9A291AC.	10/23/07	20:39
18	SB-417-0203	J9A3E1AC	J9A3E1AC.	10/25/07	06:07
19	SB-417-0304	J9A3F1AC	J9A3F1AC.	10/25/07	03:32
20	SB-417-0506	J9A3G1AC	J9A3G1AC.	10/25/07	03:52
21	SB-417-0708	J9A3H1AC	J9A3H1AC.	10/25/07	04:11
22	CHECK SAMPLE	J9KC21AC C	J9KC21AC.	10/24/07	19:29
23					
24					
25					
26					
27					
28					
29					
30					

COMMENTS:

FORM IV

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9PNE1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J18357

Lab File ID: J9PNE1AA.

Lot Number: A7J180357

Date Analyzed: 10/28/07

Time Analyzed: 13:06

Matrix: SOLID

Date Extracted:10/24/07

GC Column: DB .625 ID: .32

Extraction Method: 3550B

Instrument ID: HP9

Level:(low/med) LOW

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

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-417-0102	J9A3C2AC	J9A3C2AC.	10/28/07	16:05
02	INTRA-LAB QC	J9L5M1AD	J9L5M1AD.	10/28/07	21:23
03	LAB MS/MSD	J9L5M1FM S	J9L5M1FM.	10/28/07	21:42
04	LAB MS/MSD	J9L5M1FN D	J9L5M1FN.	10/28/07	22:02
05	CHECK SAMPLE	J9PNE1AC C	J9PNE1AC.	10/28/07	13:25
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

COMMENTS:

FORM IV

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357
MB Lot-Sample #: A7J220000-398

Work Order #...: J9KC21AA
Prep Date.....: 10/23/07
Prep Batch #...: 7295398
Initial Wgt/Vol: 30 g

Matrix.....: SOLID
Final Wgt/Vol..: 2 mL

Analysis Date..: 10/24/07
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzo(a)pyrene	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	92	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	47	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357
MB Lot-Sample #: A7J240000-362

Work Order #...: J9PNE1AA

Matrix.....: SOLID

Prep Date.....: 10/24/07
Prep Batch #...: 7297362
Initial Wgt/Vol: 30 g

Analysis Date..: 10/28/07
Dilution Factor: 1

Final Wgt/Vol..: 2 mL

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzo(a)pyrene	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	79	(24 - 112)
2-Fluorobiphenyl	82	(34 - 110)
Terphenyl-d14	100	(41 - 119)
Phenol-d5	82	(28 - 110)
2-Fluorophenol	80	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18357

Lab File ID (Standard): 8SMH1023 Date Analyzed: 10/23/07

Instrument ID: A4HP8 Time Analyzed: 1041

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	60527	3.44	250294	4.34	137640	5.61
	UPPER LIMIT	121054	3.94	500588	4.84	275280	6.11
	LOWER LIMIT	30264	2.94	125147	3.84	68820	5.11
	EPA SAMPLE NO.						
01	SB-414-0506	49283	3.45	199016	4.35	110127	5.62
02	SB-414-0708	44813	3.45	189562	4.35	103971	5.62
03	SB-415-0203	46468	3.45	197923	4.35	108914	5.62
04	SB-415-0304	47592	3.45	207201	4.34	115162	5.61
05	SB-415-0708	43733	3.45	194543	4.34	109437	5.61
06	SB-416-0203	46620	3.45	204088	4.35	116157	5.61
07	SB-416-0304	47674	3.45	205179	4.34	118166	5.61
08	SB-416-0506	46833	3.45	201713	4.35	116659	5.62
09	SB-416-0708	47036	3.45	203563	4.34	114335	5.62
10	SB-415-0506	44154	3.45	186006	4.35	107858	5.61
11	SB-415-0506	43844	3.45	197000	4.35	118270	5.61
12	SB-415-0506	46810	3.45	210163	4.34	119874	5.61
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

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.: 7J18357

Lab File ID (Standard): 8SMH1023 Date Analyzed: 10/23/07

Instrument ID: A4HP8 Time Analyzed: 1041

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	256992	6.70	246939	8.71	198825	10.13
	UPPER LIMIT	513984	7.20	493878	9.21	397650	10.63
	LOWER LIMIT	128496	6.20	123470	8.21	99413	9.63
	EPA SAMPLE NO.						
01	SB-414-0506	224759	6.71	210054	8.70	167651	10.13
02	SB-414-0708	193547	6.71	183987	8.69	146309	10.11
03	SB-415-0203	211777	6.70	195077	8.67	161587	10.10
04	SB-415-0304	225734	6.71	217528	8.68	181362	10.11
05	SB-415-0708	217774	6.71	213044	8.69	168762	10.12
06	SB-416-0203	222624	6.71	211835	8.70	176546	10.13
07	SB-416-0304	231912	6.71	218520	8.68	176637	10.10
08	SB-416-0506	236374	6.70	226880	8.68	180926	10.11
09	SB-416-0708	225589	6.70	220616	8.70	178245	10.13
10	SB-415-0506	213569	6.71	210416	8.69	171150	10.12
11	SB-415-0506	238333	6.71	232717	8.68	184628	10.11
12	SB-415-0506	236309	6.71	231730	8.69	183228	10.11
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18357

Lab File ID (Standard): 8SMH024A Date Analyzed: 10/24/07

Instrument ID: A4HP8 Time Analyzed: 1850

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	178549	3.59	708147	4.49	394655	5.76
	UPPER LIMIT	357098	4.09	1416294	4.99	789310	6.26
	LOWER LIMIT	89275	3.09	354074	3.99	197328	5.26
	EPA SAMPLE NO.						
01	J9KC2BLK	165026	3.59	666803	4.49	352676	5.76
02	J9KC2CHK	116637	3.59	496299	4.49	280093	5.75
03	SB-417-0304	112556	3.59	481041	4.48	284375	5.76
04	SB-417-0506	126452	3.59	540626	4.48	323305	5.76
05	SB-417-0708	110935	3.59	490444	4.49	286579	5.76
06	SB-416-0102	114553	3.59	501835	4.48	293146	5.76
07	SB-414-0102	126761	3.59	546118	4.48	308666	5.76
08	SB-415-0102	137294	3.59	594123	4.49	334995	5.76
09	SB-414-0203	141162	3.59	560488	4.49	279131	5.76
10	SB-414-0304	174622	3.59	682560	4.49	390069	5.76
11	SB-417-0203	137470	3.59	583593	4.49	340329	5.76
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18357

Lab File ID (Standard): 8SMH024A Date Analyzed: 10/24/07

Instrument ID: A4HP8 Time Analyzed: 1850

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	741681	6.84	737253	8.86	607133	10.39
	UPPER LIMIT	1483362	7.34	1474506	9.36	1214266	10.89
	LOWER LIMIT	370841	6.34	368627	8.36	303567	9.89
	EPA SAMPLE NO.						
01	J9KC2BLK	668618	6.85	674685	8.86	584940	10.39
02	J9KC2CHK	567006	6.85	590695	8.84	499505	10.36
03	SB-417-0304	568393	6.85	606846	8.84	499142	10.37
04	SB-417-0506	624352	6.85	653856	8.85	523634	10.38
05	SB-417-0708	565130	6.85	590660	8.84	466942	10.37
06	SB-416-0102	550579	6.85	575165	8.83	467412	10.36
07	SB-414-0102	595930	6.85	570938	8.84	453604	10.37
08	SB-415-0102	643861	6.85	679291	8.85	464727	10.39
09	SB-414-0203	544363	6.85	544767	8.85	425264	10.38
10	SB-414-0304	770684	6.85	749304	8.84	577019	10.38
11	SB-417-0203	650105	6.85	611516	8.84	476469	10.37
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18357

Lab File ID (Standard): 9SMH1028 Date Analyzed: 10/28/07

Instrument ID: A4HP9 Time Analyzed: 1218

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	124313	3.92	494506	4.88	274758	6.18
	UPPER LIMIT	248626	4.42	989012	5.38	549516	6.68
	LOWER LIMIT	62157	3.42	247253	4.38	137379	5.68
	EPA SAMPLE NO.						
01	J9PNEBLK	126513	3.91	524151	4.87	292141	6.18
02	J9PNECHK	157123	3.92	634063	4.88	367426	6.18
03	SB-417-0102	130040	3.91	538991	4.87	310910	6.18
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

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.: 7J18357

Lab File ID (Standard): 9SMH1028 Date Analyzed: 10/28/07

Instrument ID: A4HP9 Time Analyzed: 1218

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	519568	7.27	583324	9.26	534910	10.76
	UPPER LIMIT	1039136	7.77	1166648	9.76	1069820	11.26
	LOWER LIMIT	259784	6.77	291662	8.76	267455	10.26
	EPA SAMPLE NO.						
01	J9PNEBLK	555059	7.27	602171	9.26	563180	10.76
02	J9PNECHK	689142	7.27	794457	9.25	750783	10.74
03	SB-417-0102	576800	7.27	636893	9.24	615433	10.74
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 **Work Order #...:** J9A2P1AH-MS **Matrix.....:** SO
MS Lot-Sample #: A7J180357-009 J9A2P1AJ-MSD
Date Sampled...: 10/17/07 11:21 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1 **Initial Wgt/Vol:** 30.06 g **Final Wgt/Vol..:** 2 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,2,4-Trichloro-benzene	60	(33 - 110)			SW846 8270C
	68	(33 - 110)	13	(0-30)	SW846 8270C
Acenaphthene	67	(10 - 200)			SW846 8270C
	73	(10 - 200)	9.5	(0-30)	SW846 8270C
2,4-Dinitrotoluene	96	(42 - 118)			SW846 8270C
	95	(42 - 118)	1.9	(0-30)	SW846 8270C
Pyrene	85	(10 - 200)			SW846 8270C
	87	(10 - 200)	1.5	(0-30)	SW846 8270C
N-Nitrosodi-n-propyl-amine	74	(30 - 121)			SW846 8270C
	83	(30 - 121)	11	(0-30)	SW846 8270C
1,4-Dichlorobenzene	49	(26 - 110)			SW846 8270C
	61	(26 - 110)	21	(0-30)	SW846 8270C
Pentachlorophenol	17	(10 - 182)			SW846 8270C
	17	(10 - 182)	4.6	(0-30)	SW846 8270C
Phenol	69	(10 - 144)			SW846 8270C
	78	(10 - 144)	12	(0-30)	SW846 8270C
2-Chlorophenol	69	(32 - 110)			SW846 8270C
	78	(32 - 110)	13	(0-30)	SW846 8270C
4-Chloro-3-methylphenol	78	(32 - 117)			SW846 8270C
	79	(32 - 117)	1.0	(0-30)	SW846 8270C
4-Nitrophenol	55	(10 - 125)			SW846 8270C
	55	(10 - 125)	0.28	(0-30)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	69	(24 - 112)
	79	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
	75	(34 - 110)
Terphenyl-d14	93	(41 - 119)
	94	(41 - 119)
Phenol-d5	73	(28 - 110)
	81	(28 - 110)
2-Fluorophenol	73	(26 - 110)
	84	(26 - 110)

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 **Work Order #...:** J9A2P1AH-MS **Matrix.....:** SO
MS Lot-Sample #: A7J180357-009 J9A2P1AJ-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	78	(10 - 118)
	80	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 **Work Order #...:** J9A2P1AH-MS **Matrix.....:** SO
MS Lot-Sample #: A7J180357-009 J9A2P1AJ-MSD
Date Sampled...: 10/17/07 11:21 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/23/07
Prep Batch #...: 7295398
Dilution Factor: 1 **Initial Wgt/Vol:** 30.06 g **Final Wgt/Vol..:** 2 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,2,4-Trichloro-benzene	ND	790	470	ug/kg	60		SW846 8270C
	ND	790	540	ug/kg	68	13	SW846 8270C
Acenaphthene	ND	790	520	ug/kg	67		SW846 8270C
	ND	790	580	ug/kg	73	9.5	SW846 8270C
2,4-Dinitrotoluene	ND	790	760	ug/kg	96		SW846 8270C
	ND	790	750	ug/kg	95	1.9	SW846 8270C
Pyrene	ND	790	670	ug/kg	85		SW846 8270C
	ND	790	680	ug/kg	87	1.5	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	790	580	ug/kg	74		SW846 8270C
	ND	790	650	ug/kg	83	11	SW846 8270C
1,4-Dichlorobenzene	ND	790	390	ug/kg	49		SW846 8270C
	ND	790	480	ug/kg	61	21	SW846 8270C
Pentachlorophenol	ND	790	140	ug/kg	17		SW846 8270C
	ND	790	130	ug/kg	17	4.6	SW846 8270C
Phenol	ND	790	540	ug/kg	69		SW846 8270C
	ND	790	610	ug/kg	78	12	SW846 8270C
2-Chlorophenol	ND	790	540	ug/kg	69		SW846 8270C
	ND	790	620	ug/kg	78	13	SW846 8270C
4-Chloro-3-methylphenol	ND	790	610	ug/kg	78		SW846 8270C
	ND	790	620	ug/kg	79	1.0	SW846 8270C
4-Nitrophenol	ND	790	440	ug/kg	55		SW846 8270C
	ND	790	440	ug/kg	55	0.28	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	69	(24 - 112)
	79	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
	75	(34 - 110)
Terphenyl-d14	93	(41 - 119)
	94	(41 - 119)
Phenol-d5	73	(28 - 110)
	81	(28 - 110)
2-Fluorophenol	73	(26 - 110)
	84	(26 - 110)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 **Work Order #...:** J9A2P1AH-MS **Matrix.....:** SO
MS Lot-Sample #: A7J180357-009 J9A2P1AJ-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	78	(10 - 118)
	80	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...:	7J18357	**Work Order #...:**	J9L5M1FM-MS	**Matrix.....:**	SOLID
MS Lot-Sample #:	A7J230200-001		J9L5M1FN-MSD		
Date Sampled...:	10/22/07 13:20	**Date Received..:**	10/23/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/28/07		
Prep Batch #...:	7297362				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.17 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	12				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,2,4-Trichloro-benzene	67	(33 - 110)			SW846 8270C
	75	(33 - 110)	11	(0-30)	SW846 8270C
Acenaphthene	67	(10 - 200)			SW846 8270C
	72	(10 - 200)	8.0	(0-30)	SW846 8270C
2,4-Dinitrotoluene	79	(42 - 118)			SW846 8270C
	85	(42 - 118)	7.6	(0-30)	SW846 8270C
Pyrene	73	(10 - 200)			SW846 8270C
	72	(10 - 200)	0.56	(0-30)	SW846 8270C
N-Nitrosodi-n-propyl-amine	66	(30 - 121)			SW846 8270C
	74	(30 - 121)	12	(0-30)	SW846 8270C
1,4-Dichlorobenzene	62	(26 - 110)			SW846 8270C
	67	(26 - 110)	8.2	(0-30)	SW846 8270C
Pentachlorophenol	50	(10 - 182)			SW846 8270C
	58	(10 - 182)	15	(0-30)	SW846 8270C
Phenol	66	(10 - 144)			SW846 8270C
	74	(10 - 144)	10	(0-30)	SW846 8270C
2-Chlorophenol	67	(32 - 110)			SW846 8270C
	74	(32 - 110)	11	(0-30)	SW846 8270C
4-Chloro-3-methylphenol	79	(32 - 117)			SW846 8270C
	87	(32 - 117)	10	(0-30)	SW846 8270C
4-Nitrophenol	69	(10 - 125)			SW846 8270C
	77	(10 - 125)	12	(0-30)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	67	(24 - 112)
	66	(24 - 112)
2-Fluorobiphenyl	76	(34 - 110)
	72	(34 - 110)
Terphenyl-d14	90	(41 - 119)
	88	(41 - 119)
Phenol-d5	74	(28 - 110)
	74	(28 - 110)

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 **Work Order #...:** J9L5M1FM-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J230200-001 J9L5M1FN-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	67	(26 - 110)
	68	(26 - 110)
2,4,6-Tribromophenol	81	(10 - 118)
	77	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 Work Order #...: J9L5M1FM-MS Matrix.....: SOLID
MS Lot-Sample #: A7J230200-001 J9L5M1FN-MSD
Date Sampled...: 10/22/07 13:20 Date Received..: 10/23/07
Prep Date.....: 10/24/07 Analysis Date..: 10/28/07
Prep Batch #...: 7297362
Dilution Factor: 1 Initial Wgt/Vol: 30.17 g Final Wgt/Vol..: 2 mL
% Moisture.....: 12

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,2,4-Trichloro-benzene	ND	750	510	ug/kg	67		SW846 8270C
	ND	760	560	ug/kg	75	11	SW846 8270C
Acenaphthene	8.2	750	510	ug/kg	67		SW846 8270C
	8.2	760	550	ug/kg	72	8.0	SW846 8270C
2,4-Dinitrotoluene	ND	750	590	ug/kg	79		SW846 8270C
	ND	760	640	ug/kg	85	7.6	SW846 8270C
Pyrene	230	750	770	ug/kg	73		SW846 8270C
	230	760	770	ug/kg	72	0.56	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	750	490	ug/kg	66		SW846 8270C
	ND	760	560	ug/kg	74	12	SW846 8270C
1,4-Dichlorobenzene	ND	750	470	ug/kg	62		SW846 8270C
	ND	760	510	ug/kg	67	8.2	SW846 8270C
Pentachlorophenol	ND	750	380	ug/kg	50		SW846 8270C
	ND	760	440	ug/kg	58	15	SW846 8270C
Phenol	ND	750	500	ug/kg	66		SW846 8270C
	ND	760	560	ug/kg	74	10	SW846 8270C
2-Chlorophenol	ND	750	500	ug/kg	67		SW846 8270C
	ND	760	560	ug/kg	74	11	SW846 8270C
4-Chloro-3-methylphenol	ND	750	600	ug/kg	79		SW846 8270C
	ND	760	660	ug/kg	87	10	SW846 8270C
4-Nitrophenol	ND	750	520	ug/kg	69		SW846 8270C
	ND	760	590	ug/kg	77	12	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	67	(24 - 112)
	66	(24 - 112)
2-Fluorobiphenyl	76	(34 - 110)
	72	(34 - 110)
Terphenyl-d14	90	(41 - 119)
	88	(41 - 119)
Phenol-d5	74	(28 - 110)
	74	(28 - 110)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 **Work Order #...:** J9L5M1FM-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J230200-001 J9L5M1FN-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	67	(26 - 110)
	68	(26 - 110)
2,4,6-Tribromophenol	81	(10 - 118)
	77	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 Work Order #...: J9KC21AC Matrix.....: SOLID
LCS Lot-Sample#: A7J220000-398
Prep Date.....: 10/23/07 Analysis Date..: 10/24/07
Prep Batch #...: 7295398
Dilution Factor: 1 Final Wgt/Vol..: 2 mL
Initial Wgt/Vol: 30 g

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,2,4-Trichlorobenzene	**71**	**(43 - 110)**	**SW846 8270C**
Acenaphthene	**77**	**(46 - 110)**	**SW846 8270C**
2,4-Dinitrotoluene	**94**	**(55 - 116)**	**SW846 8270C**
Pyrene	**84**	**(58 - 113)**	**SW846 8270C**
N-Nitrosodi-n-propylamine	**77**	**(40 - 114)**	**SW846 8270C**
1,4-Dichlorobenzene	**66**	**(38 - 110)**	**SW846 8270C**
Pentachlorophenol	**52**	**(10 - 110)**	**SW846 8270C**
Phenol	**75**	**(39 - 110)**	**SW846 8270C**
2-Chlorophenol	**73**	**(39 - 110)**	**SW846 8270C**
4-Chloro-3-methylphenol	**76**	**(42 - 110)**	**SW846 8270C**
4-Nitrophenol	**59**	**(24 - 117)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	75	(24 - 112)
2-Fluorobiphenyl	77	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	76	(28 - 110)
2-Fluorophenol	76	(26 - 110)
2,4,6-Tribromophenol	80	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 Work Order #...: J9KC21AC Matrix.....: SOLID
LCS Lot-Sample#: A7J220000-398
Prep Date.....: 10/23/07 Analysis Date..: 10/24/07
Prep Batch #...: 7295398
Dilution Factor: 1 Final Wgt/Vol..: 2 mL
Initial Wgt/Vol: 30 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
1,2,4-Trichloro-benzene	**670**	**470**	**ug/kg**	**71**	**SW846 8270C**
Acenaphthene	**670**	**520**	**ug/kg**	**77**	**SW846 8270C**
2,4-Dinitrotoluene	**670**	**630**	**ug/kg**	**94**	**SW846 8270C**
Pyrene	**670**	**560**	**ug/kg**	**84**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**670**	**520**	**ug/kg**	**77**	**SW846 8270C**
1,4-Dichlorobenzene	**670**	**440**	**ug/kg**	**66**	**SW846 8270C**
Pentachlorophenol	**670**	**350**	**ug/kg**	**52**	**SW846 8270C**
Phenol	**670**	**500**	**ug/kg**	**75**	**SW846 8270C**
2-Chlorophenol	**670**	**480**	**ug/kg**	**73**	**SW846 8270C**
4-Chloro-3-methylphenol	**670**	**500**	**ug/kg**	**76**	**SW846 8270C**
4-Nitrophenol	**670**	**400**	**ug/kg**	**59**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	75	(24 - 112)
2-Fluorobiphenyl	77	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	76	(28 - 110)
2-Fluorophenol	76	(26 - 110)
2,4,6-Tribromophenol	80	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 **Work Order #...:** J9PNE1AC **Matrix.....:** SOLID
LCS Lot-Sample#: A7J240000-362
Prep Date.....: 10/24/07 **Analysis Date..:** 10/28/07
Prep Batch #...: 7297362
Dilution Factor: 1 **Final Wgt/Vol..:** 2 mL
Initial Wgt/Vol: 30 g

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,2,4-Trichloro-benzene	**74**	**(43 - 110)**	**SW846 8270C**
Acenaphthene	**67**	**(46 - 110)**	**SW846 8270C**
2,4-Dinitrotoluene	**82**	**(55 - 116)**	**SW846 8270C**
Pyrene	**75**	**(58 - 113)**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**69**	**(40 - 114)**	**SW846 8270C**
1,4-Dichlorobenzene	**66**	**(38 - 110)**	**SW846 8270C**
Pentachlorophenol	**63**	**(10 - 110)**	**SW846 8270C**
Phenol	**68**	**(39 - 110)**	**SW846 8270C**
2-Chlorophenol	**69**	**(39 - 110)**	**SW846 8270C**
4-Chloro-3-methylphenol	**73**	**(42 - 110)**	**SW846 8270C**
4-Nitrophenol	**72**	**(24 - 117)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	73	(24 - 112)
2-Fluorobiphenyl	76	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	71	(26 - 110)
2,4,6-Tribromophenol	78	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: 7J18357 Work Order #...: J9PNE1AC Matrix.....: SOLID
LCS Lot-Sample#: A7J240000-362
Prep Date.....: 10/24/07 Analysis Date..: 10/28/07
Prep Batch #...: 7297362
Dilution Factor: 1 Final Wgt/Vol..: 2 mL
Initial Wgt/Vol: 30 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
1,2,4-Trichloro-benzene	**670**	**500**	**ug/kg**	**74**	**SW846 8270C**
Acenaphthene	**670**	**450**	**ug/kg**	**67**	**SW846 8270C**
2,4-Dinitrotoluene	**670**	**550**	**ug/kg**	**82**	**SW846 8270C**
Pyrene	**670**	**500**	**ug/kg**	**75**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**670**	**460**	**ug/kg**	**69**	**SW846 8270C**
1,4-Dichlorobenzene	**670**	**440**	**ug/kg**	**66**	**SW846 8270C**
Pentachlorophenol	**670**	**420**	**ug/kg**	**63**	**SW846 8270C**
Phenol	**670**	**450**	**ug/kg**	**68**	**SW846 8270C**
2-Chlorophenol	**670**	**460**	**ug/kg**	**69**	**SW846 8270C**
4-Chloro-3-methylphenol	**670**	**490**	**ug/kg**	**73**	**SW846 8270C**
4-Nitrophenol	**670**	**480**	**ug/kg**	**72**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	73	(24 - 112)
2-Fluorobiphenyl	76	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	71	(26 - 110)
2,4,6-Tribromophenol	78	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SAMPLE CALC SAMPLE ID: SB-417-0203 COMPOUND: BAP

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
425264	5	50309	2	2000	1.1312	0.88	0.5	158.30

Sample Amount (g)
30.03

C. 160

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4hp8.i\71024b.b\J9A2A1AC.D
Lab Smp Id: j9a2a1ac Client Smp ID: SB-414-0203
Inj Date : 25-OCT-2007 05:28
Operator : 001710 Inst ID: a4hp8.i
Smp Info : j9a2a1ac,71024b.b,8270p,bap.sub
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4hp8.i\71024b.b\8270P.m
Meth Date : 25-Oct-2007 12:35 gruberj Quant Type: ISTD
Cal Date : 24-OCT-2007 17:53 Cal File: 8SMH1024.D
Als bottle: 44
Dil Factor: 5.00000
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	5.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.030	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)
* 1 1,4-Dichlorobenzene-d4	152	3.592	3.588	(1.000)	141162	2.00000	(Q)
* 2 Naphthalene-d8	136	4.492	4.487	(1.000)	560488	2.00000	
* 3 Acenaphthene-d10	164	5.756	5.757	(1.000)	279131	2.00000	
* 4 Phenanthrene-d10	188	6.848	6.844	(1.000)	544363	2.00000	
* 5 Chrysene-d12	240	8.848	8.863	(1.000)	544767	2.00000	
* 6 Perylene-d12	264	10.382	10.392	(1.000)	425264	2.00000	
146 Benzo(a)pyrene	252	10.310	10.325	(0.993)	50309	0.20917	139.31
$ 154 Nitrobenzene-d5	82	Compound Not Detected.					
$ 155 2-Fluorobiphenyl	172	5.247	5.247	(0.911)	140497	0.78382	522.02
$ 156 Terphenyl-d14	244	7.997	8.002	(0.904)	196196	0.90341	601.67
$ 157 Phenol-d5	99	3.289	3.290	(0.916)	168661	1.28531	856.02(Q)
$ 158 2-Fluorophenol	112	2.717	2.713	(0.756)	73989	0.81893	545.41
$ 159 2,4,6-Tribromophenol	330	6.333	6.329	(1.100)	21286	1.06927	712.13
$ 186 2-Chlorophenol-d4	132	3.439	3.434	(0.957)	116732	1.34100	893.10(Q)
$ 187 1,2-Dichlorobenzene-d4	152	3.703	3.699	(1.031)	73566	1.26204	840.52(Q)

QC Flag Legend

Tetra Tech NUS, Inc

Client Sample ID: SB-414-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180357-002	**Work Order #...:** J9A2A1AC	**Matrix.....:** SO	
Date Sampled...: 10/17/07 10:52	**Date Received..:** 10/18/07		
Prep Date.....: 10/23/07	**Analysis Date..:** 10/25/07		
Prep Batch #...: 7295398			
Dilution Factor: 5	**Initial Wgt/Vol:** 30.03 g	**Final Wgt/Vol..:** 2 mL	
% Moisture.....: 12	**Method.....:** SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**160 J**	**1900**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	0.0 DIL,*	(24 - 112)
2-Fluorobiphenyl	78 DIL	(34 - 110)
Terphenyl-d14	90 DIL	(41 - 119)
Phenol-d5	86 DIL	(28 - 110)
2-Fluorophenol	55 DIL	(26 - 110)
2,4,6-Tribromophenol	71 DIL	(10 - 118)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

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): 7J18372

SAMPLES: 20/Soil/

SB-410-0102	SB-410-0203	SB-410-0304	SB-410-0506	SB-410-0708
SB-411-0102	SB-411-0203	SB-411-0304	SB-411-0506	SB-411-0708
SB-412-0102	SB-412-0203	SB-412-0304	SB-412-0506	SB-412-0708
SB-413-0102	SB-413-0203	SB-413-0304	SB-413-0506	SB-413-0708

Overview

The sample set for SDG 7J18372, 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 17, 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 areas were outside acceptance limits for sample SB-413-0203 due to matrix effects. The results for benzo(a)pyrene were qualified as estimated "J".

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 compliant. No action was required.

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

PROJ_NO: 00885

SDG: 7J18372 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-410-0102
samp_date	10/17/2007
lab_id	A7J180372001
qc_type	NM
units	UG/KG
Pct_Solids	93.3
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	12	J	P

nsample	SB-410-0203
samp_date	10/17/2007
lab_id	A7J180372002
qc_type	NM
units	UG/KG
Pct_Solids	91.2
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	10	J	P

nsample	SB-410-0304
samp_date	10/17/2007
lab_id	A7J180372003
qc_type	NM
units	UG/KG
Pct_Solids	90.2
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J18372 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-410-0506
samp_date	10/17/2007
lab_id	A7J180372004
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

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

nsample	SB-410-0708
samp_date	10/17/2007
lab_id	A7J180372005
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

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

nsample	SB-411-0102
samp_date	10/17/2007
lab_id	A7J180372006
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J18372 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-411-0203
samp_date	10/17/2007
lab_id	A7J180372007
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

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

nsample	SB-411-0304
samp_date	10/17/2007
lab_id	A7J180372008
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

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

nsample	SB-411-0506
samp_date	10/17/2007
lab_id	A7J180372009
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	820		

PROJ_NO: 00885

SDG: 7J18372 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-411-0708
samp_date	10/17/2007
lab_id	A7J180372010
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

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

nsample	SB-412-0102
samp_date	10/17/2007
lab_id	A7J180372011
qc_type	NM
units	UG/KG
Pct_Solids	89.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	160	J	P

nsample	SB-412-0203
samp_date	10/17/2007
lab_id	A7J180372012
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J18372 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-412-0304
samp_date	10/17/2007
lab_id	A7J180372013
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

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

nsample	SB-412-0506
samp_date	10/17/2007
lab_id	A7J180372014
qc_type	NM
units	UG/KG
Pct_Solids	69.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	16	J	P

nsample	SB-412-0708
samp_date	10/17/2007
lab_id	A7J180372015
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J18372 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-413-0102	nsample	SB-413-0203	nsample	SB-413-0304
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180372016	lab_id	A7J180372017	lab_id	A7J180372018
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	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	140	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	27	J	PN

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	43	J	P

PROJ_NO: 00885

SDG: 7J18372 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-413-0506	nsample	SB-413-0708
samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J180372019	lab_id	A7J180372020
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	82.0	Pct_Solids	81.0
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

Tetra Tech NUS, Inc

Client Sample ID: SB-410-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-001 **Work Order #...:** J9A6K1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:35 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 6.7 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**12 J**	**350**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	32	(24 - 112)
2-Fluorobiphenyl	45	(34 - 110)
Terphenyl-d14	67	(41 - 119)
Phenol-d5	41	(28 - 110)
2-Fluorophenol	39	(26 - 110)
2,4,6-Tribromophenol	35	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-410-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-002 **Work Order #...:** J9A6X1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:37 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 8.8 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**10 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	71	(24 - 112)
2-Fluorobiphenyl	76	(34 - 110)
Terphenyl-d14	88	(41 - 119)
Phenol-d5	69	(28 - 110)
2-Fluorophenol	72	(26 - 110)
2,4,6-Tribromophenol	66	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-410-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-003 **Work Order #...:** J9A621AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:39 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 9.8 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	67	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	69	(28 - 110)
2-Fluorophenol	69	(26 - 110)
2,4,6-Tribromophenol	71	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-410-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-004 **Work Order #...:** J9A651AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:41 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	73	(24 - 112)
2-Fluorobiphenyl	72	(34 - 110)
Terphenyl-d14	95	(41 - 119)
Phenol-d5	77	(28 - 110)
2-Fluorophenol	86	(26 - 110)
2,4,6-Tribromophenol	62	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-410-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-005 **Work Order #...:** J9A671AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:43 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	68	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	94	(41 - 119)
Phenol-d5	68	(28 - 110)
2-Fluorophenol	73	(26 - 110)
2,4,6-Tribromophenol	60	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-411-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-006 **Work Order #...:** J9A7A1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:48 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	58	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-411-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-007 **Work Order #...:** J9A7J1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:50 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 11/05/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	69	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	94	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	67	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-411-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-008 **Work Order #...:** J9A7L1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:52 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 11/05/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	74	(24 - 112)
2-Fluorobiphenyl	71	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	68	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	73	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-411-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-009 **Work Order #...:** J9A7N1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:54 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**820**	**400**	**ug/kg**	**1.6**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	72	(24 - 112)
2-Fluorobiphenyl	72	(34 - 110)
Terphenyl-d14	91	(41 - 119)
Phenol-d5	78	(28 - 110)
2-Fluorophenol	84	(26 - 110)
2,4,6-Tribromophenol	65	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-411-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-010 **Work Order #...:** J9A7Q1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 09:56 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	52	(24 - 112)
2-Fluorobiphenyl	56	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	57	(26 - 110)
2,4,6-Tribromophenol	62	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-412-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J180372-011	**Work Order #...:**	J9A7T1AC	**Matrix.....:**	SO
Date Sampled...:	10/17/07 10:00	**Date Received..:**	10/18/07		
Prep Date.....:	10/23/07	**Analysis Date..:**	10/24/07		
Prep Batch #...:	7295400				
Dilution Factor:	1				
% Moisture.....:	11	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**160 J**	**370**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	69	(24 - 112)
2-Fluorobiphenyl	79	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	73	(28 - 110)
2-Fluorophenol	77	(26 - 110)
2,4,6-Tribromophenol	69	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-412-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-012 **Work Order #...:** J9A7W1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:02 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	75	(24 - 112)
2-Fluorobiphenyl	79	(34 - 110)
Terphenyl-d14	97	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	84	(26 - 110)
2,4,6-Tribromophenol	79	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-412-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-013 **Work Order #...:** J9A741AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:04 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	56	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	60	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	65	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-412-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-014 **Work Order #...:** J9A761AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:06 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 31 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**16 J**	**480**	**ug/kg**	**1.9**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	79	(24 - 112)
2-Fluorobiphenyl	83	(34 - 110)
Terphenyl-d14	101	(41 - 119)
Phenol-d5	95	(28 - 110)
2-Fluorophenol	94	(26 - 110)
2,4,6-Tribromophenol	77	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-412-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-015 **Work Order #...:** J9A771AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:08 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	52	(24 - 112)
2-Fluorobiphenyl	52	(34 - 110)
Terphenyl-d14	88	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	60	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-413-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-016 **Work Order #...:** J9A791AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:30 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/30/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**140 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	68	(24 - 112)
2-Fluorobiphenyl	75	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	73	(28 - 110)
2-Fluorophenol	70	(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-413-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-017 **Work Order #...:** J9A8C1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:32 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/30/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**27 J**	**390**	**ug/kg**	**1.6**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	72	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	68	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	75	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-413-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-018 **Work Order #...:** J9A8D1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:34 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**43 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	77	(24 - 112)
2-Fluorobiphenyl	83	(34 - 110)
Terphenyl-d14	91	(41 - 119)
Phenol-d5	83	(28 - 110)
2-Fluorophenol	96	(26 - 110)
2,4,6-Tribromophenol	65	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-413-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-019 **Work Order #...:** J9A8F1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:36 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/24/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	67	(24 - 112)
2-Fluorobiphenyl	71	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	73	(26 - 110)
2,4,6-Tribromophenol	66	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-413-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J180372-020 **Work Order #...:** J9A8G1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 10:38 **Date Received..:** 10/18/07
Prep Date.....: 10/23/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7295400
Dilution Factor: 1
% Moisture.....: 19 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	59	(26 - 110)
2,4,6-Tribromophenol	63	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG 7J18372

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-411-0102	A7J180372006	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-410-0203	A7J180372002	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-410-0304	A7J180372003	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-413-0708	A7J180372020	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-410-0708	A7J180372005	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-410-0102	A7J180372001	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-411-0203	A7J180372007	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-411-0304	A7J180372008	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-411-0506	A7J180372009	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-411-0708	A7J180372010	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-412-0203	A7J180372012	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-412-0304	A7J180372013	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-412-0506	A7J180372014	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-412-0708	A7J180372015	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-413-0102	A7J180372016	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-413-0203	A7J180372017	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-413-0304	A7J180372018	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-413-0506	A7J180372019	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-412-0102	A7J180372011	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-410-0506	A7J180372004	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-413-0506	A7J180372019	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-412-0102	A7J180372011	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-410-0102	A7J180372001	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	%	SB-412-0203	A7J180372012	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-412-0304	A7J180372013	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-412-0506	A7J180372014	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	%	SB-412-0708	A7J180372015	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	%	SB-413-0102	A7J180372016	NM	10/17/2007	10/23/2007	10/30/2007	6	7	13
OS	%	SB-413-0304	A7J180372018	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	%	SB-413-0203	A7J180372017	NM	10/17/2007	10/23/2007	10/30/2007	6	7	13
OS	%	SB-411-0708	A7J180372010	NM	10/17/2007	10/23/2007	10/27/2007	6	4	10
OS	%	SB-411-0506	A7J180372009	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	%	SB-411-0304	A7J180372008	NM	10/17/2007	10/23/2007	11/5/2007	6	13	19

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	%	SB-411-0203	A7J180372007	NM	10/17/2007	10/23/2007	11/5/2007	6	13	19
OS	%	SB-411-0102	A7J180372006	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-410-0708	A7J180372005	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	%	SB-410-0506	A7J180372004	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	%	SB-413-0708	A7J180372020	NM	10/17/2007	10/23/2007	10/27/2007	6	4	10
OS	%	SB-410-0203	A7J180372002	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	%	SB-410-0304	A7J180372003	NM	10/17/2007	10/23/2007	10/27/2007	6	4	10
OS	UG/KG	SB-412-0102	A7J180372011	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-411-0708	A7J180372010	NM	10/17/2007	10/23/2007	10/27/2007	6	4	10
OS	UG/KG	SB-413-0708	A7J180372020	NM	10/17/2007	10/23/2007	10/27/2007	6	4	10
OS	UG/KG	SB-413-0506	A7J180372019	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-413-0304	A7J180372018	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	UG/KG	SB-413-0203	A7J180372017	NM	10/17/2007	10/23/2007	10/30/2007	6	7	13
OS	UG/KG	SB-413-0102	A7J180372016	NM	10/17/2007	10/23/2007	10/30/2007	6	7	13
OS	UG/KG	SB-412-0708	A7J180372015	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	UG/KG	SB-412-0506	A7J180372014	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	UG/KG	SB-411-0506	A7J180372009	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	UG/KG	SB-412-0203	A7J180372012	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	SB-410-0102	A7J180372001	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	UG/KG	SB-411-0304	A7J180372008	NM	10/17/2007	10/23/2007	11/5/2007	6	13	19
OS	UG/KG	SB-411-0203	A7J180372007	NM	10/17/2007	10/23/2007	11/5/2007	6	13	19
OS	UG/KG	SB-411-0102	A7J180372006	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-410-0708	A7J180372005	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	UG/KG	SB-410-0506	A7J180372004	NM	10/17/2007	10/23/2007	10/25/2007	6	2	8
OS	UG/KG	SB-410-0304	A7J180372003	NM	10/17/2007	10/23/2007	10/27/2007	6	4	10
OS	UG/KG	SB-410-0203	A7J180372002	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7
OS	UG/KG	SB-412-0304	A7J180372013	NM	10/17/2007	10/23/2007	10/24/2007	6	1	7

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

16

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Moulton	Date: 10/17/07	Chain of Custody Number: 322978
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 1 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: S. Hadley	Lab Contact: K. Ives	
Project Name and Location (State): LMC MA	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
SB-410-0102	10/17	0935				X	1						X	Block G
-0203		0937												* benzo(a) pyrene
-0304		0939												
-0506		0941												
-0708		0943												
410-0102 MS/SD		0935												
411-0102		0948												
-0203		0950												
-0304		0952												
-0506		0954												
411-0708	10/17	0956					1							
412-0102	10/17	1000				X	1						X	* benzo(a) pyrene

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other SOND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/17/07	1615	1. Received By	10/17/07	1615
2. Relinquished By			2. Received By	10-18-07	9:10
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

17

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Mahn	Date: 10/17/07	Chain of Custody Number: 322979
Address: 20251 Century Blvd #100	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 2 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: Silfadley	Lab Contact: K Ives	
Project Name and Location (State): LMC MR	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: #LL8270	Special Instructions/ Conditions of Receipt
SB-412-0203	10/17	1002				X	1						X	Block G
-0304		1004												
-0506		1006												
412-0708		1008												
413-0102		1030												
0203		1032												
0304		1034												
0506		1036												
SB-413-0708	10/17	1038				X	1						X	
														#benzo(a)pyrene
														#benzo(a)pyrene
		1815 10/17												

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/17/07	1615	1. Received By	10/17/07	1615
2. Relinquished By			2. Received By	10-18-07	9:10
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

CASE NARRATIVE

7J18372

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 18, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J180372.

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 02, 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 4.1 and 5.3°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-410-0102 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-413-0203 due to matrix effects. (Refer to IS report following this Case Narrative for additional detail.)

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.

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J18372

Lot #: A7J180372

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-410-0102	32	45	67	41	39	35	00
02	SB-410-0203	71	76	88	69	72	66	00
03	SB-410-0304	67	69	87	69	69	71	00
04	SB-410-0506	73	72	95	77	86	62	00
05	SB-410-0708	68	68	94	68	73	60	00
06	SB-411-0102	58	66	84	61	66	58	00
07	SB-411-0203	69	67	94	64	64	67	00
08	SB-411-0304	74	71	93	68	66	73	00
09	SB-411-0506	72	72	91	78	84	65	00
10	SB-411-0708	52	56	90	55	57	62	00
11	SB-412-0102	69	79	89	73	77	69	00
12	SB-412-0203	75	79	97	75	84	79	00
13	SB-412-0304	56	66	89	60	62	65	00
14	SB-412-0506	79	83	101	95	94	77	00
15	SB-412-0708	52	52	88	62	61	60	00
16	SB-413-0102	68	75	89	73	70	73	00
17	SB-413-0203	64	72	93	68	63	75	00
18	SB-413-0304	77	83	91	83	96	65	00
19	SB-413-0506	67	71	89	66	73	66	00
20	SB-413-0708	64	67	86	58	59	63	00
21	METHOD BLK. J9KC51AA	64	67	91	65	72	54	00
22	LCS J9KC51AC	67	74	89	71	79	64	00
23	SB-410-0102 D	72	74	87	64	79	60	00
24	SB-410-0102 S	65	70	86	73	80	60	00

SURROGATES		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

FORM II

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9KC51AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J18372

Lab File ID: J9KC51AA.

Lot Number: A7J180372

Date Analyzed: 10/25/07

Time Analyzed: 10:54

Matrix: SOLID

Date Extracted:10/23/07

GC Column: DB-5.625 ID: .32

Extraction Method: 3550B

Instrument ID: HP7

Level:(low/med) LOW

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

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-410-0102	J9A6K1AC	J9A6K1AC.	10/25/07	13:06
02	SB-410-0102	J9A6K1AH S	J9A6K1AH.	10/25/07	13:25
03	SB-410-0102	J9A6K1AJ D	J9A6K1AJ.	10/25/07	13:44
04	SB-410-0203	J9A6X1AC	J9A6X1AC.	10/24/07	19:13
05	SB-410-0304	J9A621AC	J9A621AC.	10/27/07	00:51
06	SB-410-0506	J9A651AC	J9A651AC.	10/25/07	17:31
07	SB-410-0708	J9A671AC	J9A671AC.	10/25/07	17:50
08	SB-411-0102	J9A7A1AC	J9A7A1AC.	10/24/07	17:57
09	SB-411-0203	J9A7J1AC	J9A7J1AC.	11/05/07	20:02
10	SB-411-0304	J9A7L1AC	J9A7L1AC.	11/05/07	20:20
11	SB-411-0506	J9A7N1AC	J9A7N1AC.	10/25/07	15:56
12	SB-411-0708	J9A7Q1AC	J9A7Q1AC.	10/27/07	01:11
13	SB-412-0102	J9A7T1AC	J9A7T1AC.	10/24/07	18:54
14	SB-412-0203	J9A7W1AC	J9A7W1AC.	10/24/07	18:16
15	SB-412-0304	J9A741AC	J9A741AC.	10/24/07	18:35
16	SB-412-0506	J9A761AC	J9A761AC.	10/25/07	14:59
17	SB-412-0708	J9A771AC	J9A771AC.	10/25/07	17:12
18	SB-413-0102	J9A791AC	J9A791AC.	10/30/07	01:29
19	SB-413-0203	J9A8C1AC	J9A8C1AC.	10/30/07	01:10
20	SB-413-0304	J9A8D1AC	J9A8D1AC.	10/25/07	15:37
21	SB-413-0506	J9A8F1AC	J9A8F1AC.	10/24/07	19:32
22	SB-413-0708	J9A8G1AC	J9A8G1AC.	10/27/07	02:11
23	CHECK SAMPLE	J9KC51AC C	J9KC51AC.	10/25/07	11:12
24					
25					
26					
27					
28					
29					
30					

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.: SDG No.: 7J18372

Lab File ID: 7DF1023 DFTPP Injection Date: 10/23/07

Instrument ID: A4HP7 DFTPP Injection Time: 1304

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	32.8
68	Less than 2.0% of mass 69	0.1 (0.3)1
69	Mass 69 relative abundance	50.9
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	40.0 - 60.0% of mass 198	45.8
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	6.9
275	10.0 - 30.0% of mass 198	21.0
365	Greater than 1.0% of mass 198	2.5
441	Present, but less than mass 443	7.1
442	40.0 - 100.0% of mass 198	49.6
443	17.0 - 23.0% of mass 442	9.5 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	L5	7SMM1023	10/23/07	1320
02	SSTD004	L4	7SM1023	10/23/07	1343
03	SSTD003	L3	7SML1023	10/23/07	1402
04	SSTD002	L2	7SL1023	10/23/07	1421
05	SSTD001	L1	7SLL1023	10/23/07	1441
06	SSTD009	L9	7HHH1023	10/23/07	1500
07	SSTD008	L8	7SHH1023	10/23/07	1520
08	SSTD007	L7	7SH1023	10/23/07	1539
09	SSTD006	L6	7SMH1023	10/23/07	1559
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 23-OCT-2007 13:20
End Cal Date : 23-OCT-2007 15:59
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp7.i\71023a.b\8270P.m
Last Edit : 23-Oct-2007 16:14 gruberj
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	1.25425	1.03756	1.05502	1.08595	1.08027	1.13511			
	1.13630	1.16137	1.27824				1.13490	7.553	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.33079	1.12538	1.09238	1.18024	1.14554	1.20245			
	1.21438	1.24271	1.33338				1.20747	6.987	
150 Dibenz(a,h)anthracene	1.12388	0.95426	0.93565	0.95239	0.98735	1.02564			
	1.03664	1.06750	1.16029				1.02707	7.671	
151 Benzo(g,h,i)perylene	1.20041	0.90775	0.93379	0.95488	0.97160	0.99480			
	1.00267	1.04274	1.11850				1.01413	9.224	
230 2-Chloroacetophenone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

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.: 7J18372

Lab File ID: 7DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4HP7 DFTPP Injection Time: 1034

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.2
68	Less than 2.0% of mass 69	0.1 (0.2)1
69	Mass 69 relative abundance	48.0
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	40.0 - 60.0% of mass 198	47.3
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	6.3
275	10.0 - 30.0% of mass 198	20.5
365	Greater than 1.0% of mass 198	2.1
441	Present, but less than mass 443	6.3
442	40.0 - 100.0% of mass 198	44.1
443	17.0 - 23.0% of mass 442	8.8 (20.1)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	7SMH1024	10/24/07	1114
02	SB-411-0102	J9A7A1AC	J9A7A1AC	10/24/07	1757
03	SB-412-0203	J9A7W1AC	J9A7W1AC	10/24/07	1816
04	SB-412-0304	J9A741AC	J9A741AC	10/24/07	1835
05	SB-412-0102	J9A7T1AC	J9A7T1AC	10/24/07	1854
06	SB-410-0203	J9A6X1AC	J9A6X1AC	10/24/07	1913
07	SB-413-0506	J9A8F1AC	J9A8F1AC	10/24/07	1932
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 24-OCT-2007 11:14
Lab File ID: 7SMH1024.D Init. Cal. Date(s): 23-OCT-2007 23-OCT-2007
Analysis Type: Init. Cal. Times: 13:20 15:59
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71024a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.26587	1.31675	1.31675	0.010	-4.01921	50.00000	Averaged
146 Benzo(a)pyrene	1.13490	1.18908	1.18908	0.010	-4.77458	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20747	1.15657	1.15657	0.010	4.21518	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.02707	0.97941	0.97941	0.010	4.64051	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01413	0.97969	0.97969	0.010	3.39522	50.00000	Averaged
198 1,4-Dioxane	0.68072	0.54087	0.54087	0.010	20.54522	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.60980	0.58851	0.58851	0.010	3.49123	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.19532	1.16324	1.16324	0.010	2.68441	50.00000	Averaged
$ 156 Terphenyl-d14	0.87800	0.90863	0.90863	0.010	-3.48825	50.00000	Averaged
$ 157 Phenol-d5	2.37877	2.18616	2.18616	0.010	8.09708	50.00000	Averaged
$ 158 2-Fluorophenol	1.43233	1.37562	1.37562	0.010	3.95922	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.12739	0.11070	0.11070	0.010	13.10435	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.25776	1.25980	1.25980	0.010	-0.16258	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.80960	0.83172	0.83172	0.010	-2.73180	50.00000	Averaged
M 195 Cresols, total	3.59382	3.39202	3.39202	0.010	5.61507	50.00000	Averaged
101 Diphenylamine	0.46300	0.49188	0.49188	0.010	-6.23744	50.00000	Averaged

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.: 7J18372

Lab File ID: 7DF1025 DFTPP Injection Date: 10/25/07

Instrument ID: A4HP7 DFTPP Injection Time: 1007

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.1
68	Less than 2.0% of mass 69	0.1 (0.2)1
69	Mass 69 relative abundance	48.4
70	Less than 2.0% of mass 69	0.3 (0.7)1
127	40.0 - 60.0% of mass 198	46.8
197	Less than 1.0% of mass 198	0.4
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	22.0
365	Greater than 1.0% of mass 198	2.0
441	Present, but less than mass 443	7.0
442	40.0 - 100.0% of mass 198	45.8
443	17.0 - 23.0% of mass 442	8.8 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	7SMH1025	10/25/07	1026
02	J9KC5BLK	J9KC51AA	J9KC51AA	10/25/07	1054
03	J9KC5CHK	J9KC51AC	J9KC51AC	10/25/07	1112
04	SB-410-0102	J9A6K1AC	J9A6K1AC	10/25/07	1306
05	SB-410-0102	J9A6K1AH	J9A6K1AH	10/25/07	1325
06	SB-410-0102	J9A6K1AJ	J9A6K1AJ	10/25/07	1344
07	SB-412-0506	J9A761AC	J9A761AC	10/25/07	1459
08	SB-413-0304	J9A8D1AC	J9A8D1AC	10/25/07	1537
09	SB-411-0506	J9A7N1AC	J9A7N1AC	10/25/07	1556
10	SB-412-0708	J9A771AC	J9A771AC	10/25/07	1712
11	SB-410-0506	J9A651AC	J9A651AC	10/25/07	1731
12	SB-410-0708	J9A671AC	J9A671AC	10/25/07	1750
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i
Lab File ID: 7SMH1025.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71025a.b\8270p.m

Injection Date: 25-OCT-2007 10:26
Init. Cal. Date(s): 23-OCT-2007 23-OCT-2007
Init. Cal. Times: 13:20 15:59
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
142 Benzo(k)fluoranthene	1.26587	1.28988	1.28988	0.010	-1.89648	50.00000	Averaged	
146 Benzo(a)pyrene	1.13490	1.14853	1.14853	0.010	-1.20166	20.00000	Averaged	
149 Indeno(1,2,3-cd)pyrene	1.20747	1.13117	1.13117	0.010	6.31939	50.00000	Averaged	
150 Dibenz(a,h)anthracene	1.02707	0.96262	0.96262	0.010	6.27507	50.00000	Averaged	
151 Benzo(g,h,i)perylene	1.01413	0.95870	0.95870	0.010	5.45503	50.00000	Averaged	
198 1,4-Dioxane	0.68072	0.00615	0.00615	0.010	99	50.00000	Averaged	<-
$ 154 Nitrobenzene-d5	0.60980	0.59021	0.59021	0.010	3.21254	50.00000	Averaged	
$ 155 2-Fluorobiphenyl	1.19532	1.20114	1.20114	0.010	-0.48646	50.00000	Averaged	
$ 156 Terphenyl-d14	0.87800	0.90019	0.90019	0.010	-2.52742	50.00000	Averaged	
$ 157 Phenol-d5	2.37877	2.27045	2.27045	0.010	4.55344	50.00000	Averaged	
$ 158 2-Fluorophenol	1.43233	1.44128	1.44128	0.010	-0.62504	50.00000	Averaged	
$ 159 2,4,6-Tribromophenol	0.12739	0.11353	0.11353	0.010	10.88123	50.00000	Averaged	
$ 186 2-Chlorophenol-d4	1.25776	1.30531	1.30531	0.010	-3.78068	50.00000	Averaged	
$ 187 1,2-Dichlorobenzene-d4	0.80960	0.84255	0.84255	0.010	-4.06932	50.00000	Averaged	
M 195 Cresols, total	3.59382	3.67422	3.67422	0.010	-2.23719	50.00000	Averaged	
101 Diphenylamine	0.46300	0.48786	0.48786	0.010	-5.36884	50.00000	Averaged	

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.: 7J18372

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	30.0 - 60.0% of mass 198	50.4
68	Less than 2.0% of mass 69	0.8 (1.2)1
69	Mass 69 relative abundance	63.5
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	55.9
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	6.5
275	10.0 - 30.0% of mass 198	22.9
365	Greater than 1.0% of mass 198	2.6
441	Present, but less than mass 443	9.6
442	40.0 - 100.0% of mass 198	69.0
443	17.0 - 23.0% of mass 442	13.1 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME 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
10	SB-410-0304	J9A621AC	J9A621AC	10/27/07	0051
11	SB-411-0708	J9A7Q1AC	J9A7Q1AC	10/27/07	0111
12	SB-413-0708	J9A8G1AC	J9A8G1AC	10/27/07	0211
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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	1.01188	1.05737	1.09953	1.12316			
	1.13493	1.16596	1.25556				1.11108	7.898	
148 3-Methylcholanthrene	*****	*****	*****	*****	*****	*****			
	*****	*****	*****				*****	*****	<-
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				1.20254	8.349	
150 Dibenz(a,h)anthracene	1.02771	0.83559	0.86017	0.92198	0.95752	0.97952			
	0.98402	1.01704	1.10090				0.96494	8.618	
151 Benzo(g,h,i)perylene	1.07704	0.89128	0.93016	0.97952	1.02707	1.01343			
	1.01579	1.05027	1.13828				1.01365	7.332	
230 2-Chloroacetophenone	*****	*****	*****	*****	*****	*****			
	*****	*****	*****				*****	*****	<-
199 3-Picoline	*****	*****	*****	*****	*****	*****			
	*****	*****	*****				*****	*****	<-
200 N,N-Dimethylacetamide	*****	*****	*****	*****	*****	*****			
	*****	*****	*****				*****	*****	<-
201 Quinoline	*****	*****	*****	*****	*****	*****			
	*****	*****	*****				*****	*****	<-

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

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
144 Benzo(k)fluoranthene	1.23514	1.24352	1.24352	0.010	-0.67844	50.00000	Averaged
146 Benzo(a)pyrene	1.11108	1.09988	1.09988	0.010	1.00818	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20254	1.20684	1.20684	0.010	-0.35780	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.96494	0.96783	0.96783	0.010	-0.29970	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01365	1.00657	1.00657	0.010	0.69806	50.00000	Averaged
198 1,4-Dioxane	0.61560	0.56917	0.56917	0.010	7.54182	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49422	0.47455	0.47455	0.010	3.97951	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.18482	1.15622	1.15622	0.010	2.41377	50.00000	Averaged
$ 156 Terphenyl-d14	0.83872	0.82434	0.82434	0.010	1.71412	50.00000	Averaged
$ 157 Phenol-d5	2.11606	2.10526	2.10526	0.010	0.51082	50.00000	Averaged
$ 158 2-Fluorophenol	1.40529	1.45395	1.45395	0.010	-3.46269	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.12914	0.12743	0.12743	0.010	1.32220	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.29270	1.25443	1.25441	0.010	2.96186	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.79872	0.82063	0.82063	0.010	-2.74298	50.00000	Averaged
M 195 Cresols, total	3.14307	3.15047	3.15047	0.010	-0.23558	50.00000	Averaged
101 Diphenylamine	0.48469	0.48104	0.48104	0.010	0.75302	50.00000	Averaged

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.: 7J18372

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	30.0 - 60.0% of mass 198	52.0
68	Less than 2.0% of mass 69	0.9 (1.4)1
69	Mass 69 relative abundance	66.3
70	Less than 2.0% of mass 69	0.3 (0.4)1
127	40.0 - 60.0% of mass 198	54.5
197	Less than 1.0% of mass 198	0.9
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.0
275	10.0 - 30.0% of mass 198	23.1
365	Greater than 1.0% of mass 198	2.4
441	Present, but less than mass 443	9.9
442	40.0 - 100.0% of mass 198	66.9
443	17.0 - 23.0% of mass 442	12.3 (18.4)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	7SMH1029	10/29/07	1356
02	SB-413-0203	J9A8C1AC	J9A8C1AC	10/30/07	0110
03	SB-413-0102	J9A791AC	J9A791AC	10/30/07	0129
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 29-OCT-2007 13:56
Lab File ID: 7SMH1029.D Init. Cal. Date(s): 26-OCT-2007 26-OCT-2007
Analysis Type: Init. Cal. Times: 16:09 18:50
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71029a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %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	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.96494	1.04434	1.04434	0.010	-8.22840	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01365	1.06676	1.06676	0.010	-5.23978	50.00000	Averaged
199 1,4-Dioxane	0.61560	0.68945	0.68945	0.010	-11.99635	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49422	0.50730	0.50730	0.010	-2.64848	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.18482	1.27589	1.27589	0.010	-7.68610	50.00000	Averaged
$ 156 Terphenyl-d14	0.83872	0.88559	0.88559	0.010	-5.58872	50.00000	Averaged
$ 157 Phenol-d5	2.11606	2.26398	2.26398	0.010	-6.99005	50.00000	Averaged
$ 158 2-Fluorophenol	1.40529	1.46514	1.46514	0.010	-4.25925	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.12914	0.14740	0.14740	0.010	-14.14062	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.29270	1.36074	1.36074	0.010	-5.26339	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.79872	0.85425	0.85425	0.010	-6.95237	50.00000	Averaged
M 195 Cresols, total	3.14307	3.29988	3.29988	0.010	-4.98906	50.00000	Averaged
101 Diphenylamine	0.48469	0.51722	0.51722	0.010	-6.71121	50.00000	Averaged

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.: 7J18372

Lab File ID: 7DF1105 DFTPP Injection Date: 11/05/07

Instrument ID: A4HP7 DFTPP Injection Time: 1032

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	54.1
68	Less than 2.0% of mass 69	1.2 (1.7)1
69	Mass 69 relative abundance	69.8
70	Less than 2.0% of mass 69	0.4 (0.5)1
127	40.0 - 60.0% of mass 198	54.4
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	23.5
365	Greater than 1.0% of mass 198	2.6
441	Present, but less than mass 443	10.1
442	40.0 - 100.0% of mass 198	72.9
443	17.0 - 23.0% of mass 442	13.8 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	7SMH1105	11/05/07	1051
02	SB-411-0203	J9A7J1AC	J9A7J1AC	11/05/07	2002
03	SB-411-0304	J9A7L1AC	J9A7L1AC	11/05/07	2020
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 05-NOV-2007 10:51
Lab File ID: 7SMH1105.D Init. Cal. Date(s): 26-OCT-2007 01-NOV-2007
Analysis Type: Init. Cal. Times: 16:09 13:27
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71105a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.23514	1.27548	1.27548	0.010	-3.26555	50.00000	Averaged
146 Benzo(a)pyrene	1.11108	1.17779	1.17779	0.010	-6.00390	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20254	1.22980	1.22980	0.010	-2.26672	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.96494	1.00596	1.00596	0.010	-4.25111	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01365	1.00756	1.00756	0.010	0.60061	50.00000	Averaged
198 1,4-Dioxane	0.61560	0.51362	0.51362	0.010	16.56561	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49422	0.54083	0.54083	0.010	-9.43291	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.18482	1.24871	1.24871	0.010	-5.39208	50.00000	Averaged
$ 156 Terphenyl-d14	0.83872	0.91449	0.91449	0.010	-9.03417	50.00000	Averaged
$ 157 Phenol-d5	2.11606	2.21464	2.21464	0.010	-4.65830	50.00000	Averaged
$ 158 2-Fluorophenol	1.40529	1.36550	1.36550	0.010	2.83160	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.12914	0.14194	0.14194	0.010	-9.90932	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.29270	1.34865	1.34865	0.010	-4.32823	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.79872	0.86889	0.86889	0.010	-8.78570	50.00000	Averaged
M 195 Cresols, total	3.14307	3.21675	3.21675	0.010	-2.34410	50.00000	Averaged
101 Diphenylamine	0.48469	0.52386	0.52386	0.010	-8.08164	50.00000	Averaged

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18372

Lab File ID (Standard): 7SMH1024 Date Analyzed: 10/24/07

Instrument ID: A4HP7 Time Analyzed: 1114

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	108065	3.40	470133	4.29	300902	5.56
	UPPER LIMIT	216130	3.90	940266	4.79	601804	6.06
	LOWER LIMIT	54033	2.90	235067	3.79	150451	5.06
	EPA SAMPLE NO.						
01	SB-411-0102	93006	3.40	391170	4.29	233044	5.55
02	SB-412-0203	103707	3.40	440695	4.29	262431	5.55
03	SB-412-0304	113380	3.40	477680	4.29	283803	5.55
04	SB-412-0102	89380	3.40	385877	4.29	226265	5.55
05	SB-410-0203	84613	3.40	351822	4.29	210740	5.55
06	SB-413-0506	97438	3.40	419027	4.29	245808	5.55
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18372

Lab File ID (Standard): 7SMH1024 Date Analyzed: 10/24/07

Instrument ID: A4HP7 Time Analyzed: 1114

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	543533	6.64	483096	8.60	387821	9.95
	UPPER LIMIT	1087066	7.14	966192	9.10	775642	10.45
	LOWER LIMIT	271767	6.14	241548	8.10	193911	9.45
	EPA SAMPLE NO.						
01	SB-411-0102	403561	6.63	334753	8.59	285141	9.94
02	SB-412-0203	475804	6.63	416895	8.59	332728	9.94
03	SB-412-0304	528563	6.63	456376	8.58	359499	9.93
04	SB-412-0102	374244	6.63	326273	8.59	272793	9.94
05	SB-410-0203	345514	6.63	297618	8.59	258627	9.94
06	SB-413-0506	428677	6.63	363167	8.58	301958	9.93
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18372

Lab File ID (Standard): 7SMH1025 Date Analyzed: 10/25/07

Instrument ID: A4HP7 Time Analyzed: 1026

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	66901	3.31	296590	4.21	186062	5.46
	UPPER LIMIT	133802	3.81	593180	4.71	372124	5.96
	LOWER LIMIT	33451	2.81	148295	3.71	93031	4.96
	EPA SAMPLE NO.						
01	J9KC5BLK	110048	3.32	472127	4.20	292135	5.47
02	J9KC5CHK	95770	3.32	404789	4.20	246444	5.47
03	SB-410-0102	122978	3.32	554488	4.20	314975	5.46
04	SB-410-0102	123657	3.32	548045	4.20	325574	5.47
05	SB-410-0102	63251	3.31	257143	4.20	147625	5.46
06	SB-412-0506	62815	3.31	293788	4.20	161626	5.46
07	SB-413-0304	100663	3.32	464738	4.20	238144	5.47
08	SB-411-0506	107205	3.32	490040	4.20	277998	5.47
09	SB-412-0708	115864	3.32	528672	4.20	297864	5.47
10	SB-410-0506	92985	3.32	410344	4.20	220511	5.47
11	SB-410-0708	96822	3.32	415904	4.20	227985	5.47
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

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.: 7J18372

Lab File ID (Standard): 7SMH1025 Date Analyzed: 10/25/07

Instrument ID: A4HP7 Time Analyzed: 1026

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	333827	6.54	292186	8.51	243473	9.80
	UPPER LIMIT	667654	7.04	584372	9.01	486946	10.30
	LOWER LIMIT	166914	6.04	146093	8.01	121737	9.30
	EPA SAMPLE NO.						
01	J9KC5BLK	511845	6.55	483397	8.51	416717	9.81
02	J9KC5CHK	423899	6.54	376771	8.49	305920	9.78
03	SB-410-0102	533203	6.54	450461	8.48	369599	9.77
04	SB-410-0102	532116	6.54	434916	8.49	360580	9.78
05	SB-410-0102	243976	6.54	201133	8.49	160787	9.78
06	SB-412-0506	266068	6.54	210950	8.49	175093	9.78
07	SB-413-0304	375444	6.55	313708	8.48	270904	9.78
08	SB-411-0506	435401	6.55	343429	8.49	295082	9.79
09	SB-412-0708	486437	6.55	385388	8.49	326148	9.79
10	SB-410-0506	360185	6.55	292850	8.49	237750	9.78
11	SB-410-0708	370473	6.55	310582	8.49	258753	9.78
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18372

Lab File ID (Standard): 7SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4HP7 Time Analyzed: 1850

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	113127	3.55	492777	4.44	255625	5.71
	UPPER LIMIT	226254	4.05	985554	4.94	511250	6.21
	LOWER LIMIT	56564	3.05	246389	3.94	127813	5.21
	EPA SAMPLE NO.						
01	SB-410-0304	111082	3.55	477203	4.44	238738	5.71
02	SB-411-0708	80109	3.55	351830	4.44	175364	5.71
03	SB-413-0708	72325	3.55	304238	4.44	150220	5.71
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

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.: 7J18372

Lab File ID (Standard): 7SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4HP7 Time Analyzed: 1850

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	447801	6.80	367968	8.77	339850	10.23
	UPPER LIMIT	895602	7.30	735936	9.27	679700	10.73
	LOWER LIMIT	223901	6.30	183984	8.27	169925	9.73
	EPA SAMPLE NO.						
01	SB-410-0304	416748	6.79	350780	8.75	335206	10.22
02	SB-411-0708	308468	6.79	265642	8.75	241235	10.22
03	SB-413-0708	267550	6.79	231606	8.75	213327	10.22
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18372

Lab File ID (Standard): 7SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP7 Time Analyzed: 1356

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	109618	3.49	488130	4.38	237985	5.64
	UPPER LIMIT	219236	3.99	976260	4.88	475970	6.14
	LOWER LIMIT	54809	2.99	244065	3.88	118993	5.14
	EPA SAMPLE NO.						
01	SB-413-0203	65622	3.52	276541	4.41	140410	5.67
02	SB-413-0102	97545	3.52	432544	4.41	229091	5.68
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18372

Lab File ID (Standard): 7SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP7 Time Analyzed: 1356

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	433552	6.73	363098	8.70	334250	10.11
	UPPER LIMIT	867104	7.23	726196	9.20	668500	10.61
	LOWER LIMIT	216776	6.23	181549	8.20	167125	9.61
	EPA SAMPLE NO.						
01	SB-413-0203	239123	6.76	185508	8.71	166046*	10.15
02	SB-413-0102	387907	6.76	302761	8.71	270564	10.15
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18372

Lab File ID (Standard): 7SMH1105 Date Analyzed: 11/05/07

Instrument ID: A4HP7 Time Analyzed: 1051

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	135682	3.28	595263	4.17	313168	5.43
	UPPER LIMIT	271364	3.78	1190526	4.67	626336	5.93
	LOWER LIMIT	67841	2.78	297632	3.67	156584	4.93
	EPA SAMPLE NO.						
01	SB-411-0203	117048	3.28	510966	4.17	254285	5.43
02	SB-411-0304	140897	3.28	603163	4.17	307872	5.43
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J18372

Lab File ID (Standard): 7SMH1105 Date Analyzed: 11/05/07

Instrument ID: A4HP7 Time Analyzed: 1051

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	549932	6.51	454784	8.46	416000	9.73
	UPPER LIMIT	1099864	7.01	909568	8.96	832000	10.23
	LOWER LIMIT	274966	6.01	227392	7.96	208000	9.23
	EPA SAMPLE NO.						
01	SB-411-0203	461359	6.51	349386	8.44	340141	9.71
02	SB-411-0304	547717	6.51	408780	8.45	382042	9.73
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

SAMPLE CALC SAMPLE ID: SB-422-0506 COMPOUND: BAP

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
396982	1	~~89529~~ 17658	2	2000	1.1312	0.87	0.5	~~61.09~~ 12.04 ug/kg

Sample Amount (g)
30.01

1-8-08
JAJ

Tetra Tech NUS, Inc

Client Sample ID: SB-410-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J180372-001	**Work Order #...:**	J9A6K1AC	**Matrix.....:**	SO
Date Sampled...:	10/17/07 09:35	**Date Received..:**	10/18/07		
Prep Date.....:	10/22/07	**Analysis Date..:**	10/25/07		
Prep Batch #...:	7295400				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.09 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	6.7	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**12 J**	**350**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	32	(24 - 112)
2-Fluorobiphenyl	45	(34 - 110)
Terphenyl-d14	67	(41 - 119)
Phenol-d5	41	(28 - 110)
2-Fluorophenol	39	(26 - 110)
2,4,6-Tribromophenol	35	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4hp7.i\71025a.b\J9A6K1AC.D
Lab Smp Id: j9a6k1ac Client Smp ID: SB-410-0102
Inj Date : 25-OCT-2007 13:06
Operator : 001710 Inst ID: a4hp7.i
Smp Info : j9a6k1ac,71025a.b,8270p,1-827042d.sub
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4hp7.i\71025a.b\8270P.m
Meth Date : 26-Oct-2007 13:15 gruberj Quant Type: ISTD
Cal Date : 23-OCT-2007 15:59 Cal File: 7SMH1023.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-827042d.sub
Target Version: 4.14
Processing Host: CANPMSSV01

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

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.090	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	kT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)	
*	1 1,4-Dichlorobenzene-d4	152	3.315	3.311	(1.000)	122978	2.00000		(Q)
*	2 Naphthalene-d8	136	4.203	4.205	(1.000)	554488	2.00000		
*	3 Acenaphthene-d10	164	5.460	5.462	(1.000)	314975	2.00000		
*	4 Phenanthrene-d10	188	6.540	6.542	(1.000)	533203	2.00000		
*	5 Chrysene-d12	240	8.482	8.505	(1.000)	450461	2.00000		(H)
*	6 Perylene-d12	264	9.765	9.799	(1.000)	369599	2.00000		
	9 Pyridine	79	Compound Not Detected.						
	10 N-Nitrosodimethylamine	74	Compound Not Detected.						
	11 Ethyl methacrylate	69	Compound Not Detected.						
	12 3-Chloropropionitrile	54	Compound Not Detected.						
	13 Malononitrile	66	Compound Not Detected.						
	209 Benzaldehyde	77	Compound Not Detected.						
	21 Aniline	93	Compound Not Detected.						
	22 Phenol	94	Compound Not Detected.						
	23 bis(2-Chloroethyl)ether	93	Compound Not Detected.						
	24 2-Chlorophenol	128	Compound Not Detected.						
	26 1,3-Dichlorobenzene	146	Compound Not Detected.						
	27 1,4-Dichlorobenzene	146	Compound Not Detected.						

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)
115 Phenanthrene	178	Compound Not Detected.					
116 Anthracene	178	Compound Not Detected.					
119 Carbazole	167	Compound Not Detected.					
120 Di-n-Butylphthalate	149	Compound Not Detected.					
123 Fluoranthene	202	7.423	7.425	(1.135)	26214	0.08746	11.626
124 Benzidine	184	Compound Not Detected.					
125 Pyrene	202	7.588	7.596	(0.895)	26805	0.08834	11.743
131 Butylbenzylphthalate	149	Compound Not Detected.					
133 3,3'-Dimethoxybenzidine	244	Compound Not Detected.					
135 3,3'-Dichlorobenzidine	252	Compound Not Detected.					
136 Benzo(a)Anthracene	228	8.471	8.494	(0.999)	19438	0.06831	9.0810(H)
137 Chrysene	228	8.498	8.526	(1.002)	19250	0.07351	9.7716(H)
138 4,4'-Methylene bis(o-chloroan	231	Compound Not Detected.					
139 bis(2-ethylhexyl)Phthalate	149	Compound Not Detected.					
140 Di-n-octylphthalate	149	Compound Not Detected.					
141 Benzo(b)fluoranthene	252	9.370	9.404	(0.959)	25599	0.11029	14.662
142 Benzo(k)fluoranthene	252	Compound Not Detected.					
146 Benzo(a)pyrene	252	9.707	9.741	(0.994)	17658	0.08419	11.192
149 Indeno(1,2,3-cd)pyrene	276	11.145	11.190	(1.141)	11834	0.05303	7.0500
150 Dibenz(a,h)anthracene	278	Compound Not Detected.					
151 Benzo(g,h,i)perylene	276	11.568	11.618	(1.185)	10750	0.05736	7.6252
198 1,4-Dioxane	88	Compound Not Detected.					
$ 154 Nitrobenzene-d5	82	3.689	3.691	(0.878)	268757	1.58969	211.32
$ 155 2-Fluorobiphenyl	172	4.957	4.959	(0.908)	424183	2.25331	299.54
$ 156 Terphenyl-d14	244	7.674	7.681	(0.905)	657550	3.32511	442.02
$ 157 Phenol-d5	99	3.042	3.033	(0.918)	452094	3.09086	410.88
$ 158 2-Fluorophenol	112	2.486	2.450	(0.750)	260089	2.95312	392.57
$ 159 2,4,6-Tribromophenol	330	6.032	6.034	(1.105)	53286	2.65599	353.07
$ 186 2-Chlorophenol-d4	132	3.165	3.162	(0.955)	217244	2.80901	373.41
$ 187 1,2-Dichlorobenzene-d4	152	3.422	3.424	(1.032)	64114	1.28791	171.21
M 195 Cresols, total	100	Compound Not Detected.					
101 Diphenylamine	169	Compound Not Detected.					

QC Flag Legend

Q - Qualifier signal failed the ratio test.
H - Operator selected an alternate compound hit.

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): 7J19296

SAMPLES: 20/Soil/

SB-422-0102	SB-422-0203	SB-422-0304	SB-422-0506	SB-422-0708
SB-423-0102	SB-423-0203	SB-423-0304	SB-423-0506	SB-423-0708
SB-424-0102	SB-424-0203	SB-424-0304	SB-424-0506	SB-424-0708
SB-425-0102	SB-425-0203	SB-425-0304	SB-425-0506	SB-425-0708

Overview

The sample set for SDG 7J19296, 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 17, 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 for benzo(a)pyrene therefore, no evaluation of the matrix spike could be performed. All surrogate recoveries were compliant. No action was taken.

As noted in the laboratory narrative, sample SB-424-0102 had the 1st internal standard out of control. Also the 1st, 2nd, and 5th internal standards were out of control for sample SB-425-0102 due to matrix effects. However, since benzo(a)pyrene is not associated with these internal standards, no corrective action was taken.

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: 00885

SDG: 7J19296 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-422-0102
samp_date	10/17/2007
lab_id	A7J190296001
qc_type	NM
units	UG/KG
Pct_Solids	88.0
DUP_OF:	

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

nsample	SB-422-0203
samp_date	10/17/2007
lab_id	A7J190296002
qc_type	NM
units	UG/KG
Pct_Solids	91.4
DUP_OF:	

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

nsample	SB-422-0304
samp_date	10/17/2007
lab_id	A7J190296003
qc_type	NM
units	UG/KG
Pct_Solids	90.2
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J19296 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-422-0506
samp_date	10/17/2007
lab_id	A7J190296004
qc_type	NM
units	UG/KG
Pct_Solids	87.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	61	J	P

nsample	SB-422-0708
samp_date	10/17/2007
lab_id	A7J190296005
qc_type	NM
units	UG/KG
Pct_Solids	87.0
DUP_OF:	

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

nsample	SB-423-0102
samp_date	10/17/2007
lab_id	A7J190296006
qc_type	NM
units	UG/KG
Pct_Solids	92.2
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	9.9	J	P

PROJ_NO: 00885

SDG: 7J19296 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-423-0203	nsample	SB-423-0304	nsample	SB-423-0506
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190296007	lab_id	A7J190296008	lab_id	A7J190296009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	88.0	Pct_Solids	86.0	Pct_Solids	91.2
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	18	J	P

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

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

PROJ_NO: 00885

SDG: 7J19296 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-423-0708	nsample	SB-424-0102	nsample	SB-424-0203DL
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190296010	lab_id	A7J190296011	lab_id	A7J190296012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	89.0	Pct_Solids	90.6
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	990		

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	4000		

PROJ_NO: 00885

SDG: 7J19296 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-424-0304DL	nsample	SB-424-0506	nsample	SB-424-0708
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190296013	lab_id	A7J190296014	lab_id	A7J190296015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	91.0	Pct_Solids	85.0	Pct_Solids	84.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1600		

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	19	J	P

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

PROJ_NO: 00885

SDG: 7J19296 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-425-0102	nsample	SB-425-0203	nsample	SB-425-0304
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190296016	lab_id	A7J190296017	lab_id	A7J190296018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	93.9	Pct_Solids	92.1	Pct_Solids	90.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	75	J	P

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

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

PROJ_NO: 00885

SDG: 7J19296 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-425-0506	nsample	SB-425-0708
samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190296019	lab_id	A7J190296020
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	86.0	Pct_Solids	84.0
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	1.5	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Tetra Tech NUS, Inc

Client Sample ID: SB-422-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-001 **Work Order #...:** J9E441AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:32 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-422-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-002 **Work Order #...:** J9E471AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:34 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 8.6 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	68	(28 - 110)
2-Fluorophenol	69	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-422-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-003 **Work Order #...:** J9E481AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:36 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 9.8 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	67	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-422-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-004 **Work Order #...:** J9E491AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:38 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**61 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-422-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-005 **Work Order #...:** J9E5A1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:40 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	69	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-423-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J190296-006	**Work Order #...:**	J9E5C1AC	**Matrix.....:**	SO
Date Sampled...:	10/17/07 14:47	**Date Received..:**	10/19/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/25/07		
Prep Batch #...:	7297030				
Dilution Factor:	1				
% Moisture.....:	7.8	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**9.9 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	69	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-423-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-007 **Work Order #...:** J9E5D1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:49 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**18 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	54	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	59	(28 - 110)
2-Fluorophenol	59	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-423-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-008 **Work Order #...:** J9E5E1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:51 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	91	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-423-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-009 **Work Order #...:** J9E5F1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:53 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 8.8 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	96	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	73	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-423-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-010 **Work Order #...:** J9E5G1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 14:55 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	66	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	94	(41 - 119)
Phenol-d5	68	(28 - 110)
2-Fluorophenol	71	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-424-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-011 **Work Order #...:** J9E5H1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 15:07 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**990**	**370**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	70	(24 - 112)
2-Fluorobiphenyl	73	(34 - 110)
Terphenyl-d14	80	(41 - 119)
Phenol-d5	70	(28 - 110)
2-Fluorophenol	73	(26 - 110)
2,4,6-Tribromophenol	68	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-424-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-012 **Work Order #...:** J9E5J1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 15:09 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297030
Dilution Factor: 4
% Moisture.....: 9.4 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**4000**	**1500**	**ug/kg**	**5.7**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63 DIL	(24 - 112)
2-Fluorobiphenyl	71 DIL	(34 - 110)
Terphenyl-d14	75 DIL	(41 - 119)
Phenol-d5	60 DIL	(28 - 110)
2-Fluorophenol	67 DIL	(26 - 110)
2,4,6-Tribromophenol	51 DIL	(10 - 118)

NOTE(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-424-0304

GC/MS Semivolatiles

Lot-Sample #...:	A7J190296-013	**Work Order #...:**	J9E5K1AC	**Matrix.....:**	SO
Date Sampled...:	10/17/07 15:11	**Date Received..:**	10/19/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/26/07		
Prep Batch #...:	7297030				
Dilution Factor:	2				
% Moisture.....:	9.0	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**1600**	**730**	**ug/kg**	**2.9**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	50 DIL	(24 - 112)
2-Fluorobiphenyl	58 DIL	(34 - 110)
Terphenyl-d14	68 DIL	(41 - 119)
Phenol-d5	48 DIL	(28 - 110)
2-Fluorophenol	49 DIL	(26 - 110)
2,4,6-Tribromophenol	48 DIL	(10 - 118)

NOTE(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-424-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-014 **Work Order #...:** J9E5L1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 15:13 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**19 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65	(24 - 112)
2-Fluorobiphenyl	71	(34 - 110)
Terphenyl-d14	91	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	67	(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-424-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-015 **Work Order #...:** J9E5M1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 15:15 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	70	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	69	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-425-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-016 **Work Order #...:** J9E5P1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 15:40 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 6.1 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**75 J**	**350**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	70	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	91	(41 - 119)
Phenol-d5	76	(28 - 110)
2-Fluorophenol	71	(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-425-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-017 **Work Order #...:** J9E5Q1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 15:42 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 7.9 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	53	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-425-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-018 **Work Order #...:** J9E5V1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 15:44 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63	(24 - 112)
2-Fluorobiphenyl	70	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-425-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-019 **Work Order #...:** J9E5X1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 15:46 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65	(24 - 112)
2-Fluorobiphenyl	70	(34 - 110)
Terphenyl-d14	94	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	68	(26 - 110)
2,4,6-Tribromophenol	55	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-425-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190296-020 **Work Order #...:** J9E511AC **Matrix.....:** SO
Date Sampled...: 10/17/07 15:48 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297030
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	67	(24 - 112)
2-Fluorobiphenyl	73	(34 - 110)
Terphenyl-d14	91	(41 - 119)
Phenol-d5	68	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	68	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG 7J19296

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-423-0102	A7J190296006	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-422-0203	A7J190296002	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-422-0304	A7J190296003	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-425-0708	A7J190296020	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-422-0708	A7J190296005	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-422-0102	A7J190296001	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-423-0203	A7J190296007	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-423-0304	A7J190296008	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-423-0506	A7J190296009	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-423-0708	A7J190296010	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-424-0203	A7J190296012	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-424-0304	A7J190296013	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-424-0506	A7J190296014	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-424-0708	A7J190296015	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-425-0102	A7J190296016	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-425-0203	A7J190296017	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-425-0304	A7J190296018	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-425-0506	A7J190296019	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-424-0102	A7J190296011	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
PCS	%	SB-422-0506	A7J190296004	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-425-0506	A7J190296019	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	%	SB-424-0102	A7J190296011	NM	10/17/2007	10/24/2007	10/29/2007	7	5	12
OS	%	SB-422-0102	A7J190296001	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-424-0203DL	A7J190296012	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	%	SB-424-0304DL	A7J190296013	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	%	SB-424-0506	A7J190296014	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	%	SB-424-0708	A7J190296015	NM	10/17/2007	10/24/2007	10/29/2007	7	5	12
OS	%	SB-425-0102	A7J190296016	NM	10/17/2007	10/24/2007	10/29/2007	7	5	12
OS	%	SB-425-0304	A7J190296018	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	%	SB-425-0203	A7J190296017	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	%	SB-423-0708	A7J190296010	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-423-0506	A7J190296009	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-423-0304	A7J190296008	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	%	SB-423-0203	A7J190296007	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-423-0102	A7J190296006	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-422-0708	A7J190296005	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-422-0506	A7J190296004	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-425-0708	A7J190296020	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	%	SB-422-0203	A7J190296002	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	%	SB-422-0304	A7J190296003	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-424-0102	A7J190296011	NM	10/17/2007	10/24/2007	10/29/2007	7	5	12
OS	UG/KG	SB-423-0708	A7J190296010	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-425-0708	A7J190296020	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	UG/KG	SB-425-0506	A7J190296019	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	UG/KG	SB-425-0304	A7J190296018	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	UG/KG	SB-425-0203	A7J190296017	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	UG/KG	SB-425-0102	A7J190296016	NM	10/17/2007	10/24/2007	10/29/2007	7	5	12
OS	UG/KG	SB-424-0708	A7J190296015	NM	10/17/2007	10/24/2007	10/29/2007	7	5	12
OS	UG/KG	SB-424-0506	A7J190296014	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9
OS	UG/KG	SB-423-0506	A7J190296009	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-424-0203DL	A7J190296012	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	SB-422-0102	A7J190296001	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-423-0304	A7J190296008	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-423-0203	A7J190296007	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-423-0102	A7J190296006	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-422-0708	A7J190296005	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-422-0506	A7J190296004	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-422-0304	A7J190296003	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-422-0203	A7J190296002	NM	10/17/2007	10/24/2007	10/25/2007	7	1	8
OS	UG/KG	SB-424-0304DL	A7J190296013	NM	10/17/2007	10/24/2007	10/26/2007	7	2	9

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J19296

Lot #: A7J190296

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-422-0102	58	67	93	61	66	74	00
02	SB-422-0203	61	68	93	68	69	72	00
03	SB-422-0304	57	66	90	67	67	70	00
04	SB-422-0506	62	69	90	66	67	74	00
05	SB-422-0708	59	66	89	61	63	69	00
06	SB-423-0102	60	74	90	65	65	69	00
07	SB-423-0203	54	65	90	59	59	72	00
08	SB-423-0304	59	67	91	64	66	70	00
09	SB-423-0506	58	69	96	63	63	73	00
10	SB-423-0708	66	74	94	68	71	72	00
11	SB-424-0102	70	73	80	70	73	68	00
12	SB-424-0203	63 D	71 D	75 D	60 D	67 D	51 D	00
13	SB-424-0304	50 D	58 D	68 D	48 D	49 D	48 D	00
14	SB-424-0506	65	71	91	64	67	58	00
15	SB-424-0708	70	68	89	69	66	72	00
16	SB-425-0102	70	74	91	76	71	73	00
17	SB-425-0203	62	67	84	61	64	53	00
18	SB-425-0304	63	70	87	63	64	64	00
19	SB-425-0506	65	70	94	66	68	55	00
20	SB-425-0708	67	73	91	68	67	68	00
21	METHOD BLK. J9NKC1AA	67	72	87	70	71	54	00
22	LCS J9NKC1AC	70	72	90	71	71	76	00
23	SB-425-0203 D	60	66	78	62	62	69	00
24	SB-425-0203 S	72	77	92	74	74	79	00

SURROGATES		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

FORM II

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9NKC1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN — SDG Number:7J19296

Lab File ID: J9NKC1AA. — Lot Number: A7J190296

Date Analyzed: 10/25/07 — Time Analyzed: 12:05

Matrix: SOLID — Date Extracted:10/24/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-422-0102	J9E441AC	J9E441AC.	10/25/07	19:43
02	SB-422-0203	J9E471AC	J9E471AC.	10/25/07	20:02
03	SB-422-0304	J9E481AC	J9E481AC.	10/25/07	20:21
04	SB-422-0506	J9E491AC	J9E491AC.	10/25/07	20:40
05	SB-422-0708	J9E5A1AC	J9E5A1AC.	10/25/07	20:59
06	SB-423-0102	J9E5C1AC	J9E5C1AC.	10/25/07	21:18
07	SB-423-0203	J9E5D1AC	J9E5D1AC.	10/25/07	21:37
08	SB-423-0304	J9E5E1AC	J9E5E1AC.	10/25/07	21:56
09	SB-423-0506	J9E5F1AC	J9E5F1AC.	10/25/07	22:15
10	SB-423-0708	J9E5G1AC	J9E5G1AC.	10/25/07	22:34
11	SB-424-0102	J9E5H1AC	J9E5H1AC.	10/29/07	21:17
12	SB-424-0203	J9E5J1AC	J9E5J1AC.	10/26/07	23:03
13	SB-424-0304	J9E5K1AC	J9E5K1AC.	10/26/07	22:44
14	SB-424-0506	J9E5L1AC	J9E5L1AC.	10/26/07	21:46
15	SB-424-0708	J9E5M1AC	J9E5M1AC.	10/29/07	17:50
16	SB-425-0102	J9E5P1AC	J9E5P1AC.	10/29/07	20:58
17	SB-425-0203	J9E5Q1AC	J9E5Q1AC.	10/26/07	13:30
18	SB-425-0203	J9E5Q1AF S	J9E5Q1AF.	10/26/07	13:49
19	SB-425-0203	J9E5Q1AG D	J9E5Q1AG.	10/26/07	14:08
20	SB-425-0304	J9E5V1AC	J9E5V1AC.	10/26/07	20:49
21	SB-425-0506	J9E5X1AC	J9E5X1AC.	10/26/07	21:08
22	SB-425-0708	J9E511AC	J9E511AC.	10/26/07	21:27
23	CHECK SAMPLE	J9NKC1AC C	J9NKC1AC.	10/25/07	12:24
24					
25					
26					
27					
28					
29					
30					

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.: SDG No.: 7J19296

Lab File ID: 8DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4HP8 DFTPP Injection Time: 1405

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.3
68	Less than 2.0% of mass 69	0.2 (0.4)1
69	Mass 69 relative abundance	53.0
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	51.9
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	6.5
275	10.0 - 30.0% of mass 198	26.5
365	Greater than 1.0% of mass 198	3.3
441	Present, but less than mass 443	8.3
442	Greater than 40.0% of mass 198	52.9
443	17.0 - 23.0% of mass 442	9.8 (18.6)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	L5	8SMM1024	10/24/07	1522
02	SSTD004	L4	8SM1024	10/24/07	1541
03	SSTD003	L3	8SML1024	10/24/07	1600
04	SSTD002	L2	8SL1024	10/24/07	1619
05	SSTD001	L1	8SLL1024	10/24/07	1638
06	SSTD009	L9	8HHH1024	10/24/07	1656
07	SSTD008	L8	8SHH1024	10/24/07	1715
08	SSTD007	L7	8SH1024	10/24/07	1734
09	SSTD006	L6	8SMH1024	10/24/07	1753
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J19296

Lab File ID: 8DF1025 DFTPP Injection Date: 10/25/07

Instrument ID: A4HP8 DFTPP Injection Time: 1049

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	48.8
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	40.0 - 60.0% of mass 198	49.8
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	6.6
275	10.0 - 30.0% of mass 198	26.3
365	Greater than 1.0% of mass 198	3.5
441	Present, but less than mass 443	8.5
442	Greater than 40.0% of mass 198	55.7
443	17.0 - 23.0% of mass 442	10.4 (18.7)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1025	10/25/07	1108
02	J9NKCBLK	J9NKC1AA	J9NKC1AA	10/25/07	1205
03	J9NKCCHK	J9NKC1AC	J9NKC1AC	10/25/07	1224
04	SB-422-0102	J9E441AC	J9E441AC	10/25/07	1943
05	SB-422-0203	J9E471AC	J9E471AC	10/25/07	2002
06	SB-422-0304	J9E481AC	J9E481AC	10/25/07	2021
07	SB-422-0506	J9E491AC	J9E491AC	10/25/07	2040
08	SB-422-0708	J9E5A1AC	J9E5A1AC	10/25/07	2059
09	SB-423-0102	J9E5C1AC	J9E5C1AC	10/25/07	2118
10	SB-423-0203	J9E5D1AC	J9E5D1AC	10/25/07	2137
11	SB-423-0304	J9E5E1AC	J9E5E1AC	10/25/07	2156
12	SB-423-0506	J9E5F1AC	J9E5F1AC	10/25/07	2215
13	SB-423-0708	J9E5G1AC	J9E5G1AC	10/25/07	2234
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J19296

Lab File ID: 8DF1026 DFTPP Injection Date: 10/26/07

Instrument ID: A4HP8 DFTPP Injection Time: 1114

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	54.5
70	Less than 2.0% of mass 69	0.5 (0.9)1
127	40.0 - 60.0% of mass 198	53.1
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	24.5
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	7.3
442	Greater than 40.0% of mass 198	46.0
443	17.0 - 23.0% of mass 442	8.9 (19.3)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1026	10/26/07	1133
02	SB-425-0203	J9E5Q1AC	J9E5Q1AC	10/26/07	1330
03	SB-425-0203	J9E5Q1AF	J9E5Q1AF	10/26/07	1349
04	SB-425-0203	J9E5Q1AG	J9E5Q1AG	10/26/07	1408
05	SB-425-0304	J9E5V1AC	J9E5V1AC	10/26/07	2049
06	SB-425-0506	J9E5X1AC	J9E5X1AC	10/26/07	2108
07	SB-425-0708	J9E511AC	J9E511AC	10/26/07	2127
08	SB-424-0506	J9E5L1AC	J9E5L1AC	10/26/07	2146
09	SB-424-0304	J9E5K1AC	J9E5K1AC	10/26/07	2244
10	SB-424-0203	J9E5J1AC	J9E5J1AC	10/26/07	2303
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J19296

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	30.0 - 60.0% of mass 198	41.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	51.1
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	40.0 - 60.0% of mass 198	49.5
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	6.5
275	10.0 - 30.0% of mass 198	25.5
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	8.6
442	Greater than 40.0% of mass 198	55.3
443	17.0 - 23.0% of mass 442	10.6 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1029	10/29/07	1020
02	SB-424-0708	J9E5M1AC	J9E5M1AC	10/29/07	1750
03	SB-425-0102	J9E5P1AC	J9E5P1AC	10/29/07	2058
04	SB-424-0102	J9E5H1AC	J9E5H1AC	10/29/07	2117
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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

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	1.16862	0.94500	0.99660	1.06264	1.04702	1.14009			
	1.17535	1.24000	1.40500				1.13115	12.298	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.15525	1.02036	1.08130	1.16366	1.14381	1.23994			
	1.26288	1.32864	1.47228				1.20757	11.285	
150 Dibenz(a,h)anthracene	0.98770	0.87713	0.89316	0.96975	0.95807	1.05400			
	1.09661	1.15927	1.28968				1.03171	12.905	
151 Benzo(g,h,i)perylene	1.12101	0.99918	0.87601	0.98078	0.94801	1.00857			
	1.02246	1.07093	1.17786				1.01275	9.694	
232 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i
Lab File ID: ICVTCL.D
Analysis Type:
Lab Sample ID: icvtcl
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71024a.b\8270p.m

Injection Date: 24-OCT-2007 18:12
Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Init. Cal. Times: 15:22 17:53
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene-	1.27628	1.28668	1.28668	0.010	-0.81506	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.11216	1.11216	0.010	1.67960	50.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.20643	1.20643	0.010	0.09417	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.02848	1.02848	0.010	0.31240	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	0.96293	0.96293	0.010	4.91974	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.56331	0.56331	0.010	8.63212	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.48504	0.48504	0.010	2.45568	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.25695	1.25695	0.010	2.13125	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.79942	0.79942	0.010	-0.26527	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.81077	1.81077	0.010	2.60337	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.22639	1.22639	0.010	4.19358	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14093	0.14093	0.010	1.19563	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.20697	1.20697	0.010	2.13638	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.82261	0.82261	0.010	0.39586	50.00000	Averaged
M 195 Cresols, total	2.85006	2.88600	2.88600	0.010	-1.26094	50.00000	Averaged
101 Diphenylamine	0.50153	0.49164	0.49164	0.010	1.97267	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i
Lab File ID: 8SMH1025.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71025a.b\8270p.m

Injection Date: 25-OCT-2007 11:08
Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Init. Cal. Times: 15:22 17:53
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.27362	1.27362	0.010	0.20863	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.14710	1.14710	0.010	-1.40995	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.26215	1.26215	0.010	-4.52013	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.07447	1.07447	0.010	-4.14468	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.05340	1.05340	0.010	-4.01368	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.53467	0.53467	0.010	13.27802	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.49318	0.49318	0.010	0.81811	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.30074	1.30074	0.010	-1.27859	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.79771	0.79771	0.010	-0.05047	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.78653	1.78653	0.010	3.90724	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.17239	1.17239	0.010	8.41221	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.13803	0.13803	0.010	3.23016	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.19584	1.19584	0.010	3.03869	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.82139	0.82139	0.010	0.54356	50.00000	Averaged
M 195 Cresols, total	2.85006	2.77915	2.77915	0.010	2.48812	50.00000	Averaged
101 Diphenylamine	0.50153	0.51552	0.51552	0.010	-2.78889	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i
Lab File ID: 8SMH1026.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71026a.b\8270p.m

Injection Date: 26-OCT-2007 11:33
Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Init. Cal. Times: 15:22 17:53
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.38115	1.38115	0.010	-8.21678	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.21342	1.21342	0.010	-7.27306	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.32138	1.32138	0.010	-9.42501	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.12973	1.12973	0.010	-9.50064	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.08997	1.08997	0.010	-7.62405	50.00000	Averaged
199 1,4-Dioxane	0.61653	0.56904	0.56904	0.010	7.70306	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.50173	0.50173	0.010	-0.90080	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.37646	1.37646	0.010	-7.17442	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.84955	0.84955	0.010	-6.55212	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.87156	1.87156	0.010	-0.66650	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.26117	1.26117	0.010	1.47659	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14957	0.14957	0.010	-4.86249	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.26630	1.26630	0.010	-2.67417	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.87015	0.87015	0.010	-5.36108	50.00000	Averaged
M 195 Cresols, total	2.85006	2.93764	2.93764	0.010	-3.07276	50.00000	Averaged
101 Diphenylamine	0.50153	0.54465	0.54465	0.010	-8.59669	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i
Lab File ID: 8SMH1029.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71029a.b\8270p.m

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

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.38094	1.38094	0.010	-8.20028	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.21421	1.21421	0.010	-7.34356	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.31849	1.31849	0.010	-9.18538	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.11948	1.11948	0.010	-8.50778	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.08001	1.08001	0.010	-6.64054	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.49897	0.49897	0.010	19.06790	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.50747	0.50747	0.010	-2.05536	50.00000	Averaged
$ 155 2-Fluorobiphenyl	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	Averaged
$ 157 Phenol-d5	1.85917	1.93240	1.93240	0.010	-3.93874	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.28357	1.28357	0.010	-0.27316	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14936	0.14936	0.010	-4.71595	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.30061	1.30061	0.010	-5.45612	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.87349	0.87349	0.010	-5.76451	50.00000	Averaged
M 195 Cresols, total	2.85006	3.11050	3.11050	0.010	-9.13792	50.00000	Averaged
101 Diphenylamine	0.50153	0.56377	0.56377	0.010	-12.40883	50.00000	Averaged

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19296

Lab File ID (Standard): 8SMH1025 Date Analyzed: 10/25/07

Instrument ID: A4HP8 Time Analyzed: 1108

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	112616	3.52	443095	4.42	256037	5.69
	UPPER LIMIT	225232	4.02	886190	4.92	512074	6.19
	LOWER LIMIT	56308	3.02	221548	3.92	128019	5.19
	EPA SAMPLE NO.						
01	J9NKCBLK	143338	3.52	597600	4.42	334047	5.69
02	J9NKCCHK	139422	3.52	583435	4.42	335317	5.69
03	SB-422-0102	98032	3.52	416764	4.42	241889	5.69
04	SB-422-0203	97696	3.52	424080	4.42	253211	5.69
05	SB-422-0304	104282	3.52	462638	4.42	274751	5.69
06	SB-422-0506	93467	3.52	399887	4.42	239546	5.69
07	SB-422-0708	93892	3.52	401463	4.42	230583	5.69
08	SB-423-0102	78991	3.52	327946	4.42	185567	5.69
09	SB-423-0203	98767	3.52	419043	4.42	244372	5.69
10	SB-423-0304	97377	3.52	420558	4.42	255763	5.69
11	SB-423-0506	101266	3.52	429180	4.42	241281	5.69
12	SB-423-0708	104031	3.52	442559	4.42	259364	5.69
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19296

Lab File ID (Standard): 8SMH1025 Date Analyzed: 10/25/07

Instrument ID: A4HP8 Time Analyzed: 1108

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	477512	6.78	483632	8.80	416820	10.28
	UPPER LIMIT	955024	7.28	967264	9.30	833640	10.78
	LOWER LIMIT	238756	6.28	241816	8.30	208410	9.78
	EPA SAMPLE NO.						
01	J9NKCBLK	633186	6.78	640124	8.79	547505	10.27
02	J9NKCCHK	633050	6.78	649757	8.81	541309	10.29
03	SB-422-0102	464542	6.78	444268	8.78	374598	10.26
04	SB-422-0203	484750	6.78	473394	8.78	382735	10.27
05	SB-422-0304	531536	6.78	526345	8.76	437087	10.24
06	SB-422-0506	460935	6.78	470943	8.77	396982	10.26
07	SB-422-0708	461090	6.78	474642	8.78	400000	10.26
08	SB-423-0102	351786	6.78	348945	8.77	307697	10.25
09	SB-423-0203	481952	6.78	470117	8.76	398365	10.24
10	SB-423-0304	508029	6.78	518847	8.78	434960	10.26
11	SB-423-0506	488073	6.78	482825	8.76	398184	10.24
12	SB-423-0708	524021	6.78	527835	8.77	439378	10.25
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19296

Lab File ID (Standard): 8SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4HP8 Time Analyzed: 1133

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	152275	3.50	618398	4.39	346919	5.66
	UPPER LIMIT	304550	4.00	1236796	4.89	693838	6.16
	LOWER LIMIT	76138	3.00	309199	3.89	173460	5.16
	EPA SAMPLE NO.						
01	SB-425-0203	88510	3.49	353960	4.39	194135	5.65
02	SB-425-0203	129972	3.49	549508	4.39	301762	5.66
03	SB-425-0203	128293	3.49	526986	4.39	292827	5.66
04	SB-425-0304	85445	3.49	344475	4.39	183500	5.66
05	SB-425-0506	87284	3.49	357660	4.39	200204	5.66
06	SB-425-0708	103137	3.49	413933	4.39	228735	5.66
07	SB-424-0506	85495	3.49	352763	4.39	188565	5.66
08	SB-424-0304	81691	3.49	333723	4.39	183516	5.66
09	SB-424-0203	110910	3.49	457710	4.39	258827	5.66
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19296

Lab File ID (Standard): 8SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4HP8 Time Analyzed: 1133

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	670016	6.74	666460	8.75	546573	10.20
	UPPER LIMIT	1340032	7.24	1332920	9.25	1093146	10.70
	LOWER LIMIT	335008	6.24	333230	8.25	273287	9.70
	EPA SAMPLE NO.						
01	SB-425-0203	372954	6.74	360755	8.75	313865	10.20
02	SB-425-0203	570777	6.74	565540	8.75	475911	10.19
03	SB-425-0203	543067	6.74	544529	8.76	461427	10.21
04	SB-425-0304	362811	6.74	369648	8.72	324825	10.17
05	SB-425-0506	386452	6.74	379360	8.72	334746	10.17
06	SB-425-0708	444415	6.74	455475	8.73	398345	10.17
07	SB-424-0506	357037	6.75	364257	8.72	322146	10.17
08	SB-424-0304	344903	6.74	366340	8.71	309243	10.16
09	SB-424-0203	473544	6.74	543686	8.73	430127	10.18
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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 1/87 Rev.

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19296

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP8 Time Analyzed: 1020

		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	SB-424-0708	61761	3.53	255695	4.43	147474	5.70
02	SB-425-0102	49265*	3.53	221540*	4.43	131139	5.70
03	SB-424-0102	55713*	3.53	239939	4.43	146263	5.70
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19296

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP8 Time Analyzed: 1020

		IS4 (PHN) 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	SB-424-0708	285546	6.79	267352	8.78	222907	10.26
02	SB-425-0102	241938	6.79	232135*	8.77	194594	10.26
03	SB-424-0102	284677	6.79	327019	8.78	228907	10.26
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

SAMPLE CALC SAMPLE ID: SB-422-0506 COMPOUND: BAP

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
396982	1	89529	2	2000	1.1312	0.87	0.5	61.09

Sample Amount (g)
30.01

Tetra Tech NUS, Inc

Client Sample ID: SB-422-0506

GC/MS Semivolatiles

Lot-Sample #...:	A7J190296-004	**Work Order #...:**	J9E491AC	**Matrix.....:**	SO
Date Sampled...:	10/17/07 14:38	**Date Received..:**	10/19/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/25/07		
Prep Batch #...:	7297030				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.01 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	13	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**61 J**	**380**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4hp8.i\71025a.b\J9E491AC.D
Lab Smp Id: j9e491ac Client Smp ID: SB-422-0506
Inj Date : 25-OCT-2007 20:40
Operator : 001710 Inst ID: a4hp8.i
Smp Info : j9e491ac,71025a.b,8270p,bap.sub
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4hp8.i\71025a.b\8270P.m
Meth Date : 01-Nov-2007 10:35 gruberj Quant Type: ISTD
Cal Date : 24-OCT-2007 17:53 Cal File: 8SMH1024.D
Als bottle: 32
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	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.010	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)	
* 1 1,4-Dichlorobenzene-d4	152	3.522	3.523	(1.000)	93467	2.00000		(Q)
* 2 Naphthalene-d8	136	4.422	4.422	(1.000)	399887	2.00000		
* 3 Acenaphthene-d10	164	5.691	5.691	(1.000)	239546	2.00000		
* 4 Phenanthrene-d10	188	6.778	6.778	(1.000)	460935	2.00000		
* 5 Chrysene-d12	240	8.774	8.798	(1.000)	470943	2.00000		
* 6 Perylene-d12	264	10.255	10.279	(1.000)	396982	2.00000		
146 Benzo(a)pyrene	252	10.183	10.212	(0.993)	89529	0.39875	53.149	
$ 154 Nitrobenzene-d5	82	3.902	3.903	(0.883)	310213	3.12019	415.89	
$ 155 2-Fluorobiphenyl	172	5.181	5.182	(0.910)	534359	3.47377	463.01	
$ 156 Terphenyl-d14	244	7.932	7.937	(0.904)	849363	4.52408	603.01	
$ 157 Phenol-d5	99	3.234	3.225	(0.918)	429420	4.94237	658.76	
$ 158 2-Fluorophenol	112	2.666	2.647	(0.757)	300246	5.01898	668.97	
$ 159 2,4,6-Tribromophenol	330	6.263	6.264	(1.101)	95080	5.56547	741.81	
$ 186 2-Chlorophenol-d4	132	3.373	3.369	(0.958)	300877	5.22018	695.79	
$ 187 1,2-Dichlorobenzene-d4	152	3.633	3.633	(1.031)	128673	3.33383	444.36	

QC Flag Legend

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **M. MARTIN** **DATE:** **NOVEMBER 21, 2007**

FROM: **PAULA DIMATTEI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – BENZO(a)PYRENE**
LOCKHEED MIDDLE RIVER COMPLEX
SAMPLE DELIVERY GROUP (SDG): 7J19302

SAMPLES: 20/Soil/

SB-430-0102	SB-430-0203	SB-430-0304	SB-430-0506	SB-430-0708
SB-431-0102	SB-431-0203	SB-431-0304	SB-431-0506	SB-431-0708
SB-432-0102	SB-432-0203	SB-432-0304	SB-432-0506	SB-432-0708
SB-433-0102	SB-433-0203	SB-433-0304	SB-433-0506	SB-433-0708

Overview

The sample set for SDG 7J19302, 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 18, 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 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.

FOR Tetra Tech NUS
Paula L. DiMattei
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: 00885

SDG: 7J19302 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-430-0102DL	nsample	SB-430-0203	nsample	SB-430-0304
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J190302001	lab_id	A7J190302002	lab_id	A7J190302003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	91.1	Pct_Solids	92.0	Pct_Solids	93.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	2000		

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	17	J	P

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

PROJ_NO: 00885

SDG: 7J19302 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-430-0506	nsample	SB-430-0708	nsample	SB-431-0102
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J190302004	lab_id	A7J190302005	lab_id	A7J190302006
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	85.0	Pct_Solids	83.0	Pct_Solids	92.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	8.9	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	14	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	390		

PROJ_NO: 00885

SDG: 7J19302 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-431-0203	nsample	SB-431-0304	nsample	SB-431-0506
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J190302007	lab_id	A7J190302008	lab_id	A7J190302009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	90.5	Pct_Solids	87.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	93	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	8.3	J	P

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

PROJ_NO: 00885

SDG: 7J19302 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-431-0708	nsample	SB-432-0102	nsample	SB-432-0203
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J190302010	lab_id	A7J190302011	lab_id	A7J190302012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	73.0	Pct_Solids	92.7	Pct_Solids	89.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.8	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	

PROJ_NO: 00885

SDG: 7J19302 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-432-0304	nsample	SB-432-0506	nsample	SB-432-0708
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J190302013	lab_id	A7J190302014	lab_id	A7J190302015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	92.5	Pct_Solids	86.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.4	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: 7J19302 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-433-0102	nsample	SB-433-0203	nsample	SB-433-0304
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J190302016	lab_id	A7J190302017	lab_id	A7J190302018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	95.5	Pct_Solids	94.7	Pct_Solids	94.4
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	45	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	17	J	P

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

PROJ_NO: 00885

SDG: 7J19302 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-433-0506	nsample	SB-433-0708
samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J190302019	lab_id	A7J190302020
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	93.6	Pct_Solids	87.0
DUP_OF:		DUP_OF:	

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

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-430-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-001 **Work Order #...:** J9E6J1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:15 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297031
Dilution Factor: 2
% Moisture.....: 8.9 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**2000**	**720**	**ug/kg**	**2.9**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64 DIL	(24 - 112)
2-Fluorobiphenyl	69 DIL	(34 - 110)
Terphenyl-d14	83 DIL	(41 - 119)
Phenol-d5	79 DIL	(28 - 110)
2-Fluorophenol	75 DIL	(26 - 110)
2,4,6-Tribromophenol	64 DIL	(10 - 118)

NOTE(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-430-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-002 **Work Order #...:** J9E6Q1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:17 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 8.0 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**17 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	70	(34 - 110)
Terphenyl-d14	94	(41 - 119)
Phenol-d5	67	(28 - 110)
2-Fluorophenol	54	(26 - 110)
2,4,6-Tribromophenol	69	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-430-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-003 **Work Order #...:** J9E6R1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:19 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 7.0 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	350	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	57	(26 - 110)
2,4,6-Tribromophenol	67	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-430-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-004 **Work Order #...:** J9E6T1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:21 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**8.9 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	81	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	67	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-430-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-005 **Work Order #...:** J9E6W1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:23 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**14 J**	**400**	**ug/kg**	**1.6**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	69	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	85	(41 - 119)
Phenol-d5	74	(28 - 110)
2-Fluorophenol	72	(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-431-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-006 **Work Order #...:** J9E6X1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:40 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/30/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 8.0 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**390**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	43	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	53	(28 - 110)
2-Fluorophenol	42	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-431-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-007 **Work Order #...:** J9E601AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:42 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 9.5 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**93 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	74	(24 - 112)
2-Fluorobiphenyl	73	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	81	(28 - 110)
2-Fluorophenol	80	(26 - 110)
2,4,6-Tribromophenol	65	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-431-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-008 **Work Order #...:** J9E631AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:44 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**8.3 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	74	(24 - 112)
2-Fluorobiphenyl	71	(34 - 110)
Terphenyl-d14	85	(41 - 119)
Phenol-d5	86	(28 - 110)
2-Fluorophenol	83	(26 - 110)
2,4,6-Tribromophenol	62	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-431-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-009 **Work Order #...:** J9E651AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:46 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	83	(41 - 119)
Phenol-d5	71	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	58	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-431-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-010 **Work Order #...:** J9E671AC **Matrix.....:** SO
Date Sampled...: 10/18/07 08:48 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 27 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	450	ug/kg	1.8

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	54	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
Terphenyl-d14	96	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	58	(26 - 110)
2,4,6-Tribromophenol	71	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-432-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-011 **Work Order #...:** J9E681AC **Matrix.....:** SO
Date Sampled...: 10/18/07 09:15 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/25/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 7.3 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	71	(24 - 112)
2-Fluorobiphenyl	71	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	84	(28 - 110)
2-Fluorophenol	85	(26 - 110)
2,4,6-Tribromophenol	60	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-432-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-012 **Work Order #...:** J9E7C1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 09:17 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	72	(26 - 110)
2,4,6-Tribromophenol	75	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-432-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-013 **Work Order #...:** J9E7E1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 09:19 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 7.5 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	66	(24 - 112)
2-Fluorobiphenyl	73	(34 - 110)
Terphenyl-d14	91	(41 - 119)
Phenol-d5	73	(28 - 110)
2-Fluorophenol	70	(26 - 110)
2,4,6-Tribromophenol	73	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-432-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-014 **Work Order #...:** J9E7H1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 09:21 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63	(24 - 112)
2-Fluorobiphenyl	70	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	71	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-432-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-015 **Work Order #...:** J9E7K1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 09:23 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	69	(24 - 112)
2-Fluorobiphenyl	75	(34 - 110)
Terphenyl-d14	100	(41 - 119)
Phenol-d5	80	(28 - 110)
2-Fluorophenol	75	(26 - 110)
2,4,6-Tribromophenol	81	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-433-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-016 **Work Order #...:** J9E7L1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 09:55 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 4.5 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**45 J**	**350**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	76	(24 - 112)
2-Fluorobiphenyl	82	(34 - 110)
Terphenyl-d14	99	(41 - 119)
Phenol-d5	82	(28 - 110)
2-Fluorophenol	78	(26 - 110)
2,4,6-Tribromophenol	79	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-433-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-017 **Work Order #...:** J9E7Q1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 09:57 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 5.3 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**17 J**	**350**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	69	(24 - 112)
2-Fluorobiphenyl	79	(34 - 110)
Terphenyl-d14	101	(41 - 119)
Phenol-d5	76	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	71	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-433-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-018 **Work Order #...:** J9E7V1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 09:59 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 5.6 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	350	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	70	(24 - 112)
2-Fluorobiphenyl	79	(34 - 110)
Terphenyl-d14	100	(41 - 119)
Phenol-d5	81	(28 - 110)
2-Fluorophenol	74	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-433-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-019 **Work Order #...:** J9E7X1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 10:01 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 6.4 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	350	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	75	(24 - 112)
2-Fluorobiphenyl	84	(34 - 110)
Terphenyl-d14	102	(41 - 119)
Phenol-d5	85	(28 - 110)
2-Fluorophenol	81	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-433-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190302-020 **Work Order #...:** J9E751AC **Matrix.....:** SO
Date Sampled...: 10/18/07 10:03 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297031
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	97	(41 - 119)
Phenol-d5	73	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Martin	Date: 10/18/07	Chain of Custody Number: 237141
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301 528 3022	Lab Number:	Page 1 of 2
City: Germantown; State: MD; Zip Code: 20874	Site Contact: S. Hadley; Lab Contact: K. Ives		
Project Name and Location (State): LMC MR	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112 IC 00885			

Analysis (Attach list if more space is needed): LL 8270 *

Special Instructions/ Conditions of Receipt: Block 'G'

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	LL 8270 *	Special Instructions/ Conditions of Receipt
SB-430-0102	10/18	0815				X	1						X	*benzo (a) pyrene
-0203		0817												
-0304		0819												
-0506		0821												
430-0708		0823												
431-0102		0840												
-0203		0842												
-0304		0844												
-0506		0846												
431-0708		0848												
432-0102		0915												
SB-432-0203	10/18	0917				X	1						X	*benzo (a) pyrene

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	10/18/07	1623	1. Received By: [signature]	10-18-07	1623
2. Relinquished By:			2. Received By: [signature]	10-19-07	0940
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Martin	Date: 10/18/07	Chain of Custody Number: 237142
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528 ~~32~~ 3022	Lab Number:	Page 2 of 2
City: Germantown; State: MD; Zip Code: 20874	Site Contact: S. Hadley; Lab Contact: K. Ives		
Project Name and Location (State): LMC MR	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): LL8270 #	Special Instructions/ Conditions of Receipt
SB-432-0304	10/18	0919				X	1						X	Block 'G' * benzo (a) pyrene
↓ -0506	↓	0921				↓	↓						↓	↓
432-0708	↓	0923				↓	↓						↓	↓
433-0102	↓	0955				↓	↓						↓	↓
-0203	↓	0957				↓	↓						↓	↓
-0304	↓	0959				↓	↓						↓	↓
-0506	↓	1001				↓	↓						↓	↓
-0708	↓	1003				↓	↓						↓	↓
SB-433-0102 ms/SD	10/18	0965				X	1						X	* benzo (a) pyrene
		KAH				10/18								

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	10/18/07	1623	1. Received By: [signature]	10-18-07	1623
2. Relinquished By:			2. Received By: [signature]	10.19.07	0940
3. Relinquished By:			3. Received By:		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Lot Number: A7190302

Client: Tetra Tech Project: _____ Quote#: 47083

Cooler Received on: 10-19-07 Opened on: 10-19-07 By: [signature]

FedEx ☑ Client Drop Off ☐ UPS ☐ DHL ☐ FAS ☐ TestAmerica Courier ☐ (Signature)

Stetson ☐ US Cargo ☐ Other: _____

TestAmerica Cooler No# _____ Foam Box ☐ Client Cooler ☑ Other _____

1. Were custody seals on the outside of the cooler? Yes ☐ No ☑ Intact? Yes ☐ No ☐ NA ☑
   If YES, Quantity _____
   Were custody seals on the outside of cooler signed and dated? Yes ☐ No ☐ NA ☑
   Were custody seals on the bottles? Yes ☐ No ☐ NA ☑
   If YES, are there any exceptions _____
2. Shipper's packing slip attached to this form? Yes ☑ No ☐ NA ☐
3. Did custody papers accompany the samples? Yes ☑ No ☐ Relinquished by client? Yes ☑ No ☐
4. Did you sign the custody papers in the appropriate place? Yes ☑ No ☐
5. Packing material used: Bubble Wrap ☑ Foam ☐ None ☐ Other: _____
6. Cooler temperature upon receipt 3.9 °C (see back of form for multiple coolers/temp)

METHOD: IR ☑ Other ☐ _____

COOLANT: Wet Ice ☑ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐

7. Did all bottles arrive in good condition (Unbroken)? Yes ☑ No ☐
8. Could all bottle labels and/or tags be reconciled with the COC? Yes ☑ No ☐
9. Were samples at the correct pH upon receipt? Yes ☐ No ☐ NA ☒
10. Were correct bottles used for the tests indicated? Yes ☑ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☐ NA ☑
12. Sufficient quantity received to perform indicated analyses? Yes ☑ No ☐
13. Was a Trip Blank present in the cooler? Yes ☐ No ☑ Were VOAs on the COC? Yes ☐ No ☑

Contacted PM _____ Date: _____ by: _____ via Voice Mail ☐ Verbal ☐ Other ☐

Concerning: _____

14. CHAIN OF CUSTODY

The following discrepancies occurred:

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in sample receiving to meet recommended pH level(s). *Nitric Acid Lot #042607-HNO3 - Sulfuric Acid Lot # 092006-H2SO4; Sodium Hydroxide Lot # 122805 -NaOH; Hydrochloric Acid Lot # 092006-HCl; Sodium Hydroxide and Zinc Acetate Lot # 050205-CH3COO2ZN/NaOH*

What time was preservative added to samples? _____

Sample(s) _____ were received with bubble > 6 mm in diameter (Notify PM)

Client ID	pH	Date	Initials

TestAmerica Cooler Receipt Form/Narrative North Canton Facility			
Client ID	**pH**	**Date**	**Initials**
Cooler	**Temp °C**	**Method**	**Coolant**
Discrepancies Cont'd			

CASE NARRATIVE

7J19302

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 19, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J190302.

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 06, 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 temperature of the cooler upon sample receipt was 3.9°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.

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 clements 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.

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J19302

Lot #: A7J190302

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-430-0102	64 D	69 D	83 D	79 D	75 D	64 D	00
02	SB-430-0203	57	70	94	67	54	69	00
03	SB-430-0304	57	68	84	64	57	67	00
04	SB-430-0506	61	69	81	65	61	67	00
05	SB-430-0708	69	69	85	74	72	61	00
06	SB-431-0102	43	62	79	53	42	70	00
07	SB-431-0203	74	73	87	81	80	65	00
08	SB-431-0304	74	71	85	86	83	62	00
09	SB-431-0506	59	62	83	71	61	58	00
10	SB-431-0708	54	61	96	64	58	71	00
11	SB-432-0102	71	71	87	84	85	60	00
12	SB-432-0203	65	74	87	75	72	75	00
13	SB-432-0304	66	73	91	73	70	73	00
14	SB-432-0506	63	70	89	71	62	70	00
15	SB-432-0708	69	75	100	80	75	81	00
16	SB-433-0102	76	82	99	82	78	79	00
17	SB-433-0203	69	79	101	76	63	71	00
18	SB-433-0304	70	79	100	81	74	72	00
19	SB-433-0506	75	84	102	85	81	70	00
20	SB-433-0708	62	69	97	73	67	70	00
21	METHOD BLK. J9NKD1AA	62	69	84	66	65	51	00
22	LCS J9NKD1AC	68	68	85	71	76	63	00
23	SB-433-0102 D	79	82	104	84	79	82	00
24	SB-433-0102 S	78	78	98	88	79	73	00

SURROGATES		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

FORM II

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9NKD1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number: 7J19302

Lab File ID: J9NKD1AA.

Lot Number: A7J190302

Date Analyzed: 10/25/07

Time Analyzed: 12:28

Matrix: SOLID

Date Extracted: 10/24/07

GC Column: DB-5.625 ID: .32

Extraction Method: 3550B

Instrument ID: HP7

Level: (low/med) LOW

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

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-430-0102	J9E6J1AC	J9E6J1AC.	10/25/07	18:09
02	SB-430-0203	J9E6Q1AC	J9E6Q1AC.	10/27/07	22:43
03	SB-430-0304	J9E6R1AC	J9E6R1AC.	10/27/07	01:31
04	SB-430-0506	J9E6T1AC	J9E6T1AC.	10/27/07	01:51
05	SB-430-0708	J9E6W1AC	J9E6W1AC.	10/25/07	19:25
06	SB-431-0102	J9E6X1AC	J9E6X1AC.	10/30/07	00:50
07	SB-431-0203	J9E601AC	J9E601AC.	10/25/07	20:03
08	SB-431-0304	J9E631AC	J9E631AC.	10/25/07	20:22
09	SB-431-0506	J9E651AC	J9E651AC.	10/25/07	20:41
10	SB-431-0708	J9E671AC	J9E671AC.	10/27/07	21:24
11	SB-432-0102	J9E681AC	J9E681AC.	10/25/07	21:37
12	SB-432-0203	J9E7C1AC	J9E7C1AC.	10/27/07	02:32
13	SB-432-0304	J9E7E1AC	J9E7E1AC.	10/27/07	02:52
14	SB-432-0506	J9E7H1AC	J9E7H1AC.	10/27/07	03:12
15	SB-432-0708	J9E7K1AC	J9E7K1AC.	10/27/07	21:04
16	SB-433-0102	J9E7L1AC	J9E7L1AC.	10/27/07	20:05
17	SB-433-0102	J9E7L1AF S	J9E7L1AF.	10/27/07	20:24
18	SB-433-0102	J9E7L1AG D	J9E7L1AG.	10/27/07	20:44
19	SB-433-0203	J9E7Q1AC	J9E7Q1AC.	10/27/07	23:03
20	SB-433-0304	J9E7V1AC	J9E7V1AC.	10/27/07	21:44
21	SB-433-0506	J9E7X1AC	J9E7X1AC.	10/27/07	22:04
22	SB-433-0708	J9E751AC	J9E751AC.	10/27/07	22:23
23	CHECK SAMPLE	J9NKD1AC C	J9NKD1AC.	10/25/07	12:47
24					
25					
26					
27					
28					
29					
30					

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.: SDG No.: 7J19302

Lab File ID: 7DF1023 DFTPP Injection Date: 10/23/07

Instrument ID: A4HP7 DFTPP Injection Time: 1304

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	32.8
68	Less than 2.0% of mass 69	0.1 (0.3)1
69	Mass 69 relative abundance	50.9
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	40.0 - 60.0% of mass 198	45.8
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	6.9
275	10.0 - 30.0% of mass 198	21.0
365	Greater than 1.0% of mass 198	2.5
441	Present, but less than mass 443	7.1
442	40.0 - 100.0% of mass 198	49.6
443	17.0 - 23.0% of mass 442	9.5 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	L5	7SMM1023	10/23/07	1320
02	SSTD004	L4	7SM1023	10/23/07	1343
03	SSTD003	L3	7SML1023	10/23/07	1402
04	SSTD002	L2	7SL1023	10/23/07	1421
05	SSTD001	L1	7SLL1023	10/23/07	1441
06	SSTD009	L9	7HHH1023	10/23/07	1500
07	SSTD008	L8	7SHH1023	10/23/07	1520
08	SSTD007	L7	7SH1023	10/23/07	1539
09	SSTD006	L6	7SMH1023	10/23/07	1559
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J19302

Lab File ID: 7DF1025 DFTPP Injection Date: 10/25/07

Instrument ID: A4HP7 DFTPP Injection Time: 1007

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.1
68	Less than 2.0% of mass 69	0.1 (0.2)1
69	Mass 69 relative abundance	48.4
70	Less than 2.0% of mass 69	0.3 (0.7)1
127	40.0 - 60.0% of mass 198	46.8
197	Less than 1.0% of mass 198	0.4
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	22.0
365	Greater than 1.0% of mass 198	2.0
441	Present, but less than mass 443	7.0
442	40.0 - 100.0% of mass 198	45.8
443	17.0 - 23.0% of mass 442	8.8 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	7SMH1025	10/25/07	1026
02	J9NKDBLK	J9NKD1AA	J9NKD1AA	10/25/07	1228
03	J9NKDCHK	J9NKD1AC	J9NKD1AC	10/25/07	1247
04	SB-430-0102	J9E6J1AC	J9E6J1AC	10/25/07	1809
05	SB-430-0708	J9E6W1AC	J9E6W1AC	10/25/07	1925
06	SB-431-0203	J9E601AC	J9E601AC	10/25/07	2003
07	SB-431-0304	J9E631AC	J9E631AC	10/25/07	2022
08	SB-431-0506	J9E651AC	J9E651AC	10/25/07	2041
09	SB-432-0102	J9E681AC	J9E681AC	10/25/07	2137
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J19302

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	30.0 - 60.0% of mass 198	50.4
68	Less than 2.0% of mass 69	0.8 (1.2)1
69	Mass 69 relative abundance	63.5
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	55.9
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	6.5
275	10.0 - 30.0% of mass 198	22.9
365	Greater than 1.0% of mass 198	2.6
441	Present, but less than mass 443	9.6
442	40.0 - 100.0% of mass 198	69.0
443	17.0 - 23.0% of mass 442	13.1 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME 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
10	SB-430-0304	J9E6R1AC	J9E6R1AC	10/27/07	0131
11	SB-430-0506	J9E6T1AC	J9E6T1AC	10/27/07	0151
12	SB-432-0203	J9E7C1AC	J9E7C1AC	10/27/07	0232
13	SB-432-0304	J9E7E1AC	J9E7E1AC	10/27/07	0252
14	SB-432-0506	J9E7H1AC	J9E7H1AC	10/27/07	0312
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J19302

Lab File ID: 7DF1027 DFTPP Injection Date: 10/27/07

Instrument ID: A4HP7 DFTPP Injection Time: 1108

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.0
68	Less than 2.0% of mass 69	1.2 (1.9)1
69	Mass 69 relative abundance	65.6
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	55.4
197	Less than 1.0% of mass 198	0.1
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	22.0
365	Greater than 1.0% of mass 198	2.4
441	Present, but less than mass 443	8.8
442	40.0 - 100.0% of mass 198	61.0
443	17.0 - 23.0% of mass 442	12.2 (20.1)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	7SMH1027	10/27/07	1124
02	SB-433-0102	J9E7L1AC	J9E7L1AC	10/27/07	2005
03	SB-433-0102	J9E7L1AF	J9E7L1AF	10/27/07	2024
04	SB-433-0102	J9E7L1AG	J9E7L1AG	10/27/07	2044
05	SB-432-0708	J9E7K1AC	J9E7K1AC	10/27/07	2104
06	SB-431-0708	J9E671AC	J9E671AC	10/27/07	2124
07	SB-433-0304	J9E7V1AC	J9E7V1AC	10/27/07	2144
08	SB-433-0506	J9E7X1AC	J9E7X1AC	10/27/07	2204
09	SB-433-0708	J9E751AC	J9E751AC	10/27/07	2223
10	SB-430-0203	J9E6Q1AC	J9E6Q1AC	10/27/07	2243
11	SB-433-0203	J9E7Q1AC	J9E7Q1AC	10/27/07	2303
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J19302

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	30.0 - 60.0% of mass 198	52.0
68	Less than 2.0% of mass 69	0.9 (1.4)1
69	Mass 69 relative abundance	66.3
70	Less than 2.0% of mass 69	0.3 (0.4)1
127	40.0 - 60.0% of mass 198	54.5
197	Less than 1.0% of mass 198	0.9
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.0
275	10.0 - 30.0% of mass 198	23.1
365	Greater than 1.0% of mass 198	2.4
441	Present, but less than mass 443	9.9
442	40.0 - 100.0% of mass 198	66.9
443	17.0 - 23.0% of mass 442	12.3 (18.4)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	7SMH1029	10/29/07	1356
02	SB-431-0102	J9E6X1AC	J9E6X1AC	10/30/07	0050
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 23-OCT-2007 13:20
End Cal Date : 23-OCT-2007 15:59
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp7.i\71023a.b\8270P.m
Last Edit : 23-Oct-2007 16:14 gruberj
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	7.500 Level 7	10.000 Level 8	12.500 Level 9	___ RRF	% RSD	
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		+++++	+++++	<-
146 Benzo(a)pyrene	1.25425	1.02756	1.05502	1.08595	1.08027	1.13511	1.13630	1.16137	1.27824	1.13490	7.553	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.33079	1.12538	1.09238	1.18024	1.14554	1.20245	1.21438	1.24271	1.33338	1.20747	6.987	
150 Dibenz(a,h)anthracene	1.12388	0.95426	0.93565	0.95239	0.98735	1.02564	1.03664	1.06750	1.16029	1.02707	7.671	
151 Benzo(g,h,i)perylene	1.20041	0.90775	0.93379	0.95488	0.97160	0.99480	1.00267	1.04274	1.11850	1.01413	9.224	
230 2-Chloroacetophenone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 23-OCT-2007 13:20
End Cal Date : 23-OCT-2007 15:59
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp7.i\71023a.b\8270P.m
Last Edit : 23-Oct-2007 16:14 gruberj
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						
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
203 Diphenyl ether	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
204 6-Methylchrysene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
205 Benzenethiol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
207 Indene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
208 Dibenz(a,j)acridine	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
214 Dibenz(a,h)acridine	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
209 Benzaldehyde	+++++	2.01611	1.91964	1.92684	1.76773	1.74847			
	1.59084	1.37082	+++++				1.76292	12.665	<-
210 Caprolactam	+++++	0.11405	0.13648	0.13745	0.13587	0.13393			
	0.13327	0.13848	0.14722				0.13459	6.948	<-
211 1,1'-Biphenyl	+++++	1.29752	1.28060	1.33667	1.33485	1.31728			
	1.29843	1.35047	1.58496				1.35010	7.242	<-
212 Atrazine	+++++	0.20292	0.18305	0.19711	0.19789	0.19553			
	0.19889	0.19276	0.17395				0.19276	4.968	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 23-OCT-2007 13:20
End Cal Date : 23-OCT-2007 15:59
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp7.i\71023a.b\8270P.m
Last Edit : 23-Oct-2007 16:14 gruberj
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						
220 Diphenyl Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
216 1,3-Diethyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
218 1,1,3,3-Tetramethyl-2-Thioure	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
217 1,3-Dibutyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
215 bis(2-Chloroethoxy) ethane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
221 Hexabromobenzene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
219 o-Benzyl Phenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
223 1,2-bis(2-chloroethoxy)ethane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
224 Benzothiazole	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
225 1,3-Dimethyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
226 Methyl parathion	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 23-OCT-2007 13:20
End Cal Date : 23-OCT-2007 15:59
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp7.i\71023a.b\8270P.m
Last Edit : 23-Oct-2007 16:14 gruberj
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						
227 Parathion	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
228 Isodrin	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
229 Kepone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
231 Acrylamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
232 2-Methylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 3-Methylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Methylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 Tributyl phosphate	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
$ 154 Nitrobenzene-d5	0.65796	0.55167	0.61591	0.59836	0.60998	0.62835			
	0.60223	0.57444	0.64929				0.60980	5.524	
$ 155 2-Fluorobiphenyl	1.52821	1.12355	1.15377	1.15728	1.18693	1.16360			
	1.08389	1.11095	1.24975				1.19532	11.174	
$ 156 Terphenyl-d14	0.97457	0.79604	0.85454	0.86030	0.88467	0.86277			
	0.84889	0.85762	0.96261				0.87800	6.443	

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 23-OCT-2007 13:20
End Cal Date : 23-OCT-2007 15:59
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp7.i\71023a.b\8270P.m
Last Edit : 23-Oct-2007 16:14 gruberj
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						
$ 157 Phenol-d5	2.57936	2.34271	2.32917	2.39266	2.23363	2.32272			
	2.39941	2.29690	2.51237				2.37877	4.542	
$ 158 2-Fluorophenol	1.69558	1.37201	1.35246	1.39994	1.32164	1.36820			
	1.42249	1.42330	1.53534				1.43233	8.094	
$ 159 2,4,6-Tribromophenol	+++++	0.13494	0.11358	0.12925	0.13039	0.12404			
	0.12393	0.12792	0.13509				0.12739	5.493	<-
$ 186 2-Chlorophenol-d4	+++++	1.19241	1.27792	1.28342	1.19152	1.21843			
	1.28124	1.28834	1.32877				1.25776	4.009	<-
$ 187 1,2-Dichlorobenzene-d4	+++++	0.82656	0.87480	0.82179	0.73006	0.80959			
	0.77809	0.78913	0.84680				0.80960	5.486	

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	1.01188	1.05737	1.09953	1.12316			
	1.13493	1.16596	1.25556				1.11108	7.898	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
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				1.20254	8.349	
150 Dibenz(a,h)anthracene	1.02771	0.83559	0.86017	0.92198	0.95752	0.97952			
	0.98402	1.01704	1.10090				0.96494	8.618	
151 Benzo(g,h,i)perylene	1.07704	0.89128	0.93016	0.97952	1.02707	1.01343			
	1.01579	1.05027	1.13828				1.01365	7.332	
230 2-Chloroacetophenone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

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						
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
203 Diphenyl ether	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
204 6-Methylchrysene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
205 Benzenethiol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
207 Indene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
208 Dibenz(a,j)acridine	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
214 Dibenz(a,h)acridine	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
209 Benzaldehyde	+++++	1.33635	1.51629	1.53304	1.37790	1.44065			
	1.21782	1.09316	+++++				1.35932	11.754	<-
210 Caprolactam	+++++	0.06814	0.08941	0.10845	0.11830	0.11621			
	0.12301	0.12236	0.14873				0.11183	21.593	<-
211 1,1'-Biphenyl	+++++	1.33355	1.34025	1.37311	1.42096	1.39155			
	1.37852	1.48001	1.54852				1.40831	5.203	<-
212 Atrazine	+++++	0.15743	0.17118	0.17421	0.17819	0.17504			
	0.17579	0.17264	0.17603				0.17256	3.755	<-

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						
220 Diphenyl Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
216 1,3-Diethyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
218 1,1,3,3-Tetramethyl-2-Thioure	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
217 1,3-Dibutyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
215 bis(2-Chloroethoxy) ethane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
221 Hexabromobenzene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
219 o-Benzyl Phenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
223 1,2-bis(2-chloroethoxy)ethane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
224 Benzothiazole	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
225 1,3-Dimethyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
226 Methyl parathion	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

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						
227 Parathion	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
228 Isodrin	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
229 Kepone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
231 Acrylamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
232 2-Methylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 3-Methylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Methylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 Tributyl phosphate	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
$ 154 Nitrobenzene-d5	0.55318	0.46751	0.46088	0.51094	0.51372	0.46276			
	0.47343	0.48010	0.52541				0.49422	6.617	
$ 155 2-Fluorobiphenyl	1.35244	1.17757	1.13676	1.18645	1.14387	1.17897			
	1.11195	1.15021	1.22519				1.18482	5.991	
$ 156 Terphenyl-d14	0.91265	0.77075	0.78173	0.82604	0.81516	0.86512			
	0.83555	0.84381	0.89765				0.83872	5.695	

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						
$ 157 Phenol-d5	2.08976	1.95811	2.05085	2.11311	2.13793	2.11593			
	2.04414	2.20980	2.32494				2.11606	4.956	
$ 158 2-Fluorophenol	1.45052	1.32549	1.29069	1.46284	1.45803	1.40872			
	1.30304	1.39344	1.55481				1.40529	6.194	
$ 159 2,4,6-Tribromophenol	+++++	0.10272	0.11069	0.12795	0.13549	0.12974			
	0.13177	0.13758	0.15719				0.12914	12.909	<-
$ 186 2-Chlorophenol-d4	1.41861	1.21483	1.21595	1.28055	1.32371	1.27251			
	1.22710	1.29609	1.38492				1.29270	5.615	
$ 187 1,2-Dichlorobenzene-d4	+++++	0.79559	0.79951	0.79984	0.80982	0.81902			
	0.74202	0.78415	0.83981				0.79872	3.561	

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 25-OCT-2007 10:26
Lab File ID: 7SMH1025.D Init. Cal. Date(s): 23-OCT-2007 23-OCT-2007
Analysis Type: Init. Cal. Times: 13:20 15:59
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71025a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
142 Benzo(k)fluoranthene	1.26587	1.28988	1.28988	0.010	-1.89648	50.00000	Averaged	
146 Benzo(a)pyrene	1.13490	1.14853	1.14853	0.010	-1.20166	20.00000	Averaged	
149 Indeno(1,2,3-cd)pyrene	1.20747	1.13117	1.13117	0.010	6.31939	50.00000	Averaged	
150 Dibenz(a,h)anthracene	1.02707	0.96262	0.96262	0.010	6.27507	50.00000	Averaged	
151 Benzo(g,h,i)perylene	1.01413	0.95870	0.95870	0.010	5.46506	50.00000	Averaged	
198 1,4-Dioxane	0.68072	0.00615	0.00615	0.010	99	50.00000	Averaged	<-
$ 154 Nitrobenzene-d5	0.60980	0.59021	0.59021	0.010	3.21254	50.00000	Averaged	
$ 155 2-Fluorobiphenyl	1.19532	1.20114	1.20114	0.010	-0.48646	50.00000	Averaged	
$ 156 Terphenyl-d14	0.87800	0.90019	0.90019	0.010	-2.52742	50.00000	Averaged	
$ 157 Phenol-d5	2.37877	2.27045	2.27045	0.010	4.55344	50.00000	Averaged	
$ 158 2-Fluorophenol	1.43233	1.44128	1.44128	0.010	-0.62504	50.00000	Averaged	
$ 159 2,4,6-Tribromophenol	0.12739	0.11353	0.11353	0.010	10.88123	50.00000	Averaged	
$ 186 2-Chlorophenol-d4	1.25776	1.30531	1.30531	0.010	-3.78068	50.00000	Averaged	
$ 187 1,2-Dichlorobenzene-d4	0.80960	0.84255	0.84255	0.010	-4.06932	50.00000	Averaged	
M 195 Cresols, total	3.59382	3.67422	3.67422	0.010	-2.23719	50.00000	Averaged	
101 Diphenylamine	0.46300	0.48786	0.48786	0.010	-5.36884	50.00000	Averaged	

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 27-OCT-2007 11:24
Lab File ID: 7SMH1027.D Init. Cal. Date(s): 26-OCT-2007 26-OCT-2007
Analysis Type: Init. Cal. Times: 16:09 18:50
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71027a.b\8270p.m

COMPOUND	RRF / AMOUNT	RFS	CCAL RRFS	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.23514	1.28027	1.28027	0.010	-3.65406	50.00000	Averaged
146 Benzo(a)pyrene	1.11108	1.15764	1.15764	0.010	-4.19037	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20254	1.24938	1.24938	0.010	-3.89480	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.96494	1.01619	1.01619	0.010	-5.31121	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01365	1.05639	1.05639	0.010	-4.21690	50.00000	Averaged
198 1,4-Dioxane	0.61560	0.60071	0.60071	0.010	2.41862	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49422	0.50889	0.50889	0.010	-2.96835	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.18482	1.23534	1.23534	0.010	-4.26383	50.00000	Averaged
$ 156 Terphenyl-d14	0.83872	0.87147	0.87147	0.010	-3.90466	50.00000	Averaged
$ 157 Phenol-d5	2.11606	2.18713	2.18713	0.010	-3.35861	50.00000	Averaged
$ 158 2-Fluorophenol	1.40529	1.46609	1.46609	0.010	-4.32636	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.12914	0.13706	0.13706	0.010	-6.13292	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.29270	1.33822	1.33822	0.010	-3.52126	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.79872	0.83101	0.83101	0.010	-4.04284	50.00000	Averaged
M 195 Cresols, total	3.14307	3.24291	3.24291	0.010	-3.17642	50.00000	Averaged
101 Diphenylamine	0.48469	0.51307	0.51307	0.010	-5.85493	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i
Lab File ID: 7SMH1029.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4hp7.i\71029a.b\8270p.m

Injection Date: 29-OCT-2007 13:56
Init. Cal. Date(s): 26-OCT-2007 26-OCT-2007
Init. Cal. Times: 16:09 18:50
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %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	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.96494	1.04434	1.04434	0.010	-8.22840	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01365	1.06676	1.06676	0.010	-5.23978	50.00000	Averaged
198 1,4-Dioxane	0.61560	0.68945	0.68945	0.010	-11.99635	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49422	0.50730	0.50730	0.010	-2.64848	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.18482	1.27589	1.27589	0.010	-7.68610	50.00000	Averaged
$ 156 Terphenyl-d14	0.83872	0.88559	0.88559	0.010	-5.58872	50.00000	Averaged
$ 157 Phenol-d5	2.11606	2.26398	2.26398	0.010	-6.99005	50.00000	Averaged
$ 158 2-Fluorophenol	1.40529	1.46514	1.46514	0.010	-4.25925	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.12914	0.14740	0.14740	0.010	-14.14062	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.29270	1.36074	1.36074	0.010	-5.26339	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.79872	0.85425	0.85425	0.010	-6.95237	50.00000	Averaged
M 195 Cresols, total	3.14307	3.29988	3.29988	0.010	-4.98906	50.00000	Averaged
101 Diphenylamine	0.48469	0.51722	0.51722	0.010	-6.71121	50.00000	Averaged

SAMPLE CALC **SAMPLE ID: SB-431-0102** **COMPOUND: BAP**

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
258872	1	387834	2	2000	1.1111	0.92	0.5	390.70

Sample Amount (g)
30.01

Tetra Tech NUS, Inc

Client Sample ID: SB-431-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J190302-006	**Work Order #...:**	J9E6X1AC	**Matrix.....:**	SO
Date Sampled...:	10/18/07 08:40	**Date Received..:**	10/19/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/30/07		
Prep Batch #...:	7297031				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.01 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	8.0	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**390**	**360**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	43	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	53	(28 - 110)
2-Fluorophenol	42	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4hp7.i\71029a.b\J9E6X1AC.D
Lab Smp Id: j9e6x1ac Client Smp ID: SB-431-0102
Inj Date : 30-OCT-2007 00:50
Operator : 001710 Inst ID: a4hp7.i
Smp Info : j9e6x1ac,71029a.b,8270p,bap.sub
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4hp7.i\71029a.b\8270P.m
Meth Date : 30-Oct-2007 14:12 gruberj Quant Type: ISTD
Cal Date : 26-OCT-2007 18:10 Cal File: 7SHH1026.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	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.010	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)	
* 1 1,4-Dichlorobenzene-d4	152	3.508	3.487	(1.000)	98227	2.00000		(Q)
* 2 Naphthalene-d8	136	4.402	4.380	(1.000)	421216	2.00000		
* 3 Acenaphthene-d10	164	5.664	5.642	(1.000)	223711	2.00000		
* 4 Phenanthrene-d10	188	6.750	6.728	(1.000)	345685	2.00000		
* 5 Chrysene-d12	240	8.707	8.697	(1.000)	293570	2.00000		
* 6 Perylene-d12	264	10.141	10.114	(1.000)	258872	2.00000		
146 Benzo(a)pyrene	252	10.077	10.055	(0.994)	387834	2.69677	359.45	
$ 154 Nitrobenzene-d5	82	3.888	3.861	(0.883)	226121	2.17245	289.56	
$ 155 2-Fluorobiphenyl	172	5.156	5.134	(0.910)	412554	3.11294	414.92	
$ 156 Terphenyl-d14	244	7.889	7.868	(0.906)	487680	3.96130	528.00	
$ 157 Phenol-d5	99	3.230	3.193	(0.921)	416624	4.00880	534.33	
$ 158 2-Fluorophenol	112	2.658	2.615	(0.758)	218208	3.16158	421.40	
$ 159 2,4,6-Tribromophenol	330	6.236	6.215	(1.101)	75466	5.22437	696.35	
$ 186 2-Chlorophenol-d4	132	3.364	3.332	(0.959)	228671	3.60175	480.07	
$ 187 1,2-Dichlorobenzene-d4	152	3.621	3.594	(1.032)	56252	1.43398	191.13	

QC Flag Legend

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **M. MARTIN** **DATE:** **NOVEMBER 21, 2007**

FROM: **PAULA DIMATTEI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – BENZO(a)PYRENE**
LOCKHEED MIDDLE RIVER COMPLEX
SAMPLE DELIVERY GROUP (SDG): 7J19322

SAMPLES: 20/Soil/

SB-426-0102	SB-426-0203	SB-426-0304	SB-426-0506	SB-426-0708
SB-427-0102	SB-427-0203	SB-427-0304	SB-427-0506	SB-427-0708
SB-428-0102	SB-428-0203	SB-428-0304	SB-428-0506	SB-428-0708
SB-429-0102	SB-429-0203	SB-429-0304	SB-429-0506	SB-429-0708

Overview

The sample set for SDG 7J19322, 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 17-18, 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 in samples SB-426-0102 and SB-427-0102 have been qualified as estimated "J" since the associated internal standard areas were below the lower acceptance limit.
- Positive results reported below the detection limit have been qualified as estimated, "J".

Notes

The matrix spike sample was not spiked for benzo(a)pyrene therefore, no evaluation of the matrix spike could be performed.

As noted in the laboratory narrative, sample SB-428-0102 had the 1st internal standard out of control. Also the 1st, 2nd, and 5th internal standards were out of control for sample SB-428-0304; and the 1st, 2nd, 3rd, 4th, and 5th internal standards were out of control for samples SB-426-0102 and SB-427-0102 due to matrix effects. However, since benzo(a)pyrene is not associated with these internal standards, no corrective action was taken.

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
Paula L. DiMattei
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: 00885

SDG: 7J19322 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-426-0102	nsample	SB-426-0203	nsample	SB-426-0304
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190322001	lab_id	A7J190322002	lab_id	A7J190322003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	86.0	Pct_Solids	84.0	Pct_Solids	90.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	80	J	NP

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

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

PROJ_NO: 00885

SDG: 7J19322 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-426-0506	nsample	SB-426-0708	nsample	SB-427-0102
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190322004	lab_id	A7J190322005	lab_id	A7J190322006
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	84.0	Pct_Solids	79.0	Pct_Solids	90.1
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	1.7	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	340	J	NP

PROJ_NO: 00885

SDG: 7J19322 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-427-0203	nsample	SB-427-0304	nsample	SB-427-0506
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190322007	lab_id	A7J190322008	lab_id	A7J190322009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	93.3	Pct_Solids	82.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	960		

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

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

PROJ_NO: 00885

SDG: 7J19322 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-427-0708	nsample	SB-428-0102	nsample	SB-428-0203
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190322010	lab_id	A7J190322011	lab_id	A7J190322012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	84.0	Pct_Solids	92.3	Pct_Solids	88.0
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	64	J	P

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

PROJ_NO: 00885

SDG: 7J19322 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-428-0304	nsample	SB-428-0506	nsample	SB-428-0708
samp_date	10/17/2007	samp_date	10/17/2007	samp_date	10/17/2007
lab_id	A7J190322013	lab_id	A7J190322014	lab_id	A7J190322015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	88.0	Pct_Solids	88.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	35	J	P

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: 7J19322 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-429-0102	nsample	SB-429-0203	nsample	SB-429-0304
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J190322016	lab_id	A7J190322017	lab_id	A7J190322018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	95.4	Pct_Solids	94.5	Pct_Solids	92.1
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	12	J	P

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

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

PROJ_NO: 00885

SDG: 7J19322 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-429-0506	nsample	SB-429-0708
samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J190322019	lab_id	A7J190322020
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	90.2	Pct_Solids	87.0
DUP_OF:		DUP_OF:	

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

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-426-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-001 **Work Order #...:** J9FEQ1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:12 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/30/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**80 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	68	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	55	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-426-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-002 **Work Order #...:** J9FEX1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:14 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	83	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	44	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-426-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-003 **Work Order #...:** J9FE01AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:16 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	82	(41 - 119)
Phenol-d5	57	(28 - 110)
2-Fluorophenol	49	(26 - 110)
2,4,6-Tribromophenol	22	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-426-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-004 **Work Order #...:** J9FE11AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:18 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	82	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	103	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-426-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-005 **Work Order #...:** J9FE21AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:20 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 21 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.7

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	60	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-427-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-006 **Work Order #...:** J9FE41AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:25 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/30/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 9.9 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**340 J**	**370**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	71	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	75	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	46	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-427-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-007 **Work Order #...:** J9FE51AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:27 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 6.7 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**960**	**350**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	55	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	72	(41 - 119)
Phenol-d5	59	(28 - 110)
2-Fluorophenol	48	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-427-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-008 **Work Order #...:** J9FE71AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:29 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	39	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-427-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-009 **Work Order #...:** J9FE81AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:31 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	56	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
Terphenyl-d14	81	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	49	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-427-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-010 **Work Order #...:** J9FE91AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:33 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	55	(24 - 112)
2-Fluorobiphenyl	59	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	56	(28 - 110)
2-Fluorophenol	57	(26 - 110)
2,4,6-Tribromophenol	36	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-428-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-011 **Work Order #...:** J9FFA1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:41 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 7.7 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**64 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	71	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	94	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	72	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-428-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-012 **Work Order #...:** J9FFC1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:43 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	83	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	53	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-428-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-013 **Work Order #...:** J9FFD1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:45 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/30/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**35 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	66	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	47	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-428-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-014 **Work Order #...:** J9FFE1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:47 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	85	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	68	(26 - 110)
2,4,6-Tribromophenol	45	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-428-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-015 **Work Order #...:** J9FFF1AC **Matrix.....:** SO
Date Sampled...: 10/17/07 16:49 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	85	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	42	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-429-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-016 **Work Order #...:** J9FFG1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 07:35 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 4.6 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**12 J**	**350**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	77	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	62	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-429-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-017 **Work Order #...:** J9FFH1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 07:37 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 5.5 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	350	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	80	(41 - 119)
Phenol-d5	60	(28 - 110)
2-Fluorophenol	57	(26 - 110)
2,4,6-Tribromophenol	63	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-429-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-018 **Work Order #...:** J9FFJ1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 07:39 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 7.9 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	70	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	59	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-429-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-019 **Work Order #...:** J9FF21AC **Matrix.....:** SO
Date Sampled...: 10/18/07 07:41 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 9.8 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	88	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	68	(26 - 110)
2,4,6-Tribromophenol	52	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-429-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J190322-020 **Work Order #...:** J9FF31AC **Matrix.....:** SO
Date Sampled...: 10/18/07 07:43 **Date Received..:** 10/19/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297066
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	83	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	47	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
Tetra Tech	M. Mahn	10/18/07	237139
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 2
20251 Century Blvd #200	301 528 3022		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Germantown / MD / 20874	S. Hadley	K. Ives	
Project Name and Location (State)	**Carrier/Waybill Number**		
LMC MA	Courier		
Contract/Purchase Order/Quote No.			
112C00585			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: 8270 *	Special Instructions/ Conditions of Receipt
SB-426-0102	10/17	1612				X	1						X	*benzo(a)pyrene
-0203		1614												
-0304		1616												
-0506		1619												
426-0708		1620												
427-0102		1625												
-0203		1627												
-0304		1629												
-0506		1631												
427-0708		1633												
429-0102		1641												
SB-428-0203	10/17	1643				X	1						X	*benzo(a)pyrene

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/18/07	1623	1. Received By	10-18-07	1623
2. Relinquished By			2. Received By	10.19.07	0940
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

16

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
Tetra Tech	M. Martin	11/18/07	237140
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 2**
20251 Century Blvd #206	301-528-3022		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	**Analysis (Attach list if more space is needed)**
Germantown / MD / 20874	S. Hadley	R. Ives	
Project Name and Location (State)	**Carrier/Waybill Number**		
LMC MA	Courier		
Contract/Purchase Order/Quote No.			
112SC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: 11 8270 *	Special Instructions/ Conditions of Receipt
SB-428-0304	10/17	1645				X	1						X	* Block G
-0506		1647					1							Benzo (a) pyrene
428-0708	10/17	1649												
429-0102	10/18	0735												
-0203		0737												
-0203 MS/SD		~~0737~~ 0737												
-0304		~~0739~~ 0739												
-0506		0741												
SB-429-0708	10/18	0743				X	1						X	* benzo (a) pyrene

10/18 10/18

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/18/07	1623	1. Received By	10-18-07	1623
2. Relinquished By			2. Received By	10.19.07	0940
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Lot Number: A7J190322

Client: Tetra Tech Project: _____ Quote#: 10833

Cooler Received on: 10-19-07 Opened on: 10-19-07 By: _____ (Signature)

FedEx ☑ Client Drop Off ☐ UPS ☐ DHL ☐ FAS ☐ TestAmerica Courier ☐
Stetson ☐ US Cargo ☐ Other: _____

TestAmerica Cooler No# _____ Foam Box ☐ Client Cooler ☑ Other _____

1. Were custody seals on the outside of the cooler? Yes ☐ No ☑ Intact? Yes ☐ No ☐ NA ☑
   If YES, Quantity _____
   Were custody seals on the outside of cooler signed and dated? Yes ☐ No ☐ NA ☑
   Were custody seals on the bottles? Yes ☐ No ☐ NA ☑
   If YES, are there any exceptions _____
2. Shipper's packing slip attached to this form? Yes ☑ No ☐ NA ☐
3. Did custody papers accompany the samples? Yes ☑ No ☐ Relinquished by client? Yes ☑ No ☐
4. Did you sign the custody papers in the appropriate place? Yes ☑ No ☐
5. Packing material used: Bubble Wrap ☑ Foam ☐ None ☐ Other: _____
6. Cooler temperature upon receipt 3-9 °C (see back of form for multiple coolers/temp)

METHOD: IR ☑ Other ☐ _____

COOLANT: Wet Ice ☑ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐

7. Did all bottles arrive in good condition (Unbroken)? Yes ☑ No ☐
8. Could all bottle labels and/or tags be reconciled with the COC? Yes ☑ No ☐
9. Were samples at the correct pH upon receipt? Yes ☐ No ☐ NA ☒
10. Were correct bottles used for the tests indicated? Yes ☑ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☐ NA ☑
12. Sufficient quantity received to perform indicated analyses? Yes ☑ No ☐
13. Was a Trip Blank present in the cooler? Yes ☐ No ☑ Were VOAs on the COC? Yes ☐ No ☒

Contacted PM _____ Date: _____ by: _____ via Voice Mail ☐ Verbal ☐ Other ☐
Concerning: _____

14. CHAIN OF CUSTODY

The following discrepancies occurred:

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in sample receiving to meet recommended pH level(s). *Nitric Acid Lot #042607-HNO3 - Sulfuric Acid Lot # 092006-H2SO4; Sodium Hydroxide Lot # 122805 -NaOH; Hydrochloric Acid Lot # 092006-HCl; Sodium Hydroxide and Zinc Acetate Lot # 050205-CH3COO2ZN/NaOH*
What time was preservative added to samples? _____
Sample(s) _____ were received with bubble > 6 mm in diameter (Notify PM)

Client ID	pH	Date	Initials

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler	Temp °C	Method	Coolant

Discrepancies Cont'd

CASE NARRATIVE

7J19322

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 19, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J190322.

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 01, 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 temperature of the cooler upon sample receipt was 3.9°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 internal standard areas were outside acceptance limits for sample(s) SB-426-0102, SB-427-0102, and SB-428-0304 due to matrix effects. (Refer to IS report following this Case Narrative for additional detail.)

Sample(s) SB-428-0102 had the 1st internal standard out of control. However, since no compounds that were requested were associated with the 1st internal standard, no corrective action was necessary.

Batch(es) 7297066 had Pentachlorophenol outside acceptance limits low in the LCS. However, since only BN compounds were requested, no corrective action was necessary.

During the analysis of sample(s) SB-427-0102, an error occurred with the automated date software causing the instrument to reflect that the sample was analyzed on October 30, 2007 at 00:04. In reality, the date should read October 31, 2007, as the sample was analyzed after midnight on October 30, 2007. No alteration of the data occurred, but the injection date is incorrect for forms related to this sample.

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.

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J19322

Lot #: A7J190322

Extraction: XXA11QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-426-0102	68	63	89	62	62	55	00
02	SB-426-0203	62	66	83	61	62	44	00
03	SB-426-0304	63	64	82	57	49	22	00
04	SB-426-0506	59	62	82	64	103	70	00
05	SB-426-0708	60	66	89	64	67	60	00
06	SB-427-0102	71	63	75	65	65	46	00
07	SB-427-0203	55	66	72	59	48	64	00
08	SB-427-0304	63	66	87	61	63	39	00
09	SB-427-0506	56	61	81	58	61	49	00
10	SB-427-0708	55	59	79	56	57	36	00
11	SB-428-0102	71	74	94	75	72	74	00
12	SB-428-0203	62	68	83	63	67	53	00
13	SB-428-0304	66	65	93	62	66	47	00
14	SB-428-0506	64	65	85	63	68	45	00
15	SB-428-0708	58	64	85	58	62	42	00
16	SB-429-0102	65	64	77	66	63	62	00
17	SB-429-0203	61	69	80	60	57	63	00
18	SB-429-0304	60	70	86	63	64	59	00
19	SB-429-0506	62	68	88	63	68	52	00
20	SB-429-0708	61	63	83	62	66	47	00
21	METHOD BLK. J9NLK1AA	67	70	86	65	68	40	00
22	LCS J9NLK1AC	64	67	83	64	63	67	00
23	SB-429-0203 D	65	69	77	64	63	64	00
24	SB-429-0203 S	68	71	78	66	64	62	00

SURROGATES		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

FORM II

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9NLK1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number: 7J19322

Lab File ID: J9NLK1AA.

Lot Number: A7J190322

Date Analyzed: 10/27/07

Time Analyzed: 14:49

Matrix: SOLID

Date Extracted: 10/24/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-426-0102	J9FEQ1AC	J9FEQ1AC.	10/30/07	23:26
02	SB-426-0203	J9FEX1AC	J9FEX1AC.	10/27/07	16:23
03	SB-426-0304	J9FE01AC	J9FE01AC.	10/27/07	16:42
04	SB-426-0506	J9FE11AC	J9FE11AC.	10/27/07	17:01
05	SB-426-0708	J9FE21AC	J9FE21AC.	10/27/07	17:19
06	SB-427-0102	J9FE41AC	J9FE41AC.	10/30/07	00:04
07	SB-427-0203	J9FE51AC	J9FE51AC.	10/29/07	20:39
08	SB-427-0304	J9FE71AC	J9FE71AC.	10/27/07	17:38
09	SB-427-0506	J9FE81AC	J9FE81AC.	10/27/07	17:57
10	SB-427-0708	J9FE91AC	J9FE91AC.	10/27/07	18:16
11	SB-428-0102	J9FFA1AC	J9FFA1AC.	10/29/07	20:02
12	SB-428-0203	J9FFC1AC	J9FFC1AC.	10/27/07	18:34
13	SB-428-0304	J9FFD1AC	J9FFD1AC.	10/30/07	23:45
14	SB-428-0506	J9FFE1AC	J9FFE1AC.	10/27/07	18:53
15	SB-428-0708	J9FFF1AC	J9FFF1AC.	10/27/07	19:12
16	SB-429-0102	J9FFG1AC	J9FFG1AC.	10/29/07	19:05
17	SB-429-0203	J9FFH1AC	J9FFH1AC.	10/27/07	15:27
18	SB-429-0203	J9FFH1AH S	J9FFH1AH.	10/27/07	15:45
19	SB-429-0203	J9FFH1AJ D	J9FFH1AJ.	10/27/07	16:04
20	SB-429-0304	J9FFJ1AC	J9FFJ1AC.	10/27/07	19:31
21	SB-429-0506	J9FF21AC	J9FF21AC.	10/27/07	19:50
22	SB-429-0708	J9FF31AC	J9FF31AC.	10/27/07	20:08
23	CHECK SAMPLE	J9NLK1AC C	J9NLK1AC.	10/27/07	15:08
24					
25					
26					
27					
28					
29					
30					

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.: SDG No.: 7J19322

Lab File ID: 8DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4HP8 DFTPP Injection Time: 1405

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.3
68	Less than 2.0% of mass 69	0.2 (0.4)1
69	Mass 69 relative abundance	53.0
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	51.9
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	6.5
275	10.0 - 30.0% of mass 198	26.5
365	Greater than 1.0% of mass 198	3.3
441	Present, but less than mass 443	8.3
442	Greater than 40.0% of mass 198	52.9
443	17.0 - 23.0% of mass 442	9.8 (18.6)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	L5	8SMM1024	10/24/07	1522
02	SSTD004	L4	8SM1024	10/24/07	1541
03	SSTD003	L3	8SML1024	10/24/07	1600
04	SSTD002	L2	8SL1024	10/24/07	1619
05	SSTD001	L1	8SLL1024	10/24/07	1638
06	SSTD009	L9	8HHH1024	10/24/07	1656
07	SSTD008	L8	8SHH1024	10/24/07	1715
08	SSTD007	L7	8SH1024	10/24/07	1734
09	SSTD006	L6	8SMH1024	10/24/07	1753
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J19322

Lab File ID: 8DF1027 DFTPP Injection Date: 10/27/07

Instrument ID: A4HP8 DFTPP Injection Time: 1315

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.3
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	46.3
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	6.6
275	10.0 - 30.0% of mass 198	28.0
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	10.2
442	Greater than 40.0% of mass 198	69.7
443	17.0 - 23.0% of mass 442	13.3 (19.1)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1027	10/27/07	1352
02	J9NLKBLK	J9NLK1AA	J9NLK1AA	10/27/07	1449
03	J9NLKCHK	J9NLK1AC	J9NLK1AC	10/27/07	1508
04	SB-429-0203	J9FFH1AC	J9FFH1AC	10/27/07	1527
05	SB-429-0203	J9FFH1AH	J9FFH1AH	10/27/07	1545
06	SB-429-0203	J9FFH1AJ	J9FFH1AJ	10/27/07	1604
07	SB-426-0203	J9FEX1AC	J9FEX1AC	10/27/07	1623
08	SB-426-0304	J9FE01AC	J9FE01AC	10/27/07	1642
09	SB-426-0506	J9FE11AC	J9FE11AC	10/27/07	1701
10	SB-426-0708	J9FE21AC	J9FE21AC	10/27/07	1719
11	SB-427-0304	J9FE71AC	J9FE71AC	10/27/07	1738
12	SB-427-0506	J9FE81AC	J9FE81AC	10/27/07	1757
13	SB-427-0708	J9FE91AC	J9FE91AC	10/27/07	1816
14	SB-428-0203	J9FFC1AC	J9FFC1AC	10/27/07	1834
15	SB-428-0506	J9FFE1AC	J9FFE1AC	10/27/07	1853
16	SB-428-0708	J9FFF1AC	J9FFF1AC	10/27/07	1912
17	SB-429-0304	J9FFJ1AC	J9FFJ1AC	10/27/07	1931
18	SB-429-0506	J9FF21AC	J9FF21AC	10/27/07	1950
19	SB-429-0708	J9FF31AC	J9FF31AC	10/27/07	2008
20					
21					
22					

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.: 7J19322

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	30.0 - 60.0% of mass 198	41.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	51.1
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	40.0 - 60.0% of mass 198	49.5
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	6.5
275	10.0 - 30.0% of mass 198	25.5
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	8.6
442	Greater than 40.0% of mass 198	55.3
443	17.0 - 23.0% of mass 442	10.6 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1029	10/29/07	1020
02	SB-429-0102	J9FFG1AC	J9FFG1AC	10/29/07	1905
03	SB-428-0102	J9FFA1AC	J9FFA1AC	10/29/07	2002
04	SB-427-0203	J9FE51AC	J9FE51AC	10/29/07	2039
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J19322

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	30.0 - 60.0% of mass 198	46.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.0
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	40.0 - 60.0% of mass 198	51.2
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	6.6
275	10.0 - 30.0% of mass 198	25.9
365	Greater than 1.0% of mass 198	4.1
441	Present, but less than mass 443	10.0
442	Greater than 40.0% of mass 198	63.0
443	17.0 - 23.0% of mass 442	12.0 (19.0)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1030	10/30/07	1253
02	SB-427-0102	J9FE41AC	J9FE41AC	10/30/07	0004
03	SB-426-0102	J9FEQ1AC	J9FEQ1AC	10/30/07	2326
04	SB-428-0304	J9FFD1AC	J9FFD1AC	10/30/07	2345
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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

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	1.16862	0.94500	0.99660	1.06264	1.04702	1.14009			
	1.17535	1.24000	1.40500				1.13115	12.298	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.15525	1.02036	1.08130	1.16366	1.14381	1.23994			
	1.26288	1.32864	1.47228				1.20757	11.285	
150 Dibenz(a,h)anthracene	0.98770	0.87713	0.89316	0.96975	0.95807	1.05400			
	1.09661	1.15927	1.28968				1.03171	12.905	
151 Benzo(g,h,i)perylene	1.12101	0.90918	0.87601	0.98078	0.94801	1.00857			
	1.02246	1.07093	1.17786				1.01275	9.694	
232 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19322

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP8 Time Analyzed: 1020

		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	SB-429-0102	60561	3.53	264772	4.43	156943	5.70
02	SB-428-0102	53816*	3.53	236062	4.43	135710	5.70
03	SB-427-0203	58508	3.53	252778	4.43	156968	5.70
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19322

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP8 Time Analyzed: 1020

		IS4(PHN) 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	SB-429-0102	312823	6.79	298918	8.78	248982	10.27
02	SB-428-0102	254130	6.79	249051	8.77	208276	10.25
03	SB-427-0203	303727	6.79	369158	8.79	272585	10.28
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 27-OCT-2007 13:52
Lab File ID: 8SMH1027.D Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71027a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.41170	1.41170	0.010	-10.61001	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.23589	1.23589	0.010	-9.26014	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.35053	1.35053	0.010	-11.83854	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.16544	1.16544	0.010	-12.96203	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.10953	1.10953	0.010	-9.55539	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.57964	0.57964	0.010	5.98458	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.52819	0.52819	0.010	-6.22381	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.42017	1.42017	0.010	-10.57725	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.86260	0.86260	0.010	-8.18993	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.96378	1.96378	0.010	-5.62650	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.31726	1.31726	0.010	-2.90525	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.16142	0.16142	0.010	-13.17113	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.31270	1.31270	0.010	-6.43614	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.90031	0.90031	0.010	-9.01255	50.00000	Averaged
M 195 Cresols, total	2.85006	2.92446	2.92446	0.010	-2.61034	50.00000	Averaged
101 Diphenylamine	0.50153	0.55790	0.55790	0.010	-11.23763	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 29-OCT-2007 10:20
Lab File ID: 8SMH1029.D Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71029a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.38094	1.38094	0.010	-8.20028	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.21421	1.21421	0.010	-7.34356	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.31849	1.31849	0.010	-9.18538	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.11948	1.11948	0.010	-8.50778	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.08001	1.08001	0.010	-6.64054	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.49897	0.49897	0.010	19.06790	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.50747	0.50747	0.010	-2.05536	50.00000	Averaged
$ 155 2-Fluorobiphenyl	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	Averaged
$ 157 Phenol-d5	1.85917	1.93240	1.93240	0.010	-3.93874	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.28357	1.28357	0.010	-0.27316	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14936	0.14936	0.010	-4.71595	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.30061	1.30061	0.010	-5.45612	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.87349	0.87349	0.010	-5.76451	50.00000	Averaged
M 195 Cresols, total	2.85006	3.11050	3.11050	0.010	-9.13792	50.00000	Averaged
101 Diphenylamine	0.50153	0.56377	0.56377	0.010	-12.40883	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 30-OCT-2007 12:53
Lab File ID: 8SMH1030.D Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71030a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.54331	1.54331	0.010	-20.92199	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.32237	1.32237	0.010	-16.90488	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.41719	1.41719	0.010	-17.35859	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.25451	1.25451	0.010	-21.59545	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.12170	1.12170	0.010	-10.75761	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.59338	0.59338	0.010	3.75595	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.55672	0.55672	0.010	-11.95991	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.44671	1.44671	0.010	-12.64378	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.87588	0.87588	0.010	-9.85482	50.00000	Averaged
$ 157 Phenol-d5	1.85917	2.00280	2.00280	0.010	-7.72523	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.25462	1.25462	0.010	1.98805	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14849	0.14849	0.010	-4.10635	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.30017	1.30017	0.010	-5.42043	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.89032	0.89032	0.010	-7.80245	50.00000	Averaged
M 195 Cresols, total	2.85006	3.09760	3.09760	0.010	-8.68528	50.00000	Averaged
101 Diphenylamine	0.50153	0.56898	0.56898	0.010	-13.44825	50.00000	Averaged

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19322

Lab File ID (Standard): 8SMH1027 Date Analyzed: 10/27/07

Instrument ID: A4HP8 Time Analyzed: 1352

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	105974	3.46	427440	4.35	242484	5.62
	UPPER LIMIT	211948	3.96	854880	4.85	484968	6.12
	LOWER LIMIT	52987	2.96	213720	3.85	121242	5.12
	EPA SAMPLE NO.						
01	J9NLKBLK	103390	3.46	434713	4.35	244640	5.62
02	J9NLKCHK	111320	3.46	451560	4.35	259883	5.62
03	SB-429-0203	109448	3.46	461414	4.35	250216	5.61
04	SB-429-0203	111817	3.46	455685	4.35	259697	5.62
05	SB-429-0203	106269	3.46	445752	4.35	247046	5.62
06	SB-426-0203	111218	3.46	463821	4.35	258279	5.62
07	SB-426-0304	103698	3.46	426357	4.35	247840	5.62
08	SB-426-0506	105877	3.47	445308	4.35	254460	5.62
09	SB-426-0708	105071	3.46	442834	4.35	244584	5.62
10	SB-427-0304	77051	3.46	301875	4.35	167542	5.62
11	SB-427-0506	98450	3.46	415230	4.35	230838	5.62
12	SB-427-0708	96896	3.46	392991	4.35	219602	5.62
13	SB-428-0203	98883	3.46	400924	4.35	227359	5.62
14	SB-428-0506	85055	3.46	349806	4.35	196187	5.62
15	SB-428-0708	75117	3.46	307495	4.35	171817	5.62
16	SB-429-0304	78743	3.46	330069	4.35	184859	5.62
17	SB-429-0506	107126	3.46	439849	4.35	247699	5.61
18	SB-429-0708	93903	3.46	398080	4.35	223144	5.62
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19322

Lab File ID (Standard): 8SMH1027 Date Analyzed: 10/27/07

Instrument ID: A4HP8 Time Analyzed: 1352

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	461832	6.70	475282	8.67	389293	10.08
	UPPER LIMIT	923664	7.20	950564	9.17	778586	10.58
	LOWER LIMIT	230916	6.20	237641	8.17	194647	9.58
	EPA SAMPLE NO.						
01	J9NLKBLK	463439	6.70	474603	8.66	418547	10.07
02	J9NLKCHK	499030	6.70	503241	8.68	427667	10.08
03	SB-429-0203	471982	6.70	447680	8.67	397003	10.08
04	SB-429-0203	476934	6.70	476682	8.68	403226	10.09
05	SB-429-0203	461658	6.71	452604	8.67	383893	10.09
06	SB-426-0203	488223	6.70	460704	8.67	406838	10.09
07	SB-426-0304	469339	6.70	451554	8.67	402385	10.08
08	SB-426-0506	482021	6.70	470425	8.66	420595	10.08
09	SB-426-0708	482573	6.70	474622	8.67	415884	10.08
10	SB-427-0304	325617	6.70	320110	8.67	281548	10.08
11	SB-427-0506	443271	6.70	445502	8.67	392662	10.08
12	SB-427-0708	420691	6.70	417647	8.67	375688	10.08
13	SB-428-0203	414675	6.70	402062	8.66	364753	10.07
14	SB-428-0506	369032	6.70	368403	8.66	316300	10.08
15	SB-428-0708	324538	6.70	335625	8.67	297564	10.08
16	SB-429-0304	360958	6.70	350218	8.66	310303	10.08
17	SB-429-0506	481256	6.70	481724	8.67	421049	10.08
18	SB-429-0708	438250	6.70	453283	8.67	397554	10.08
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19322

Lab File ID (Standard): 8SMH1030 Date Analyzed: 10/30/07

Instrument ID: A4HP8 Time Analyzed: 1253

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) 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	SB-427-0102	55829*	3.54	243072*	4.43	152472*	5.71
02	SB-426-0102	61497*	3.54	256588*	4.44	165376*	5.71
03	SB-428-0304	77500*	3.54	327671*	4.44	193181	5.71
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J19322

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 NO.						
01	SB-427-0102	277574*	6.80	296091*	8.78	233190*	10.27
02	SB-426-0102	322359*	6.79	300593*	8.80	243122*	10.29
03	SB-428-0304	376890	6.79	363314*	8.79	290519	10.28
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

SAMPLE CALC **SAMPLE ID: SB-426-0102** **COMPOUND: BAP**

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
243122	1	70998	2	2000	1.1312	0.86	0.5	79.79

Sample Amount (g)
30.1

Tetra Tech NUS, Inc

Client Sample ID: SB-426-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J190322-001	**Work Order #...:**	J9FEQ1AC	**Matrix.....:**	SO
Date Sampled...:	10/17/07 16:12	**Date Received..:**	10/19/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/30/07		
Prep Batch #...:	7297066				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.1 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	14	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**80 J**	**390**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	68	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	55	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4hp8.i\71030a.b\J9FEQ1AC.D
Lab Smp Id: J9FEQ1AC Client Smp ID: SB-426-0102
Inj Date : 30-OCT-2007 23:26
Operator : 001710 Inst ID: a4hp8.i
Smp Info : j9feq1ac,71030a.b,8270p,bap.sub
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4hp8.i\71030a.b\8270P.m
Meth Date : 31-Oct-2007 12:12 gruberj Quant Type: ISTD
Cal Date : 24-OCT-2007 17:53 Cal File: 8SMH1024.D
Als bottle: 34
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	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.100	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)	
* 1 1,4-Dichlorobenzene-d4	152	3.539	3.542	(1.000)	61497	2.00000		(Q)
* 2 Naphthalene-d8	136	4.438	4.436	(1.000)	256588	2.00000		
* 3 Acenaphthene-d10	164	5.707	5.706	(1.000)	165376	2.00000		
* 4 Phenanthrene-d10	188	6.794	6.792	(1.000)	322359	2.00000		
* 5 Chrysene-d12	240	8.795	8.788	(1.000)	300593	2.00000		
* 6 Perylene-d12	264	10.290	10.279	(1.000)	243122	2.00000		
146 Benzo(a)pyrene	252	10.223	10.211	(0.993)	70998	0.51634	68.616	
$ 154 Nitrobenzene-d5	82	3.918	3.922	(0.883)	217837	3.41471	453.78	
$ 155 2-Fluorobiphenyl	172	5.198	5.196	(0.911)	332659	3.13244	416.27	
$ 156 Terphenyl-d14	244	7.943	7.942	(0.903)	532890	4.44697	590.96	
$ 157 Phenol-d5	99	3.255	3.253	(0.920)	266506	4.66191	619.52	
$ 158 2-Fluorophenol	112	2.683	2.666	(0.758)	183543	4.66316	619.69	
$ 159 2,4,6-Tribromophenol	330	6.284	6.278	(1.101)	48732	4.13184	549.08	
$ 186 2-Chlorophenol-d4	132	3.390	3.388	(0.958)	172271	4.54269	603.68	
$ 187 1,2-Dichlorobenzene-d4	152	3.649	3.652	(1.031)	66131	2.60414	346.06	

QC Flag Legend

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **M. MARTIN** **DATE:** **JANUARY 8, 2008**

FROM: **PRESTON SMITH** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – BENZO(a)PYRENE**
LOCKHEED MIDDLE RIVER COMPLEX
SAMPLE DELIVERY GROUP (SDG): 7J20207

SAMPLES: 20/Soil/

SB-434-0102	SB-434-0203
SB-434-0304	SB-434-0506
SB-434-0708	SB-435-0102
SB-435-0203	SB-435-0304
SB-435-0506	SB-435-0708
SB-436-0102	SB-436-0203
SB-436-0304	SB-436-0506
SB-436-0708	SB-437-0102
SB-437-0203	SB-437-0304
SB-437-0506	SB-437-0708

Overview

The sample set for SDG 7J20207, 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 18, 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 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 positive results less than the CRQL reported for benzo(a)pyrene in samples SB-435-0102, SB-435-0304, SB-436-0102, SB-436-0203, SB-436-0304, SB-436-0506, and SB-437-0102 were qualified estimated (J) due to uncertainty near the detection limit.

Notes

The MS/MSD and the check sample recovery were not spiked with the target compound benzo(a)pyrene. No validation action was required because the surrogate recoveries were within permissible limits.

Executive Summary

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: The positive results less than the CRQL reported for benzo(a)pyrene were qualified due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (6/94) as modified by Region III.

Tetra Tech NUS
Preston R. Smith
Environmental Scientist/Data Validator

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:

J - Positive result is considered estimated, "J", as a result of technical noncompliances.

U - Nondetected result.

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

PROJ_NO: 00885

SDG: 7J20207 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-434-0102	nsample	SB-434-0203	nsample	SB-434-0304
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J200207001	lab_id	A7J200207002	lab_id	A7J200207003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	87.0	Pct_Solids	87.0	Pct_Solids	86.0
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	1.5	U	

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

PROJ_NO: 00885

SDG: 7J20207 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-434-0506	nsample	SB-434-0708	nsample	SB-435-0102
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J200207004	lab_id	A7J200207005	lab_id	A7J200207006
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	83.0	Pct_Solids	90.0
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	19	J	P

PROJ_NO: 00885

SDG: 7J20207 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-435-0203
samp_date	10/18/2007
lab_id	A7J200207007
qc_type	NM
units	UG/KG
Pct_Solids	87.0
DUP_OF:	

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

nsample	SB-435-0304
samp_date	10/18/2007
lab_id	A7J200207008
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	13	J	P

nsample	SB-435-0506
samp_date	10/18/2007
lab_id	A7J200207009
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J20207 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-435-0708	nsample	SB-436-0102	nsample	SB-436-0203
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J200207010	lab_id	A7J200207011	lab_id	A7J200207012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	87.0	Pct_Solids	88.0
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	47	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	17	J	P

PROJ_NO: 00885

SDG: 7J20207 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-436-0304	nsample	SB-436-0506	nsample	SB-436-0708
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J200207013	lab_id	A7J200207014	lab_id	A7J200207015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	90.6	Pct_Solids	88.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	9.2	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	18	J	P

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

PROJ_NO: 00885

SDG: 7J20207 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-437-0102	nsample	SB-437-0203	nsample	SB-437-0304
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J200207016	lab_id	A7J200207017	lab_id	A7J200207018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	90.0	Pct_Solids	89.0	Pct_Solids	85.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	230	J	P

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: 7J20207 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-437-0506	nsample	SB-437-0708
samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J200207019	lab_id	A7J200207020
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	84.0	Pct_Solids	80.0
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

Tetra Tech NUS, Inc

Client Sample ID: SB-434-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-001 **Work Order #...:** J9HVQ1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 10:28 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

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	62	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	43	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-434-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-002 **Work Order #...:** J9HVR1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 10:30 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	56	(34 - 110)
Terphenyl-d14	78	(41 - 119)
Phenol-d5	60	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	51	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-434-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-003 **Work Order #...:** J9HVT1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 10:32 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	59	(34 - 110)
Terphenyl-d14	75	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	52	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-434-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-004 **Work Order #...:** J9HVV1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 10:34 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	54	(34 - 110)
Terphenyl-d14	69	(41 - 119)
Phenol-d5	57	(28 - 110)
2-Fluorophenol	58	(26 - 110)
2,4,6-Tribromophenol	44	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-434-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-005 **Work Order #...:** J9HVW1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 10:36 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
Terphenyl-d14	80	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	42	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-435-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-006 **Work Order #...:** J9HVX1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 15:25 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**19 J**	**370**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	78	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	62	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-435-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-007 **Work Order #...:** J9HV11AC **Matrix.....:** SO
Date Sampled...: 10/18/07 15:27 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	46	(24 - 112)
2-Fluorobiphenyl	49	(34 - 110)
Terphenyl-d14	73	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	53	(26 - 110)
2,4,6-Tribromophenol	49	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-435-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-008 **Work Order #...:** J9HV31AC **Matrix.....:** SO
Date Sampled...: 10/18/07 15:29 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**13 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	49	(24 - 112)
2-Fluorobiphenyl	50	(34 - 110)
Terphenyl-d14	74	(41 - 119)
Phenol-d5	59	(28 - 110)
2-Fluorophenol	59	(26 - 110)
2,4,6-Tribromophenol	53	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-435-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-009 **Work Order #...:** J9HV41AC **Matrix.....:** SO
Date Sampled...: 10/18/07 15:31 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	57	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-435-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-010 **Work Order #...:** J9HV51AC **Matrix.....:** SO
Date Sampled...: 10/18/07 15:33 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	55	(24 - 112)
2-Fluorobiphenyl	52	(34 - 110)
Terphenyl-d14	77	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	58	(26 - 110)
2,4,6-Tribromophenol	51	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-436-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J200207-011	**Work Order #...:**	J9HV71AC	**Matrix.....:**	SO
Date Sampled...:	10/18/07 15:55	**Date Received..:**	10/20/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/27/07		
Prep Batch #...:	7297068				
Dilution Factor:	1				
% Moisture.....:	13	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**47 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	78	(41 - 119)
Phenol-d5	60	(28 - 110)
2-Fluorophenol	59	(26 - 110)
2,4,6-Tribromophenol	41	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-436-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-012 **Work Order #...:** J9HWC1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 15:57 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**17 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	49	(24 - 112)
2-Fluorobiphenyl	53	(34 - 110)
Terphenyl-d14	69	(41 - 119)
Phenol-d5	57	(28 - 110)
2-Fluorophenol	55	(26 - 110)
2,4,6-Tribromophenol	51	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-436-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-013 **Work Order #...:** J9HWH1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 15:59 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 9.4 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**9.2 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	56	(34 - 110)
Terphenyl-d14	73	(41 - 119)
Phenol-d5	59	(28 - 110)
2-Fluorophenol	57	(26 - 110)
2,4,6-Tribromophenol	56	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-436-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-014 **Work Order #...:** J9HWL1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:01 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**18 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	55	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	63	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-436-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-015 **Work Order #...:** J9HWR1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:03 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	60	(34 - 110)
Terphenyl-d14	80	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	58	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-437-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-016 **Work Order #...:** J9HW11AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:10 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**230 J**	**370**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	50	(24 - 112)
2-Fluorobiphenyl	53	(34 - 110)
Terphenyl-d14	65	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	50	(26 - 110)
2,4,6-Tribromophenol	50	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-437-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-017 **Work Order #...:** J9HW51AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:12 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	49	(24 - 112)
2-Fluorobiphenyl	55	(34 - 110)
Terphenyl-d14	69	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	55	(26 - 110)
2,4,6-Tribromophenol	60	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-437-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-018 **Work Order #...:** J9HW71AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:14 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	56	(34 - 110)
Terphenyl-d14	75	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-437-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-019 **Work Order #...:** J9HXC1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:16 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	77	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	57	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-437-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200207-020 **Work Order #...:** J9HXE1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:18 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297068
Dilution Factor: 1
% Moisture.....: 20 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	55	(24 - 112)
2-Fluorobiphenyl	55	(34 - 110)
Terphenyl-d14	74	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	53	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

PROJECT NO. 112IC00885

LMC MR

Lot #: A7J200207
SDG #: 7J20207

Michael Martin

Tetra Tech NUS Inc
20251 Century Blvd
Suite 200
Germantown, MD 20874

TESTAMERICA LABORATORIES, INC.

Patrick J. O'Meara
Project Manager

November 8, 2007

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

CASE NARRATIVE

7J20207

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 20, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J200207.

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 October 31, 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 temperature of the cooler upon sample receipt was 2.9°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.

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

- 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,

ANALYTICAL METHODS SUMMARY

7J20207

PARAMETER	ANALYTICAL METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C
Total Residue as Percent Solids	MCAWW 160.3 MOD

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

7J20207 : A7J200207

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
J9HVQ	001	SB-434-0102	10/18/07	10:28
J9HVR	002	SB-434-0203	10/18/07	10:30
J9HVT	003	SB-434-0304	10/18/07	10:32
J9HVV	004	SB-434-0506	10/18/07	10:34
J9HVW	005	SB-434-0708	10/18/07	10:36
J9HVX	006	SB-435-0102	10/18/07	15:25
J9HV1	007	SB-435-0203	10/18/07	15:27
J9HV3	008	SB-435-0304	10/18/07	15:29
J9HV4	009	SB-435-0506	10/18/07	15:31
J9HV5	010	SB-435-0708	10/18/07	15:33
J9HV7	011	SB-436-0102	10/18/07	15:55
J9HWC	012	SB-436-0203	10/18/07	15:57
J9HWH	013	SB-436-0304	10/18/07	15:59
J9HWL	014	SB-436-0506	10/18/07	16:01
J9HWR	015	SB-436-0708	10/18/07	16:03
J9HW1	016	SB-437-0102	10/18/07	16:10
J9HW5	017	SB-437-0203	10/18/07	16:12
J9HW7	018	SB-437-0304	10/18/07	16:14
J9HXC	019	SB-437-0506	10/18/07	16:16
J9HXE	020	SB-437-0708	10/18/07	16:18

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.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

SHIPPING AND RECEIVING DOCUMENTS

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

16

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Martin	Date: 10/19/07	Chain of Custody Number: 237143
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 1 of 2
City: German town / State: MD / Zip Code: 20874	Site Contact: S. Hadley	Lab Contact: K. Ives	
Project Name and Location (State): LMC MR	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): LL8270 *	Special Instructions/ Conditions of Receipt
SB-~~44~~ 434-0102	10/18	1028				X	1						X	Block 'C'
-0203		1030												* benzo (a) pyrene
-0304		1032												
-0506		1034												
434-0708		1036												
435-0102		1525												
0203		1527												
0304		1529												
0506		1531												
435-0708		1533												
436-0102		1555												
SB-436-0203	10/18	1557				X	1						X	* benzo(a)pyrene

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ ~~48 Hours~~ ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/19/07	1430	1. Received By	10/19/07	1431
2. Relinquished By			2. Received By	10-20-07	~~1030~~ 0950
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Martin	Date: 10/19/07	Chain of Custody Number: 237145
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 2 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: S. Hadley	Lab Contact: K. Ives	
Project Name and Location (State): LMC MD	Carrier/Waybill Number: Carrier		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): 8270	Special Instructions/ Conditions of Receipt
SB-436-0304	10/18	1559				X	1						X	Block "G"
" -0506		1601												# benzo (a) pyrene
436-0708		1603												
437-0102		1610												
-0203		1612												
-0304		1614												
-0506		1616												
-0506 MS/SD		1616												
SB-437-0708	10/18	1618				X	1						X	# benzo (a) pyrene

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☒ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

1. Relinquished By	Date: 10/19/07	Time: 1430	1. Received By	Date: 10-19-07	Time: 1430
2. Relinquished By	Date:	Time:	2. Received By	Date: 10-20-07	Time: 9:50
3. Relinquished By	Date:	Time:	3. Received By	Date:	Time:

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

17

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20207

Lot #: A7J200207

Extraction: XXA11QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-434-0102	68	62	86	66	67	43	00
02	SB-434-0203	60	56	78	60	62	51	00
03	SB-434-0304	64	59	75	64	64	52	00
04	SB-434-0506	57	54	69	57	58	44	00
05	SB-434-0708	64	61	80	64	65	42	00
06	SB-435-0102	59	63	78	64	60	62	00
07	SB-435-0203	46	49	73	55	53	49	00
08	SB-435-0304	49	50	74	59	59	53	00
09	SB-435-0506	64	63	86	65	63	57	00
10	SB-435-0708	55	52	77	58	58	51	00
11	SB-436-0102	60	62	78	60	59	41	00
12	SB-436-0203	49	53	69	57	55	51	00
13	SB-436-0304	57	56	73	59	57	56	00
14	SB-436-0506	57	55	79	63	61	63	00
15	SB-436-0708	57	60	80	63	60	58	00
16	SB-437-0102	50	53	65	55	50	50	00
17	SB-437-0203	49	55	69	58	55	60	00
18	SB-437-0304	58	56	75	62	61	64	00
19	SB-437-0506	63	62	77	65	66	57	00
20	SB-437-0708	55	55	74	58	61	53	00
21	METHOD BLK. J9NLL1AA	74	70	87	70	70	49	00
22	LCS J9NLL1AC	64	64	79	62	63	60	00
23	SB-437-0506 D	63	61	75	65	66	66	00
24	SB-437-0506 S	61	61	73	62	63	66	00

SURROGATES		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

FORM II

SW846 8270C CHECK SAMPLE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20207

Lot #: A7J240000 WO #: J9NLL1AC

BATCH: 7297068

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
1,2,4-Trichlorobenzene	670	440	66	43 - 110	
Acenaphthene	670	420	63	46 - 110	
2,4-Dinitrotoluene	670	520	79	55 - 116	
Pyrene	670	510	77	58 - 113	
N-Nitrosodi-n-propylamine	670	430	64	40 - 114	
1,4-Dichlorobenzene	670	390	58	38 - 110	
Pentachlorophenol	670	140	20	10 - 110	
Phenol	670	390	59	39 - 110	
2-Chlorophenol	670	380	57	39 - 110	
4-Chloro-3-methylphenol	670	420	63	42 - 110	
4-Nitrophenol	670	410	62	24 - 117	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20207

Matrix Spike ID: SB-437-0506

Lot #: A7J200207 WO #: J9HXC1AH
BATCH: 7297068

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
1,2,4-Trichlorobenzene	800	ND	470	59	33 - 110	
Acenaphthene	800	ND	470	60	10 - 200	
2,4-Dinitrotoluene	800	ND	580	72	42 - 118	
Pyrene	800	ND	540	68	10 - 200	
N-Nitrosodi-n-propylamine	800	ND	490	62	30 - 121	
1,4-Dichlorobenzene	800	ND	460	58	26 - 110	
Pentachlorophenol	800	ND	430	53	10 - 182	
Phenol	800	ND	480	60	10 - 144	
2-Chlorophenol	800	ND	470	59	32 - 110	
4-Chloro-3-methylphenol	800	ND	490	62	32 - 117	
4-Nitrophenol	800	ND	490	61	10 - 125	

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: 0 out of 0 outside limits
Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20207

Matrix Spike ID: SB-437-0506

Lot #: A7J200207 WO #: J9HXC1AJ
BATCH: 7297068

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
1,2,4-Trichlorobenzene	800	490	62	4.2	30	33 - 110	
Acenaphthene	800	490	61	2.6	30	10 - 200	
2,4-Dinitrotoluene	800	600	76	4.7	30	42 - 118	
Pyrene	800	550	69	1.7	30	10 - 200	
N-Nitrosodi-n-propylamine	800	520	65	4.7	30	30 - 121	
1,4-Dichlorobenzene	800	480	60	2.5	30	26 - 110	
Pentachlorophenol	800	390	49	8.4	30	10 - 182	
Phenol	800	500	63	3.7	30	10 - 144	
2-Chlorophenol	800	490	61	3.7	30	32 - 110	
4-Chloro-3-methylphenol	800	520	65	5.0	30	32 - 117	
4-Nitrophenol	800	540	68	11	30	10 - 125	

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: 0 out of 11 outside limits
Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III

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.: 7J20207

Lab File ID: 2DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4AG2 DFTPP Injection Time: 1212

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.5
68	Less than 2.0% of mass 69	0.6 (1.6)1
69	Mass 69 relative abundance	40.3
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	50.2
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	24.7
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	10.9
442	Greater than 40.0% of mass 198	79.1
443	17.0 - 23.0% of mass 442	14.9 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD009	L9	2SHHH1024	10/24/07	1223
02	SSTD008	L8	2SHH1024	10/24/07	1240
03	SSTD007	L7	2SH1024	10/24/07	1257
04	SSTD006	L6	2SMH1024	10/24/07	1315
05	SSTD005	L5	2SMM1024	10/24/07	1332
06	SSTD004	L4	2SM1024	10/24/07	1349
07	SSTD003	L3	2SML1024	10/24/07	1406
08	SSTD002	L2	2SL1024	10/24/07	1424
09	SSTD001	L1	2SLL1024	10/24/07	1441
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-2007 15:56
End Cal Date : 24-OCT-2007 14:41
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m
Last Edit : 24-Oct-2007 15:10 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						
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
146 Benzo(a)pyrene	1.13356	0.91950	0.94978	0.99564	1.01295	1.09296			
	1.09655	1.13883	1.25011				1.06554	9.852	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.11314	0.98476	1.04225	1.09901	1.11743	1.20553			
	1.21453	1.25502	1.37265				1.15604	10.210	
150 Dibenz(a,h)anthracene	0.95549	0.85855	0.90658	0.93889	0.95736	1.03913			
	1.04814	1.07257	1.18011				0.99520	9.898	
151 Benzo(g,h,i)perylene	1.07565	0.85637	0.88607	0.92765	0.94183	1.01237			
	1.02211	1.05245	1.14437				0.99099	9.537	
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i Injection Date: 24-OCT-2007 14:58
Lab File ID: ICVTCL.D Init. Cal. Date(s): 17-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:56 14:41
Lab Sample ID: ICVTCL Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
146 Benzo(a)pyrene	1.06554	1.07342	1.07342	0.010	-0.73884	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.15604	1.19424	1.19424	0.010	-3.30446	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.99520	1.01975	1.01975	0.010	-2.46670	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.99099	1.00616	1.00616	0.010	-1.53089	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.30387	0.30964	0.30964	0.010	-1.89859	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.19376	1.21496	1.21496	0.010	-1.77571	50.00000	Averaged
$ 156 Terphenyl-d14	0.81794	0.86512	0.86512	0.010	-5.76860	50.00000	Averaged
$ 157 Phenol-d5	1.52843	1.55336	1.55336	0.010	-1.63160	50.00000	Averaged
$ 158 2-Fluorophenol	1.19836	1.20601	1.20601	0.010	-0.63807	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.15460	0.16200	0.16200	0.010	-4.78170	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.30490	1.32129	1.32129	0.010	-1.25577	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82867	0.84382	0.84382	0.010	-1.82788	50.00000	Averaged
M 195 Cresols, total	2.49329	2.52607	2.52607	0.010	-1.31481	50.00000	Averaged
101 Diphenylamine	0.51130	0.49768	0.49768	0.010	2.66310	50.00000	Averaged

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.: 7J20207

Lab File ID: 2DF1027 DFTPP Injection Date: 10/27/07

Instrument ID: A4AG2 DFTPP Injection Time: 0855

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.1
68	Less than 2.0% of mass 69	0.4 (1.0)1
69	Mass 69 relative abundance	40.4
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	40.0 - 60.0% of mass 198	50.7
197	Less than 1.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	25.6
365	Greater than 1.0% of mass 198	3.3
441	Present, but less than mass 443	11.3
442	Greater than 40.0% of mass 198	79.4
443	17.0 - 23.0% of mass 442	14.9 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	2SMH1027	10/27/07	0923
02	J9NLLBLK	J9NLL1AA	J9NLL1AA	10/27/07	1024
03	J9NLLCHK	J9NLL1AC	J9NLL1AC	10/27/07	1041
04	SB-434-0102	J9HVQ1AC	J9HVQ1AC	10/27/07	1551
05	SB-434-0203	J9HVR1AC	J9HVR1AC	10/27/07	1609
06	SB-434-0304	J9HVT1AC	J9HVT1AC	10/27/07	1626
07	SB-434-0506	J9HVV1AC	J9HVV1AC	10/27/07	1643
08	SB-434-0708	J9HVW1AC	J9HVW1AC	10/27/07	1700
09	SB-435-0102	J9HVX1AC	J9HVX1AC	10/27/07	1718
10	SB-435-0203	J9HV11AC	J9HV11AC	10/27/07	1735
11	SB-435-0304	J9HV31AC	J9HV31AC	10/27/07	1752
12	SB-435-0506	J9HV41AC	J9HV41AC	10/27/07	1809
13	SB-435-0708	J9HV51AC	J9HV51AC	10/27/07	1827
14	SB-436-0102	J9HV71AC	J9HV71AC	10/27/07	1844
15	SB-436-0203	J9HWC1AC	J9HWC1AC	10/27/07	1901
16	SB-436-0304	J9HWH1AC	J9HWH1AC	10/27/07	1918
17	SB-436-0506	J9HWL1AC	J9HWL1AC	10/27/07	1936
18	SB-436-0708	J9HWR1AC	J9HWR1AC	10/27/07	1953
19	SB-437-0102	J9HW11AC	J9HW11AC	10/27/07	2010
20	SB-437-0203	J9HW51AC	J9HW51AC	10/27/07	2027
21	SB-437-0304	J9HW71AC	J9HW71AC	10/27/07	2044
22					

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i
Lab File ID: 2SMH1027.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71027A.b\8270p.m

Injection Date: 27-OCT-2007 09:23
Init. Cal. Date(s): 17-OCT-2007 24-OCT-2007
Init. Cal. Times: 15:56 14:41
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
146 Benzo(a)pyrene	1.06554	1.09318	1.09318	0.010	-2.59379	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.15604	1.22071	1.22071	0.010	-5.59421	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.99520	1.03882	1.03882	0.010	-4.38287	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.99099	1.03153	1.03153	0.010	-4.09113	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.30387	0.31759	0.31759	0.010	-4.51708	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.19376	1.24743	1.24743	0.010	-4.49562	50.00000	Averaged
$ 156 Terphenyl-d14	0.81794	0.85008	0.85008	0.010	-3.92958	50.00000	Averaged
$ 157 Phenol-d5	1.52843	1.47845	1.47845	0.010	3.26964	50.00000	Averaged
$ 158 2-Fluorophenol	1.19836	1.13748	1.13748	0.010	5.08057	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.15460	0.15808	0.15808	0.010	-2.24819	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.30490	1.28353	1.28353	0.010	1.63806	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82867	0.84706	0.84706	0.010	-2.21875	50.00000	Averaged
M 195 Cresols, total	2.49329	2.79208	2.79208	0.010	-11.98385	50.00000	Averaged
101 Diphenylamine	0.51130	0.53185	0.53185	0.010	-4.01972	50.00000	Averaged

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.: 7J20207

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 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	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
08	SSTD002	L2	2SL1029	10/29/07	0921
09	SSTD001	L1	2SLL1029	10/29/07	0938
10	SB-437-0506	J9HXC1AC	J9HXC1AC	10/29/07	1112
11	SB-437-0506	J9HXC1AH	J9HXC1AH	10/29/07	1130
12	SB-437-0506	J9HXC1AJ	J9HXC1AJ	10/29/07	1147
13	SB-437-0708	J9HXE1AC	J9HXE1AC	10/29/07	1204
14					
15					
16					
17					
18					
19					
20					
21					
22					

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
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						
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
146 Benzo(a)pyrene	1.19388	0.91500	0.94599	1.00463	0.99585	1.06396			
	1.10598	1.11559	1.23742				1.06425	10.275	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.22899	1.01257	1.04827	1.12537	1.12255	1.19394			
	1.24288	1.24889	1.38394				1.17860	9.699	
150 Dibenz(a,h)anthracene	1.02002	0.86564	0.89445	0.94052	0.96776	1.01881			
	1.06353	1.07575	1.19310				1.00440	10.044	
151 Benzo(g,h,i)perylene	1.00163	0.91708	0.90740	0.94530	0.95685	1.00796			
	1.03882	1.04345	1.14812				0.99629	7.576	
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i Injection Date: 29-OCT-2007 09:55
Lab File ID: ICVTCL.D Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007
Analysis Type: Init. Cal. Times: 07:15 09:38
Lab Sample ID: ICVTCL Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71029A.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
146 Benzo(a)pyrene	1.06425	1.06595	1.06595	0.010	-0.15952	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.17860	1.19840	1.19840	0.010	-1.68001	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.00440	1.02613	1.02613	0.010	-2.16310	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.99629	1.02560	1.02560	0.010	-2.94146	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.30329	0.31342	0.31342	0.010	-3.34090	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.19472	1.24940	1.24940	0.010	-4.57642	50.00000	Averaged
$ 156 Terphenyl-d14	0.82049	0.85940	0.85940	0.010	-4.74153	50.00000	Averaged
$ 157 Phenol-d5	1.50322	1.50799	1.50799	0.010	-0.31754	50.00000	Averaged
$ 158 2-Fluorophenol	1.14183	1.17848	1.17848	0.010	-3.20947	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.15946	0.17206	0.17206	0.010	-7.90069	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.29469	1.29546	1.29546	0.010	-0.05975	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82582	0.83692	0.83692	0.010	-1.34346	50.00000	Averaged
M 195 Cresols, total	2.47068	2.50499	2.50499	0.010	-1.38839	50.00000	Averaged
101 Diphenylamine	0.51815	0.52590	0.52590	0.010	-1.49725	50.00000	Averaged

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9NLL1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J20207

Lab File ID: J9NLL1AA.

Lot Number: A7J200207

Date Analyzed: 10/27/07

Time Analyzed: 10:24

Matrix: SOLID

Date Extracted:10/24/07

GC Column: DB-5.625 ID: .18

Extraction Method: 3540C

Instrument ID: AG2

Level:(low/med) LOW

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

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-434-0102	J9HVQ1AC	J9HVQ1AC.	10/27/07	15:51
02	SB-434-0203	J9HVR1AC	J9HVR1AC.	10/27/07	16:09
03	SB-434-0304	J9HVT1AC	J9HVT1AC.	10/27/07	16:26
04	SB-434-0506	J9HVV1AC	J9HVV1AC.	10/27/07	16:43
05	SB-434-0708	J9HVW1AC	J9HVW1AC.	10/27/07	17:00
06	SB-435-0102	J9HVX1AC	J9HVX1AC.	10/27/07	17:18
07	SB-435-0203	J9HV11AC	J9HV11AC.	10/27/07	17:35
08	SB-435-0304	J9HV31AC	J9HV31AC.	10/27/07	17:52
09	SB-435-0506	J9HV41AC	J9HV41AC.	10/27/07	18:09
10	SB-435-0708	J9HV51AC	J9HV51AC.	10/27/07	18:27
11	SB-436-0102	J9HV71AC	J9HV71AC.	10/27/07	18:44
12	SB-436-0203	J9HWC1AC	J9HWC1AC.	10/27/07	19:01
13	SB-436-0304	J9HWH1AC	J9HWH1AC.	10/27/07	19:18
14	SB-436-0506	J9HWL1AC	J9HWL1AC.	10/27/07	19:36
15	SB-436-0708	J9HWR1AC	J9HWR1AC.	10/27/07	19:53
16	SB-437-0102	J9HW11AC	J9HW11AC.	10/27/07	20:10
17	SB-437-0203	J9HW51AC	J9HW51AC.	10/27/07	20:27
18	SB-437-0304	J9HW71AC	J9HW71AC.	10/27/07	20:44
19	SB-437-0506	J9HXC1AC	J9HXC1AC.	10/29/07	11:12
20	SB-437-0506	J9HXC1AH S	J9HXC1AH.	10/29/07	11:30
21	SB-437-0506	J9HXC1AJ D	J9HXC1AJ.	10/29/07	11:47
22	SB-437-0708	J9HXE1AC	J9HXE1AC.	10/29/07	12:04
23	CHECK SAMPLE	J9NLL1AC C	J9NLL1AC.	10/27/07	10:41
24					
25					
26					
27					
28					
29					
30					

COMMENTS:

FORM IV

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: A7J200207 **Work Order #...:** J9NLL1AA **Matrix.....:** SOLID
MB Lot-Sample #: A7J240000-068

Prep Date.....: 10/24/07 **Final Wgt/Vol..:** 2 mL
Analysis Date..: 10/27/07 **Prep Batch #...:** 7297068
Dilution Factor: 1 **Initial Wgt/Vol:** 30 g

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzo(a)pyrene	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	74	(24 - 112)
2-Fluorobiphenyl	70	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	70	(28 - 110)
2-Fluorophenol	70	(26 - 110)
2,4,6-Tribromophenol	49	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20207

Lab File ID (Standard): 2SMH1027 Date Analyzed: 10/27/07

Instrument ID: A4AG2 Time Analyzed: 0923

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	305928	3.57	1294015	4.47	646014	5.73
	UPPER LIMIT	611856	4.07	2588030	4.97	1292028	6.23
	LOWER LIMIT	152964	3.07	647008	3.97	323007	5.23
	EPA SAMPLE NO.						
01	J9NLLBLK	363927	3.57	1525988	4.46	783757	5.73
02	J9NLLCHK	290813	3.57	1248846	4.46	628922	5.73
03	SB-434-0102	273154	3.57	1171014	4.46	626546	5.73
04	SB-434-0203	340037	3.57	1483571	4.46	777847	5.73
05	SB-434-0304	363469	3.57	1550479	4.46	847252	5.73
06	SB-434-0506	364506	3.57	1585475	4.46	831274	5.73
07	SB-434-0708	296933	3.57	1287385	4.46	677243	5.73
08	SB-435-0102	314885	3.57	1430345	4.46	764337	5.73
09	SB-435-0203	286243	3.57	1307055	4.46	706841	5.73
10	SB-435-0304	350278	3.57	1563557	4.46	830417	5.73
11	SB-435-0506	315659	3.57	1413356	4.46	749219	5.73
12	SB-435-0708	316926	3.57	1419070	4.46	745269	5.73
13	SB-436-0102	348006	3.57	1543863	4.46	814971	5.73
14	SB-436-0203	259361	3.57	1232559	4.46	664591	5.73
15	SB-436-0304	333133	3.57	1505299	4.46	831644	5.73
16	SB-436-0506	321654	3.57	1450438	4.46	787643	5.73
17	SB-436-0708	307634	3.57	1471808	4.46	820989	5.73
18	SB-437-0102	316097	3.57	1517348	4.46	858780	5.73
19	SB-437-0203	330948	3.57	1511095	4.47	836388	5.73
20	SB-437-0304	326559	3.57	1516717	4.47	829834	5.73
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20207

Lab File ID (Standard): 2SMH1027 Date Analyzed: 10/27/07

Instrument ID: A4AG2 Time Analyzed: 0923

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	1090631	6.82	1003896	8.78	970618	10.23
	UPPER LIMIT	2181262	7.32	2007792	9.28	1941236	10.73
	LOWER LIMIT	545316	6.32	501948	8.28	485309	9.73
	EPA SAMPLE NO.						
01	J9NLLBLK	1303709	6.82	1202717	8.78	1163119	10.23
02	J9NLLCHK	1081695	6.82	997109	8.78	961154	10.22
03	SB-434-0102	1145101	6.82	1055046	8.78	1034427	10.24
04	SB-434-0203	1336877	6.82	1264797	8.78	1214877	10.24
05	SB-434-0304	1485072	6.82	1377149	8.78	1345999	10.24
06	SB-434-0506	1447452	6.82	1322587	8.78	1300876	10.23
07	SB-434-0708	1205188	6.82	1102163	8.78	1076352	10.24
08	SB-435-0102	1368202	6.82	1237189	8.78	1205747	10.24
09	SB-435-0203	1250219	6.82	1121372	8.78	1140577	10.24
10	SB-435-0304	1465505	6.82	1367551	8.78	1348113	10.24
11	SB-435-0506	1336224	6.82	1226727	8.78	1218189	10.23
12	SB-435-0708	1298545	6.82	1176063	8.78	1171291	10.23
13	SB-436-0102	1399035	6.82	1312473	8.78	1312740	10.23
14	SB-436-0203	1176247	6.82	1115282	8.78	1118408	10.23
15	SB-436-0304	1483659	6.82	1389850	8.78	1393702	10.23
16	SB-436-0506	1427460	6.82	1356391	8.78	1338571	10.24
17	SB-436-0708	1456728	6.82	1342826	8.78	1364015	10.23
18	SB-437-0102	1573937	6.82	1413056	8.78	1387315	10.25
19	SB-437-0203	1500314	6.82	1417867	8.78	1408292	10.24
20	SB-437-0304	1538878	6.82	1458449	8.78	1427085	10.24
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20207

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

Instrument ID: A4AG2 Time Analyzed: 0813

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	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	SB-437-0506	358616	3.63	1554942	4.53	803822	5.81
02	SB-437-0506	313113	3.64	1385913	4.53	727886	5.81
03	SB-437-0506	335959	3.64	1476906	4.53	781908	5.81
04	SB-437-0708	347284	3.64	1497362	4.53	781093	5.81
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20207

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

Instrument ID: A4AG2 Time Analyzed: 0813

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	1035448	6.90	962013	8.87	934181	10.38
	UPPER LIMIT	2070896	7.40	1924026	9.37	1868362	10.88
	LOWER LIMIT	517724	6.40	481007	8.37	467091	9.88
	EPA SAMPLE NO.						
01	SB-437-0506	1398712	6.90	1257877	8.87	1247390	10.38
02	SB-437-0506	1279728	6.90	1203058	8.88	1163559	10.38
03	SB-437-0506	1379511	6.90	1308554	8.88	1270264	10.38
04	SB-437-0708	1355333	6.90	1284034	8.87	1252237	10.38
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A7J200207 **Work Order #...:** J9HXC1AH-MS **Matrix.....:** SO
MS Lot-Sample #: A7J200207-019 J9HXC1AJ-MSD
Date Sampled...: 10/18/07 16:16 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297068
Dilution Factor: 1 **Initial Wgt/Vol:** 30.04 g **Final Wgt/Vol..:** 2 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,2,4-Trichloro-benzene	59	(33 - 110)			SW846 8270C
	62	(33 - 110)	4.2	(0-30)	SW846 8270C
Acenaphthene	60	(10 - 200)			SW846 8270C
	61	(10 - 200)	2.6	(0-30)	SW846 8270C
2,4-Dinitrotoluene	72	(42 - 118)			SW846 8270C
	76	(42 - 118)	4.7	(0-30)	SW846 8270C
Pyrene	68	(10 - 200)			SW846 8270C
	69	(10 - 200)	1.7	(0-30)	SW846 8270C
N-Nitrosodi-n-propyl-amine	62	(30 - 121)			SW846 8270C
	65	(30 - 121)	4.7	(0-30)	SW846 8270C
1,4-Dichlorobenzene	58	(26 - 110)			SW846 8270C
	60	(26 - 110)	2.5	(0-30)	SW846 8270C
Pentachlorophenol	53	(10 - 182)			SW846 8270C
	49	(10 - 182)	8.4	(0-30)	SW846 8270C
Phenol	60	(10 - 144)			SW846 8270C
	63	(10 - 144)	3.7	(0-30)	SW846 8270C
2-Chlorophenol	59	(32 - 110)			SW846 8270C
	61	(32 - 110)	3.7	(0-30)	SW846 8270C
4-Chloro-3-methylphenol	62	(32 - 117)			SW846 8270C
	65	(32 - 117)	5.0	(0-30)	SW846 8270C
4-Nitrophenol	61	(10 - 125)			SW846 8270C
	68	(10 - 125)	11	(0-30)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
	63	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
	61	(34 - 110)
Terphenyl-d14	73	(41 - 119)
	75	(41 - 119)
Phenol-d5	62	(28 - 110)
	65	(28 - 110)
2-Fluorophenol	63	(26 - 110)
	66	(26 - 110)

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A7J200207 **Work Order #...:** J9HXC1AH-MS **Matrix.....:** SO
MS Lot-Sample #: A7J200207-019 J9HXC1AJ-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	66	(10 - 118)
	66	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A7J200207 **Work Order #...:** J9HXC1AH-MS **Matrix.....:** SO
MS Lot-Sample #: A7J200207-019 J9HXC1AJ-MSD
Date Sampled...: 10/18/07 16:16 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297068
Dilution Factor: 1 **Initial Wgt/Vol:** 30.04 g **Final Wgt/Vol..:** 2 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,2,4-Trichloro-benzene	ND	800	470	ug/kg	59		SW846 8270C
	ND	800	490	ug/kg	62	4.2	SW846 8270C
Acenaphthene	ND	800	470	ug/kg	60		SW846 8270C
	ND	800	490	ug/kg	61	2.6	SW846 8270C
2,4-Dinitrotoluene	ND	800	580	ug/kg	72		SW846 8270C
	ND	800	600	ug/kg	76	4.7	SW846 8270C
Pyrene	ND	800	540	ug/kg	68		SW846 8270C
	ND	800	550	ug/kg	69	1.7	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	800	490	ug/kg	62		SW846 8270C
	ND	800	520	ug/kg	65	4.7	SW846 8270C
1,4-Dichlorobenzene	ND	800	460	ug/kg	58		SW846 8270C
	ND	800	480	ug/kg	60	2.5	SW846 8270C
Pentachlorophenol	ND	800	430	ug/kg	53		SW846 8270C
	ND	800	390	ug/kg	49	8.4	SW846 8270C
Phenol	ND	800	480	ug/kg	60		SW846 8270C
	ND	800	500	ug/kg	63	3.7	SW846 8270C
2-Chlorophenol	ND	800	470	ug/kg	59		SW846 8270C
	ND	800	490	ug/kg	61	3.7	SW846 8270C
4-Chloro-3-methylphenol	ND	800	490	ug/kg	62		SW846 8270C
	ND	800	520	ug/kg	65	5.0	SW846 8270C
4-Nitrophenol	ND	800	490	ug/kg	61		SW846 8270C
	ND	800	540	ug/kg	68	11	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
	63	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
	61	(34 - 110)
Terphenyl-d14	73	(41 - 119)
	75	(41 - 119)
Phenol-d5	62	(28 - 110)
	65	(28 - 110)
2-Fluorophenol	63	(26 - 110)
	66	(26 - 110)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A7J200207 **Work Order #...:** J9HXC1AH-MS **Matrix.....:** SO
MS Lot-Sample #: A7J200207-019 J9HXC1AJ-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	66	(10 - 118)
	66	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A7J200207 **Work Order #...:** J9NLL1AC **Matrix.....:** SOLID
LCS Lot-Sample#: A7J240000-068
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1 **Final Wgt/Vol..:** 2 mL
Initial Wgt/Vol: 30 g

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,2,4-Trichloro-benzene	**66**	**(43 - 110)**	**SW846 8270C**
Acenaphthene	**63**	**(46 - 110)**	**SW846 8270C**
2,4-Dinitrotoluene	**79**	**(55 - 116)**	**SW846 8270C**
Pyrene	**77**	**(58 - 113)**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**64**	**(40 - 114)**	**SW846 8270C**
1,4-Dichlorobenzene	**58**	**(38 - 110)**	**SW846 8270C**
Pentachlorophenol	**20**	**(10 - 110)**	**SW846 8270C**
Phenol	**59**	**(39 - 110)**	**SW846 8270C**
2-Chlorophenol	**57**	**(39 - 110)**	**SW846 8270C**
4-Chloro-3-methylphenol	**63**	**(42 - 110)**	**SW846 8270C**
4-Nitrophenol	**62**	**(24 - 117)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	60	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A7J200207 Work Order #...: J9NLL1AC Matrix.....: SOLID
LCS Lot-Sample#: A7J240000-068
Prep Date.....: 10/24/07 Analysis Date..: 10/27/07
Prep Batch #...: 7297068
Dilution Factor: 1 Final Wgt/Vol..: 2 mL
Initial Wgt/Vol: 30 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
1,2,4-Trichloro-benzene	**670**	**440**	**ug/kg**	**66**	**SW846 8270C**
Acenaphthene	**670**	**420**	**ug/kg**	**63**	**SW846 8270C**
2,4-Dinitrotoluene	**670**	**520**	**ug/kg**	**79**	**SW846 8270C**
Pyrene	**670**	**510**	**ug/kg**	**77**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**670**	**430**	**ug/kg**	**64**	**SW846 8270C**
1,4-Dichlorobenzene	**670**	**390**	**ug/kg**	**58**	**SW846 8270C**
Pentachlorophenol	**670**	**140**	**ug/kg**	**20**	**SW846 8270C**
Phenol	**670**	**390**	**ug/kg**	**59**	**SW846 8270C**
2-Chlorophenol	**670**	**380**	**ug/kg**	**57**	**SW846 8270C**
4-Chloro-3-methylphenol	**670**	**420**	**ug/kg**	**63**	**SW846 8270C**
4-Nitrophenol	**670**	**410**	**ug/kg**	**62**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	60	(10 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SAMPLE CALC SAMPLE ID: COMPOUND: BAP

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
1205747	1	80742	2	2000	1.0655	0.9	0.5	18.60

Sample Amount (g)
30.04

Tetra Tech NUS, Inc

Client Sample ID: SB-435-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J200207-006	**Work Order #...:**	J9HVX1AC	**Matrix.....:**	SO
Date Sampled...:	10/18/07 15:25	**Date Received..:**	10/20/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/27/07		
Prep Batch #...:	7297068				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.04 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	10	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**19 J**	**370**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	78	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	62	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4ag2.i\71027A.b\J9HVX1AC.D
Lab Smp Id: J9HVX1AC Client Smp ID: SB-435-0102
Inj Date : 27-OCT-2007 17:18
Operator : 046900 Inst ID: a4ag2.i
Smp Info : J9HVX1AC,71027A.b,8270P,BAP.SUB
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4ag2.i\71027A.b\8270p.m
Meth Date : 28-Oct-2007 09:21 hulat Quant Type: ISTD
Cal Date : 24-OCT-2007 12:23 Cal File: 2SHHH1024.D
Als bottle: 29
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	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.040	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)	
* 1 1,4-Dichlorobenzene-d4	152	3.566	3.566	(1.000)	314885	2.00000		(Q)
* 2 Naphthalene-d8	136	4.460	4.465	(1.000)	1430345	2.00000		
* 3 Acenaphthene-d10	164	5.730	5.730	(1.000)	764337	2.00000		
* 4 Phenanthrene-d10	188	6.818	6.818	(1.000)	1368202	2.00000		
* 5 Chrysene-d12	240	8.777	8.777	(1.000)	1237189	2.00000		
* 6 Perylene-d12	264	10.236	10.230	(1.000)	1205747	2.00000		
146 Benzo(a)pyrene	252	10.165	10.165	(0.993)	80742	0.12569	16.736	
$ 154 Nitrobenzene-d5	82	3.942	3.948	(0.884)	643321	2.96029	394.18	
$ 155 2-Fluorobiphenyl	172	5.218	5.218	(0.911)	1443968	3.16508	421.45	
$ 156 Terphenyl-d14	244	7.959	7.959	(0.907)	1985348	3.92382	522.48	
$ 157 Phenol-d5	99	3.277	3.271	(0.919)	1150158	4.77959	636.43	
$ 158 2-Fluorophenol	112	2.707	2.689	(0.759)	854308	4.52799	602.93	
$ 159 2,4,6-Tribromophenol	330	6.307	6.301	(1.101)	273772	4.63352	616.98	
$ 186 2-Chlorophenol-d4	132	3.413	3.413	(0.957)	967762	4.71052	627.23	
$ 187 1,2-Dichlorobenzene-d4	152	3.677	3.677	(1.031)	311165	2.38498	317.57	(Q)

QC Flag Legend

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): 7J20208

SAMPLES: 19/Soil/

SB-438-0102	SB-438-0203	SB-438-0304	SB-438-0506	SB-438-0708
SB-439-0102	SB-439-0203	SB-439-0304	SB-439-0506	SB-439-0708
SB-440-0102	SB-440-0203	SB-440-0304	SB-440-0506	SB-441-0102
SB-441-0203	SB-441-0304	SB-441-0506	SB-441-0708	

Overview

The sample set for SDG 7J20208, Lockheed MRC, consists of nineteen (19) soil environmental samples.

All soil samples were analyzed for benzo(a)pyrene. The samples were collected by TetraTech NUS on October 18 and 19, 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 areas were outside acceptance limits for sample SB-441-0708 due to matrix effects. 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, with a single exception of a sample that was diluted 50 times. No action was taken.

As a result of a 50x dilution, surrogate recoveries for sample SB-441-0506 were diluted out therefore, extraction efficiency could not be evaluated.

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: 00885

SDG: 7J20208 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-438-0102	nsample	SB-438-0203	nsample	SB-438-0304
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J200208001	lab_id	A7J200208002	lab_id	A7J200208003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	90.0	Pct_Solids	88.0	Pct_Solids	85.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.4	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: 7J20208 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-438-0506
samp_date	10/18/2007
lab_id	A7J200208004
qc_type	NM
units	UG/KG
Pct_Solids	90.0
DUP_OF:	

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

nsample	SB-438-0708
samp_date	10/18/2007
lab_id	A7J200208005
qc_type	NM
units	UG/KG
Pct_Solids	83.0
DUP_OF:	

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

nsample	SB-439-0102
samp_date	10/18/2007
lab_id	A7J200208006
qc_type	NM
units	UG/KG
Pct_Solids	86.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J20208 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-439-0203	nsample	SB-439-0304	nsample	SB-439-0506
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J200208007	lab_id	A7J200208008	lab_id	A7J200208009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	86.0	Pct_Solids	78.0	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	1.7	U	

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

PROJ_NO: 00885

SDG: 7J20208 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-439-0708	nsample	SB-440-0102	nsample	SB-440-0203
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/18/2007
lab_id	A7J200208010	lab_id	A7J200208011	lab_id	A7J200208012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	80.0	Pct_Solids	88.0	Pct_Solids	83.0
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	1.5	U	

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

PROJ_NO: 00885

SDG: 7J20208 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-440-0304	nsample	SB-440-0506	nsample	SB-441-0102DL
samp_date	10/18/2007	samp_date	10/18/2007	samp_date	10/19/2007
lab_id	A7J200208013	lab_id	A7J200208014	lab_id	A7J200208015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	82.0	Pct_Solids	76.0	Pct_Solids	89.0
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	1.7	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	120	J	P

PROJ_NO: 00885

SDG: 7J20208 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-441-0203	nsample	SB-441-0304	nsample	SB-441-0506DL
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200208016	lab_id	A7J200208017	lab_id	A7J200208018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	88.0	Pct_Solids	89.0	Pct_Solids	78.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	72	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	31	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	900	J	P

PROJ_NO: 00885

SDG: 7J20208 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-441-0708
samp_date	10/19/2007
lab_id	A7J200208019
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.5	UJ	N

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Tetra Tech NUS, Inc

Client Sample ID: SB-438-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-001 **Work Order #...:** J9HV01AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:30 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	53	(24 - 112)
2-Fluorobiphenyl	56	(34 - 110)
Terphenyl-d14	75	(41 - 119)
Phenol-d5	53	(28 - 110)
2-Fluorophenol	54	(26 - 110)
2,4,6-Tribromophenol	55	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-438-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-002 **Work Order #...:** J9HV61AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:32 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	81	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	65	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-438-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-003 **Work Order #...:** J9HV91AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:34 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	57	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	53	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-438-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-004 **Work Order #...:** J9HWA1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:36 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	55	(24 - 112)
2-Fluorobiphenyl	58	(34 - 110)
Terphenyl-d14	81	(41 - 119)
Phenol-d5	54	(28 - 110)
2-Fluorophenol	56	(26 - 110)
2,4,6-Tribromophenol	44	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-438-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-005 **Work Order #...:** J9HWE1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:38 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	57	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	38	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-439-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J200208-006	**Work Order #...:**	J9HWG1AC	**Matrix.....:**	SO
Date Sampled...:	10/18/07 16:38	**Date Received..:**	10/20/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/27/07		
Prep Batch #...:	7297069				
Dilution Factor:	1				
% Moisture.....:	14	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**15 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	52	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	57	(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-439-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-007 **Work Order #...:** J9HWJ1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:39 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	69	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	92	(41 - 119)
Phenol-d5	73	(28 - 110)
2-Fluorophenol	74	(26 - 110)
2,4,6-Tribromophenol	77	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-439-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-008 **Work Order #...:** J9HWM1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:41 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/28/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 22 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.7

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	52	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	78	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-439-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-009 **Work Order #...:** J9HWN1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:43 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 19 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	47	(24 - 112)
2-Fluorobiphenyl	60	(34 - 110)
Terphenyl-d14	82	(41 - 119)
Phenol-d5	52	(28 - 110)
2-Fluorophenol	58	(26 - 110)
2,4,6-Tribromophenol	49	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-439-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-010 **Work Order #...:** J9HWT1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:45 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 20 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	46	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-440-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-011 **Work Order #...:** J9HWV1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:47 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	81	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	31	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-440-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-012 **Work Order #...:** J9HWX1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:49 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	56	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	82	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	31	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-440-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-013 **Work Order #...:** J9HW81AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:51 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	85	(41 - 119)
Phenol-d5	56	(28 - 110)
2-Fluorophenol	56	(26 - 110)
2,4,6-Tribromophenol	23	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-440-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-014 **Work Order #...:** J9HXA1AC **Matrix.....:** SO
Date Sampled...: 10/18/07 16:53 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 24 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	440	ug/kg	1.7

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	80	(41 - 119)
Phenol-d5	56	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	37	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-441-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-015 **Work Order #...:** J9HXH1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 09:35 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/28/07
Prep Batch #...: 7297069
Dilution Factor: 2.5
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**120 J**	**930**	**ug/kg**	**3.6**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	48 DIL	(24 - 112)
2-Fluorobiphenyl	63 DIL	(34 - 110)
Terphenyl-d14	82 DIL	(41 - 119)
Phenol-d5	48 DIL	(28 - 110)
2-Fluorophenol	43 DIL	(26 - 110)
2,4,6-Tribromophenol	60 DIL	(10 - 118)

NOTE(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.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-441-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-016 **Work Order #...:** J9HXK1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 09:37 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**72 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	74	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	52	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-441-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-017 **Work Order #...:** J9HXN1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 09:39 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/28/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**31 J**	**370**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	51	(24 - 112)
2-Fluorobiphenyl	60	(34 - 110)
Terphenyl-d14	82	(41 - 119)
Phenol-d5	52	(28 - 110)
2-Fluorophenol	52	(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-441-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-018 **Work Order #...:** J9HXT1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 09:41 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/28/07
Prep Batch #...: 7297069
Dilution Factor: 50
% Moisture.....: 22 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**900 J**	**21000**	**ug/kg**	**84**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	0.0 DIL,*	(24 - 112)
2-Fluorobiphenyl	0.0 DIL,*	(34 - 110)
Terphenyl-d14	0.0 DIL,*	(41 - 119)
Phenol-d5	0.0 DIL,*	(28 - 110)
2-Fluorophenol	0.0 DIL,*	(26 - 110)
2,4,6-Tribromophenol	0.0 DIL,*	(10 - 118)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-441-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200208-019 **Work Order #...:** J9HXV1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 09:43 **Date Received..:** 10/20/07
Prep Date.....: 10/24/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7297069
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	54	(28 - 110)
2-Fluorophenol	52	(26 - 110)
2,4,6-Tribromophenol	25	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG 7J20208

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-439-0102	A7J200208006	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-438-0203	A7J200208002	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-438-0304	A7J200208003	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-441-0708	A7J200208019	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
PCS	%	SB-438-0708	A7J200208005	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-438-0102	A7J200208001	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-439-0203	A7J200208007	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-439-0304	A7J200208008	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-439-0506	A7J200208009	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-441-0506	A7J200208018	NM	10/19/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-440-0102	A7J200208011	NM	10/18/2007	10/25/2007	10/26/2007	6	1	7
PCS	%	SB-440-0203	A7J200208012	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-440-0304	A7J200208013	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-440-0506	A7J200208014	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-441-0102	A7J200208015	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-441-0203	A7J200208016	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
PCS	%	SB-441-0304	A7J200208017	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
PCS	%	SB-439-0708	A7J200208010	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
PCS	%	SB-438-0506	A7J200208004	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
OS	%	SB-438-0102	A7J200208001	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	%	SB-440-0102	A7J200208011	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	%	SB-440-0203	A7J200208012	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	%	SB-440-0304	A7J200208013	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	%	SB-440-0506	A7J200208014	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	%	SB-441-0102DL	A7J200208015	NM	10/19/2007	10/24/2007	10/28/2007	5	4	9
OS	%	SB-441-0203	A7J200208016	NM	10/19/2007	10/24/2007	10/27/2007	5	3	8
OS	%	SB-441-0506DL	A7J200208018	NM	10/19/2007	10/24/2007	10/28/2007	5	4	9
OS	%	SB-441-0304	A7J200208017	NM	10/19/2007	10/24/2007	10/28/2007	5	4	9
OS	%	SB-439-0708	A7J200208010	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	%	SB-439-0506	A7J200208009	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	%	SB-439-0304	A7J200208008	NM	10/18/2007	10/24/2007	10/28/2007	6	4	10
OS	%	SB-439-0203	A7J200208007	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8
OS	%	SB-439-0102	A7J200208006	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	%	SB-438-0708	A7J200208005	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	%	SB-438-0506	A7J200208004	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	%	SB-441-0708	A7J200208019	NM	10/19/2007	10/24/2007	10/29/2007	5	5	10
OS	%	SB-438-0203	A7J200208002	NM	10/18/2007	10/24/2007	10/26/2007	6	2	8
OS	%	SB-438-0304	A7J200208003	NM	10/18/2007	10/24/2007	10/29/2007	6	5	11
OS	UG/KG	SB-440-0102	A7J200208011	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	UG/KG	SB-439-0708	A7J200208010	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	UG/KG	SB-441-0708	A7J200208019	NM	10/19/2007	10/24/2007	10/29/2007	5	5	10
OS	UG/KG	SB-441-0506DL	A7J200208018	NM	10/19/2007	10/24/2007	10/28/2007	5	4	9
OS	UG/KG	SB-441-0304	A7J200208017	NM	10/19/2007	10/24/2007	10/28/2007	5	4	9
OS	UG/KG	SB-441-0203	A7J200208016	NM	10/19/2007	10/24/2007	10/27/2007	5	3	8
OS	UG/KG	SB-441-0102DL	A7J200208015	NM	10/19/2007	10/24/2007	10/28/2007	5	4	9
OS	UG/KG	SB-440-0506	A7J200208014	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	UG/KG	SB-439-0506	A7J200208009	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	UG/KG	SB-440-0203	A7J200208012	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	UG/KG	SB-438-0102	A7J200208001	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	UG/KG	SB-439-0304	A7J200208008	NM	10/18/2007	10/24/2007	10/28/2007	6	4	10
OS	UG/KG	SB-439-0203	A7J200208007	NM	10/18/2007	10/25/2007	10/26/2007	7	1	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	SB-439-0102	A7J200208006	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	UG/KG	SB-438-0708	A7J200208005	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	UG/KG	SB-438-0506	A7J200208004	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9
OS	UG/KG	SB-438-0304	A7J200208003	NM	10/18/2007	10/24/2007	10/29/2007	6	5	11
OS	UG/KG	SB-438-0203	A7J200208002	NM	10/18/2007	10/24/2007	10/26/2007	6	2	8
OS	UG/KG	SB-440-0304	A7J200208013	NM	10/18/2007	10/24/2007	10/27/2007	6	3	9

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

16

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Martin	Date: 10/19/07	Chain of Custody Number: 237146
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number	Page 1 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: S. Hadley	Lab Contact: K. Ives	
Project Name and Location (State): LMC MR	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112ZC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): 8270	Special Instructions/ Conditions of Receipt
SB-438-0102	10/18	1630				X	1						X	Block 'G'
-0203		1632				X							X	*benzo (a) pyrene
-0304		1634				X							X	
-0506		1636				X							X	
438-0708		1638				X							X	
439-0102		1638				X							X	
-0203		1639				X							X	
-0304		1641				X							X	
-0506		1643				X							X	
439-0708		1645				X							X	
440-0102		1647				X							X	
SB 440-0203	10/18	1649				X	X						X	*benzo (a) pyrene

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time
1. Relinquished By	10/19/07	1430
2. Relinquished By		
3. Relinquished By		

	Date	Time
1. Received By	10/19/07	1430
2. Received By	10-20-07	0750
3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

Chain of Custody Record

STL-4124 (0901)

SEVERN TRENT **STL**
Severn Trent Laboratories, Inc.

Client	Tetra Tech
Address	20251 Century Blvd #200
City	Germantown
State	MD
Zip Code	20874
Project Name and Location (State)	LMC MR
Contract/Purchase Order/Quote No.	112 FC 00885
Project Manager	M. Martin
Telephone Number (Area Code)/Fax Number	301-528-3022
Site Contact	S. Hadley
Lab Contact	K. Ives
Carrier/Waybill Number	Courier
Date	10/19/07
Lab Number	
Chain of Custody Number	237147
Page	2 of 2

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): *LL 8270	Special Instructions/ Conditions of Receipt
SB-440-0304	10/18	1651				X	1						X	Block 'G'
440-0506	10/18	1653												*benzo (a) pyrene
441-0102	10/19	0935												
-0203		0937												
-0304		0939												
-0506		0941												
441-0708		0943												
SB-441-0708 ~~MS/SD~~ MS/SD KSH	10/19	0943				X	1						X	*benzo (a) pyrene

Filt 10/19

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By [signature]	10/19/07	1430	1. Received By [signature]	10-19-07	1430
2. Relinquished By			2. Received By [signature]	10-20-07	1050
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

CASE NARRATIVE

7J20208

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 112IC0085. The samples were received October 20, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID: A7J200208.

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 08, 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 temperature of the cooler upon sample receipt was 2.9°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-441-0708 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-441-0708 due to matrix effects. "(Refer to IS report following this Case Narrative for additional detail.)"

Sample(s) SB-441-0102 and SB-441-0506 had elevated reporting limits due to elevated matrix interferences.

Batch(es) 7297069 had Pentachlorophenol out low in the associated LCS. However, since only BN compounds were requested, no corrective action was necessary.

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

- 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.

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20208

Lot #: A7J200208

Extraction: XXA11QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-438-0102	55	53	56	75	53	54	00
02	SB-438-0203	65	62	64	81	63	64	00
03	SB-438-0304	53	58	57	84	62	63	00
04	SB-438-0506	44	55	58	81	54	56	00
05	SB-438-0708	38	60	62	79	57	60	00
06	SB-439-0102	61	52	63	86	55	57	00
07	SB-439-0304	78	52	66	84	66	62	00
08	SB-439-0506	49	47	60	82	52	58	00
09	SB-439-0708	46	57	65	84	55	60	00
10	SB-440-0102	31	65	69	81	61	67	00
11	SB-440-0203	31	56	64	82	55	60	00
12	SB-440-0304	23	62	67	85	56	56	00
13	SB-440-0506	37	59	64	80	56	61	00
14	SB-441-0102	60 D	48 D	63 D	82 D	48 D	43 D	00
15	SB-441-0203	52	58	62	74	55	60	00
16	SB-441-0304	61	51	60	82	52	52	00
17	SB-441-0506	0.0D	0.0D	0.0D	0.0D	0.0D	0.0D	06
18	SB-441-0708	25	65	65	86	54	52	00
19	METHOD BLK. J9NLM1AA	52	67	73	84	65	67	00
20	LCS J9NLM1AC	67	64	71	82	69	65	00
21	SB-441-0708 D	26	64	67	81	56	50	00
22	SB-441-0708 S	38	61	65	72	60	58	00

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

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20208

Lot #: A7J200208

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-439-0203	77	69	74	92	73	74	00
02	INTRA-LAB QC	72	58	66	90	61	62	00
03	METHOD BLK. J9TRK1AA	63	71	75	101	71	71	00
04	LCS J9TRK1AC	83	76	80	99	75	77	00
05	LAB MS/MSD D	82	74	81	93	76	75	00
06	LAB MS/MSD S	84	71	79	96	74	72	00

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

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9NLM1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN SDG Number:7J20208

Lab File ID: J9NLM1AA. Lot Number: A7J200208

Date Analyzed: 10/27/07 Time Analyzed: 14:11

Matrix: SOLID Date Extracted:10/24/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-438-0102	J9HV01AC	J9HV01AC.	10/27/07	23:34
02	SB-438-0203	J9HV61AC	J9HV61AC.	10/26/07	20:11
03	SB-438-0304	J9HV91AC	J9HV91AC.	10/29/07	18:28
04	SB-438-0506	J9HWA1AC	J9HWA1AC.	10/27/07	20:46
05	SB-438-0708	J9HWE1AC	J9HWE1AC.	10/27/07	21:05
06	SB-439-0102	J9HWG1AC	J9HWG1AC.	10/27/07	23:16
07	SB-439-0304	J9HWM1AC	J9HWM1AC.	10/28/07	00:49
08	SB-439-0506	J9HWN1AC	J9HWN1AC.	10/27/07	21:23
09	SB-439-0708	J9HWT1AC	J9HWT1AC.	10/27/07	21:42
10	SB-440-0102	J9HWV1AC	J9HWV1AC.	10/27/07	22:01
11	SB-440-0203	J9HWX1AC	J9HWX1AC.	10/27/07	22:19
12	SB-440-0304	J9HW81AC	J9HW81AC.	10/27/07	22:38
13	SB-440-0506	J9HXA1AC	J9HXA1AC.	10/27/07	22:57
14	SB-441-0102	J9HXH1AC	J9HXH1AC.	10/28/07	00:30
15	SB-441-0203	J9HXK1AC	J9HXK1AC.	10/27/07	23:53
16	SB-441-0304	J9HXN1AC	J9HXN1AC.	10/28/07	01:08
17	SB-441-0506	J9HXT1AC	J9HXT1AC.	10/28/07	00:12
18	SB-441-0708	J9HXV1AC	J9HXV1AC.	10/29/07	18:09
19	SB-441-0708	J9HXV1AH S	J9HXV1AH.	10/26/07	19:33
20	SB-441-0708	J9HXV1AJ D	J9HXV1AJ.	10/26/07	19:52
21	CHECK SAMPLE	J9NLM1AC C	J9NLM1AC.	10/27/07	14:30
22					
23					
24					
25					
26					
27					
28					
29					
30					

COMMENTS:

FORM IV

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9TRK1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number: 7J20208

Lab File ID: J9TRK1AA.

Lot Number: A7J200208

Date Analyzed: 10/26/07

Time Analyzed: 11:55

Matrix: SOLID

Date Extracted: 10/25/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-439-0203	J9HWJ1AC	J9HWJ1AC.	10/26/07	14:47
02	INTRA-LAB QC	J9HWQ1AC	J9HWQ1AC.	10/26/07	12:33
03	LAB MS/MSD	J9HWQ1AD S	J9HWQ1AD.	10/26/07	12:52
04	LAB MS/MSD	J9HWQ1AE D	J9HWQ1AE.	10/26/07	13:11
05	CHECK SAMPLE	J9TRK1AC C	J9TRK1AC.	10/26/07	12:14
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

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.: SDG No.: 7J20208

Lab File ID: 8DF1026 DFTPP Injection Date: 10/26/07

Instrument ID: A4HP8 DFTPP Injection Time: 1114

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	54.5
70	Less than 2.0% of mass 69	0.5 (0.9)1
127	40.0 - 60.0% of mass 198	53.1
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	24.5
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	7.3
442	Greater than 40.0% of mass 198	46.0
443	17.0 - 23.0% of mass 442	8.9 (19.3)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1026	10/26/07	1133
02	J9TRKBLK	J9TRK1AA	J9TRK1AA	10/26/07	1155
03	J9TRKCHK	J9TRK1AC	J9TRK1AC	10/26/07	1214
04	SB-439-0203	J9HWJ1AC	J9HWJ1AC	10/26/07	1447
05	SB-441-0708	J9HXV1AH	J9HXV1AH	10/26/07	1933
06	SB-441-0708	J9HXV1AJ	J9HXV1AJ	10/26/07	1952
07	SB-438-0203	J9HV61AC	J9HV61AC	10/26/07	2011
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J20208

Lab File ID: 8DF1027 DFTPP Injection Date: 10/27/07

Instrument ID: A4HP8 DFTPP Injection Time: 1315

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.3
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	46.3
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	6.6
275	10.0 - 30.0% of mass 198	28.0
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	10.2
442	Greater than 40.0% of mass 198	69.7
443	17.0 - 23.0% of mass 442	13.3 (19.1)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1027	10/27/07	1352
02	J9NLMBLK	J9NLM1AA	J9NLM1AA	10/27/07	1411
03	J9NLMCHK	J9NLM1AC	J9NLM1AC	10/27/07	1430
04	SB-438-0506	J9HWA1AC	J9HWA1AC	10/27/07	2046
05	SB-438-0708	J9HWE1AC	J9HWE1AC	10/27/07	2105
06	SB-439-0506	J9HWN1AC	J9HWN1AC	10/27/07	2123
07	SB-439-0708	J9HWT1AC	J9HWT1AC	10/27/07	2142
08	SB-440-0102	J9HWV1AC	J9HWV1AC	10/27/07	2201
09	SB-440-0203	J9HWX1AC	J9HWX1AC	10/27/07	2219
10	SB-440-0304	J9HW81AC	J9HW81AC	10/27/07	2238
11	SB-440-0506	J9HXA1AC	J9HXA1AC	10/27/07	2257
12	SB-439-0102	J9HWG1AC	J9HWG1AC	10/27/07	2316
13	SB-438-0102	J9HV01AC	J9HV01AC	10/27/07	2334
14	SB-441-0203	J9HXK1AC	J9HXK1AC	10/27/07	2353
15	SB-441-0506	J9HXT1AC	J9HXT1AC	10/28/07	0012
16	SB-441-0102	J9HXH1AC	J9HXH1AC	10/28/07	0030
17	SB-439-0304	J9HWM1AC	J9HWM1AC	10/28/07	0049
18	SB-441-0304	J9HXN1AC	J9HXN1AC	10/28/07	0108
19					
20					
21					
22					

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.: 7J20208

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	30.0 - 60.0% of mass 198	41.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	51.1
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	40.0 - 60.0% of mass 198	49.5
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	6.5
275	10.0 - 30.0% of mass 198	25.5
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	8.6
442	Greater than 40.0% of mass 198	55.3
443	17.0 - 23.0% of mass 442	10.6 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1029	10/29/07	1020
02	SB-441-0708	J9HXV1AC	J9HXV1AC	10/29/07	1809
03	SB-438-0304	J9HV91AC	J9HV91AC	10/29/07	1828
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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

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	7.500 Level 7	10.000 Level 8	12.500 Level 9	___ RRF	% RSD	
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
146 Benzo(a)pyrene	1.16862	0.94500	0.99660	1.06264	1.04702	1.14009	1.17535	1.24000	1.40500	1.13115	12.298	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.15525	1.02036	1.08130	1.16366	1.14381	1.23994	1.26288	1.32864	1.47228	1.20757	11.285	
150 Dibenz(a,h)anthracene	0.98770	0.87713	0.89316	0.96975	0.95807	1.05400	1.09661	1.15927	1.28968	1.03171	12.905	
151 Benzo(g,h,i)perylene	1.12101	0.90918	0.87601	0.98078	0.94801	1.00857	1.02246	1.07093	1.17786	1.01275	9.694	
232 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
233 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
234 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
235 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-

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
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: icvtcl Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71024a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.28668	1.28668	0.010	-0.81506	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.11216	1.11216	0.010	1.67860	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.20643	1.20643	0.010	0.09417	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.02848	1.02848	0.010	0.31240	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	0.96293	0.96293	0.010	4.91974	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.56331	0.56331	0.010	8.63212	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.48504	0.48504	0.010	2.45568	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.25695	1.25695	0.010	2.13125	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.79942	0.79942	0.010	-0.26527	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.81077	1.81077	0.010	2.60337	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.22639	1.22639	0.010	4.19358	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14093	0.14093	0.010	1.19563	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.20697	1.20697	0.010	2.13638	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.82261	0.82261	0.010	0.39586	50.00000	Averaged
M 195 Cresols, total	2.85006	2.88600	2.88600	0.010	-1.26094	50.00000	Averaged
101 Diphenylamine	0.50153	0.49164	0.49164	0.010	1.97267	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i
Lab File ID: 8SMH1026.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71026a.b\8270p.m

Injection Date: 26-OCT-2007 11:33
Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Init. Cal. Times: 15:22 17:53
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.38115	1.38115	0.010	-8.21678	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.21342	1.21342	0.010	-7.27306	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.32138	1.32138	0.010	-9.42501	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.12973	1.12973	0.010	-9.50064	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.08997	1.08997	0.010	-7.62405	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.56904	0.56904	0.010	7.70306	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.50173	0.50173	0.010	-0.90080	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.37646	1.37646	0.010	-7.17442	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.84955	0.84955	0.010	-6.55212	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.87156	1.87156	0.010	-0.66650	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.26117	1.26117	0.010	1.47659	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14957	0.14957	0.010	-4.86249	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.26630	1.26630	0.010	-2.67417	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.87015	0.87015	0.010	-5.36108	50.00000	Averaged
M 195 Cresols, total	2.85006	2.93764	2.93764	0.010	-3.07276	50.00000	Averaged
101 Diphenylamine	0.50153	0.54465	0.54465	0.010	-8.59669	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i
Lab File ID: 8SMH1027.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71027a.b\8270p.m

Injection Date: 27-OCT-2007 13:52
Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Init. Cal. Times: 15:22 17:53
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.41170	1.41170	0.010	-10.61001	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.23589	1.23589	0.010	-9.26014	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.35053	1.35053	0.010	-11.83854	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.16544	1.16544	0.010	-12.96203	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.10953	1.10953	0.010	-9.55539	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.57964	0.57964	0.010	5.98458	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.52819	0.52819	0.010	-6.22381	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.42017	1.42017	0.010	-10.57725	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.86260	0.86260	0.010	-8.18993	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.96378	1.96378	0.010	-5.62650	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.31726	1.31726	0.010	-2.90525	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.16142	0.16142	0.010	-13.17113	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.31270	1.31270	0.010	-6.43614	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.90031	0.90031	0.010	-9.01255	50.00000	Averaged
M 195 Cresols, total	2.85006	2.92446	2.92446	0.010	-2.61034	50.00000	Averaged
101 Diphenylamine	0.50153	0.55790	0.55790	0.010	-11.23763	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 29-OCT-2007 10:20
Lab File ID: 8SMH1029.D Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71029a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.38094	1.38094	0.010	-8.20028	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.21421	1.21421	0.010	-7.34356	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.31849	1.31849	0.010	-9.18538	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.11948	1.11948	0.010	-8.50778	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.08001	1.08001	0.010	-6.64054	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.49897	0.49897	0.010	19.06790	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.50747	0.50747	0.010	-2.05536	50.00000	Averaged
$ 155 2-Fluorobiphenyl	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	Averaged
$ 157 Phenol-d5	1.85917	1.93240	1.93240	0.010	-3.93874	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.28357	1.28357	0.010	-0.27316	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14936	0.14936	0.010	-4.71595	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.30061	1.30061	0.010	-5.45612	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.87349	0.87349	0.010	-5.76451	50.00000	Averaged
M 195 Cresols, total	2.85006	3.11050	3.11050	0.010	-9.13792	50.00000	Averaged
101 Diphenylamine	0.50153	0.56377	0.56377	0.010	-12.40883	50.00000	Averaged

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20208

Lab File ID (Standard): 8SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4HP8 Time Analyzed: 1133

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	152275	3.50	618398	4.39	346919	5.66
	UPPER LIMIT	304550	4.00	1236796	4.89	693838	6.16
	LOWER LIMIT	76138	3.00	309199	3.89	173460	5.16
	EPA SAMPLE NO.						
01	J9TRKBLK	136362	3.49	543574	4.39	303860	5.66
02	J9TRKCHK	137690	3.50	560815	4.39	304738	5.65
03	SB-439-0203	122086	3.49	504318	4.39	275983	5.66
04	SB-441-0708	115237	3.49	472943	4.39	261206	5.66
05	SB-441-0708	115732	3.49	495932	4.39	278588	5.66
06	SB-438-0203	110355	3.49	450106	4.39	256585	5.66
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20208

Lab File ID (Standard): 8SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4HP8 Time Analyzed: 1133

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	670016	6.74	666460	8.75	546573	10.20
	UPPER LIMIT	1340032	7.24	1332920	9.25	1093146	10.70
	LOWER LIMIT	335008	6.24	333230	8.25	273287	9.70
	EPA SAMPLE NO.						
01	J9TRKBLK	558188	6.74	550611	8.78	476788	10.23
02	J9TRKCHK	579737	6.74	577525	8.74	489817	10.18
03	SB-439-0203	507602	6.74	529041	8.74	454273	10.19
04	SB-441-0708	503766	6.74	507916	8.73	191157*	10.18
05	SB-441-0708	542935	6.75	530504	8.73	169894*	10.18
06	SB-438-0203	511352	6.74	518241	8.74	448105	10.19
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20208

Lab File ID (Standard): 8SMH1027 Date Analyzed: 10/27/07

Instrument ID: A4HP8 Time Analyzed: 1352

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	105974	3.46	427440	4.35	242484	5.62
	UPPER LIMIT	211948	3.96	854880	4.85	484968	6.12
	LOWER LIMIT	52987	2.96	213720	3.85	121242	5.12
	EPA SAMPLE NO.						
01	J9NLMBLK	116011	3.46	481608	4.35	263099	5.62
02	J9NLMCHK	109930	3.46	460977	4.35	260383	5.62
03	SB-438-0506	76800	3.46	303761	4.35	172451	5.62
04	SB-438-0708	71376	3.46	277904	4.35	167501	5.61
05	SB-439-0506	73612	3.45	291488	4.35	165956	5.62
06	SB-439-0708	68020	3.46	277550	4.35	151198	5.61
07	SB-440-0102	95378	3.46	384186	4.35	221280	5.62
08	SB-440-0203	69761	3.46	279570	4.35	154045	5.62
09	SB-440-0304	75936	3.46	298250	4.35	172088	5.62
10	SB-440-0506	86269	3.45	352608	4.35	200157	5.62
11	SB-439-0102	62201	3.46	273276	4.35	163492	5.62
12	SB-438-0102	68949	3.46	300958	4.35	183790	5.61
13	SB-441-0203	62133	3.46	270458	4.35	162959	5.62
14	SB-441-0506	65347	3.46	267150	4.35	165462	5.62
15	SB-441-0102	69082	3.46	293785	4.35	177362	5.62
16	SB-439-0304	66295	3.46	301783	4.35	187211	5.62
17	SB-441-0304	64080	3.46	282502	4.35	169227	5.62
18							
19							
20							
21							
22							

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.

8C
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20208

Lab File ID (Standard): 8SMH1027 Date Analyzed: 10/27/07

Instrument ID: A4HP8 Time Analyzed: 1352

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	461832	6.70	475282	8.67	389293	10.08
	UPPER LIMIT	923664	7.20	950564	9.17	778586	10.58
	LOWER LIMIT	230916	6.20	237641	8.17	194647	9.58
	EPA SAMPLE NO.						
01	J9NLMBLK	503142	6.70	512779	8.66	445385	10.08
02	J9NLMCHK	493969	6.70	504125	8.67	428406	10.08
03	SB-438-0506	337147	6.70	346777	8.67	305542	10.08
04	SB-438-0708	331620	6.70	350816	8.67	311121	10.09
05	SB-439-0506	317638	6.70	322694	8.67	294954	10.08
06	SB-439-0708	301767	6.70	306808	8.70	275051	10.12
07	SB-440-0102	411863	6.70	430123	8.68	374203	10.10
08	SB-440-0203	301470	6.70	312694	8.67	280867	10.08
09	SB-440-0304	331673	6.70	339440	8.67	303026	10.08
10	SB-440-0506	404513	6.70	412410	8.68	363372	10.10
11	SB-439-0102	351605	6.70	324430	8.68	276290	10.10
12	SB-438-0102	385331	6.70	367581	8.68	308565	10.10
13	SB-441-0203	334605	6.70	339885	8.67	292847	10.09
14	SB-441-0506	317638	6.70	393185	8.68	277304	10.10
15	SB-441-0102	386606	6.70	367810	8.68	312856	10.10
16	SB-439-0304	366317	6.70	363230	8.68	305047	10.11
17	SB-441-0304	360076	6.71	339160	8.68	286697	10.10
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20208

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP8 Time Analyzed: 1020

		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	SB-441-0708	71361	3.53	296049	4.43	164289	5.70
02	SB-438-0304	66216	3.53	277698	4.43	164882	5.70
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20208

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP8 Time Analyzed: 1020

		IS4 (PHN) 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	SB-441-0708	331413	6.79	328776	8.79	52166*	10.27
02	SB-438-0304	332664	6.78	328611	8.77	282425	10.26
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

SAMPLE CALC SAMPLE ID: SB-439-0102 COMPOUND: BAP

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
276290	1	15351	2	2000	1.1312	0.86	0.5	15.17

Sample Amount (g)
30.13

Tetra Tech NUS, Inc

Client Sample ID: SB-439-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J200208-006	**Work Order #...:**	J9HWG1AC	**Matrix.....:**	SO
Date Sampled...:	10/18/07 16:38	**Date Received..:**	10/20/07		
Prep Date.....:	10/24/07	**Analysis Date..:**	10/27/07		
Prep Batch #...:	7297069				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.13 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	14	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**15 J**	**380**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	52	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	57	(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.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4hp8.i\71027a.b\J9HWG1AC.D
Lab Smp Id: j9hwg1ac Client Smp ID: SB-439-0102
Inj Date : 27-OCT-2007 23:16
Operator : 001710 Inst ID: a4hp8.i
Smp Info : j9hwg1ac,71027a.b,8270p,1-827042d.sub
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4hp8.i\71027a.b\8270P.m
Meth Date : 29-Oct-2007 11:03 gruberj Quant Type: ISTD
Cal Date : 24-OCT-2007 17:53 Cal File: 8SMH1024.D
Als bottle: 32
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-827042d.sub
Target Version: 4.14
Processing Host: CANPMSSV01

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

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.130	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	CONCENTRATIONS FINAL (ug/kg)	
* 1 1,4-Dichlorobenzene-d4	152	3.455	3.456	(1.000)	62201	2.00000		(Q)
* 2 Naphthalene-d8	136	4.350	4.351	(1.000)	273276	2.00000		
* 3 Acenaphthene-d10	164	5.615	5.620	(1.000)	163492	2.00000		
* 4 Phenanthrene-d10	188	6.701	6.702	(1.000)	351605	2.00000		
* 5 Chrysene-d12	240	8.683	8.674	(1.000)	324430	2.00000		
* 6 Perylene-d12	264	10.096	10.083	(1.000)	276290	2.00000		
9 Pyridine	79	Compound Not Detected.						
10 N-Nitrosodimethylamine	74	Compound Not Detected.						
11 Ethyl methacrylate	69	Compound Not Detected.						
12 3-Chloropropionitrile	54	Compound Not Detected.						
13 Malononitrile	66	Compound Not Detected.						
209 Benzaldehyde	77	Compound Not Detected.						
21 Aniline	93	Compound Not Detected.						
22 Phenol	94	Compound Not Detected.						
23 bis(2-Chloroethyl)ether	93	Compound Not Detected.						
24 2-Chlorophenol	128	Compound Not Detected.						
26 1,3-Dichlorobenzene	146	Compound Not Detected.						
27 1,4-Dichlorobenzene	146	Compound Not Detected.						

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	CONCENTRATIONS FINAL (ug/kg)
115 Phenanthrene	178	6.716	6.721	(1.002)	13793	0.07256	9.6330
116 Anthracene	178	Compound Not Detected.					
119 Carbazole	167	Compound Not Detected.					
120 Di-n-Butylphthalate	149	Compound Not Detected.					
123 Fluoranthene	202	7.601	7.592	(1.134)	29798	0.14651	19.450
124 Benzidine	184	Compound Not Detected.					
125 Pyrene	202	7.774	7.765	(0.895)	42270	0.21297	28.274
131 Butylbenzylphthalate	149	Compound Not Detected.					
133 3,3'-Dimethoxybenzidine	244	Compound Not Detected.					
135 3,3'-Dichlorobenzidine	252	Compound Not Detected.					
136 Benzo(a)Anthracene	228	8.673	8.664	(0.999)	16973	0.08972	11.911(M)
137 Chrysene	228	8.702	8.693	(1.002)	24839	0.14136	18.767
138 4,4'-Methylene bis(o-chloroan	231	Compound Not Detected.					
139 bis(2-ethylhexyl)Phthalate	149	Compound Not Detected.					
140 Di-n-octylphthalate	149	Compound Not Detected.					
141 Benzo(b)fluoranthene	252	9.659	9.645	(0.957)	27084	0.15528	20.615(M)
142 Benzo(k)fluoranthene	252	Compound Not Detected.					
146 Benzo(a)pyrene	252	10.034	10.025	(0.994)	15351	0.09824	13.042
149 Indeno(1,2,3-cd)pyrene	276	11.640	11.636	(1.153)	13597	0.08151	10.821
150 Dibenz(a,h)anthracene	278	Compound Not Detected.					
151 Benzo(g,h,i)perylene	276	12.121	12.102	(1.201)	16132	0.11531	15.308(QM)
198 1,4-Dioxane	88	Compound Not Detected.					
$ 154 Nitrobenzene-d5	82	3.831	3.836	(0.881)	177238	2.60864	346.32
$ 155 2-Fluorobiphenyl	172	5.110	5.110	(0.910)	331397	3.15652	419.05
$ 156 Terphenyl-d14	244	7.851	7.847	(0.904)	557676	4.31188	572.44
$ 157 Phenol-d5	99	3.172	3.168	(0.918)	240595	4.16102	552.41
$ 158 2-Fluorophenol	112	2.604	2.586	(0.754)	168926	4.24322	563.32
$ 159 2,4,6-Tribromophenol	330	6.187	6.192	(1.102)	53290	4.57036	606.75
$ 186 2-Chlorophenol-d4	132	3.306	3.302	(0.957)	163107	4.25236	564.54
$ 187 1,2-Dichlorobenzene-d4	152	3.566	3.567	(1.032)	62734	2.44241	324.25
M 195 Cresols, total	100	Compound Not Detected.					
101 Diphenylamine	169	Compound Not Detected.					

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **M. MARTIN** **DATE:** **NOVEMBER 21, 2007**

FROM: **PAULA DIMATTEI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – BENZO(a)PYRENE**
LOCKHEED MIDDLE RIVER COMPLEX
SAMPLE DELIVERY GROUP (SDG): 7J20209

SAMPLES: 20/Soil/

SB-442-0102	SB-442-0203	SB-442-0304	SB-442-0506	SB-442-0708
SB-443-0102	SB-443-0203	SB-443-0304	SB-443-0506	SB-443-0708
SB-444-0102	SB-444-0203	SB-444-0304	SB-444-0506	SB-444-0708
SB-445-0102	SB-445-0203	SB-445-0304	SB-445-0506	SB-445-0708

Overview

The sample set for SDG 7J20209, 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 19, 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 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.

FOR

Tetra Tech NUS
Paula L. DiMattei
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: 00885

SDG: 7J20209 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-442-0102RE	nsample	SB-442-0203	nsample	SB-442-0304
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200209001	lab_id	A7J200209002	lab_id	A7J200209003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	85.0	Pct_Solids	85.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

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

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: 7J20209 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-442-0506	nsample	SB-442-0708	nsample	SB-443-0102
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200209004	lab_id	A7J200209005	lab_id	A7J200209006
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	84.0	Pct_Solids	86.0	Pct_Solids	87.0
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	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	53	J	P

PROJ_NO: 00885

SDG: 7J20209 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-443-0203	nsample	SB-443-0304	nsample	SB-443-0506
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200209007	lab_id	A7J200209008	lab_id	A7J200209009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	91.5	Pct_Solids	89.0	Pct_Solids	85.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	1.4	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: 7J20209 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-443-0708	nsample	SB-444-0102	nsample	SB-444-0203
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200209010	lab_id	A7J200209011	lab_id	A7J200209012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	87.0	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	8.6	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	32	J	P

PROJ_NO: 00885

SDG: 7J20209 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-444-0304	nsample	SB-444-0506	nsample	SB-444-0708
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200209013	lab_id	A7J200209014	lab_id	A7J200209015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	87.0	Pct_Solids	79.0	Pct_Solids	79.0
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	

PROJ_NO: 00885

SDG: 7J20209 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-445-0102	nsample	SB-445-0203	nsample	SB-445-0304
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200209016	lab_id	A7J200209017	lab_id	A7J200209018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	89.0	Pct_Solids	87.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	17	J	P

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: 7J20209 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-445-0506	nsample	SB-445-0708
samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200209019	lab_id	A7J200209020
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	81.0
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

Tetra Tech NUS, Inc

Client Sample ID: SB-442-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-001 **Work Order #...:** J9HV23AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:09 **Date Received..:** 10/20/07
Prep Date.....: 10/31/07 **Analysis Date..:** 11/01/07
Prep Batch #...: 7304330
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**15 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	67	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	79	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-442-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-002 **Work Order #...:** J9HV81AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:11 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	54	(24 - 112)
2-Fluorobiphenyl	58	(34 - 110)
Terphenyl-d14	75	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	54	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-442-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-003 **Work Order #...:** J9HWD1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:13 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	58	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	60	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	68	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-442-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-004 **Work Order #...:** J9HWF1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:15 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	68	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-442-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-005 **Work Order #...:** J9HWK1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:17 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

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	53	(34 - 110)
Terphenyl-d14	74	(41 - 119)
Phenol-d5	57	(28 - 110)
2-Fluorophenol	57	(26 - 110)
2,4,6-Tribromophenol	56	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-443-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-006 **Work Order #...:** J9HWP1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:20 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**53 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	76	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	69	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-443-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-007 **Work Order #...:** J9HWW1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:22 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 8.5 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	82	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-443-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-008 **Work Order #...:** J9HW01AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:24 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	60	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	60	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-443-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-009 **Work Order #...:** J9HW21AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:26 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	75	(24 - 112)
2-Fluorobiphenyl	77	(34 - 110)
Terphenyl-d14	94	(41 - 119)
Phenol-d5	76	(28 - 110)
2-Fluorophenol	77	(26 - 110)
2,4,6-Tribromophenol	73	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-443-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-010 **Work Order #...:** J9HW31AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:28 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	71	(34 - 110)
Terphenyl-d14	92	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	52	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-444-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-011 **Work Order #...:** J9HW41AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:30 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**8.6 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	70	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-444-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-012 **Work Order #...:** J9HW61AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:32 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**32 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	88	(41 - 119)
Phenol-d5	59	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	63	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-444-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-013 **Work Order #...:** J9HW91AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:34 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

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	68	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	59	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-444-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-014 **Work Order #...:** J9HXD1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:36 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 21 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	66	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	67	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	71	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-444-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-015 **Work Order #...:** J9HXF1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:38 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 21 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	46	(24 - 112)
2-Fluorobiphenyl	49	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	50	(28 - 110)
2-Fluorophenol	48	(26 - 110)
2,4,6-Tribromophenol	48	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-445-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-016 **Work Order #...:** J9HXG1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:45 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**17 J**	**400**	**ug/kg**	**1.6**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	82	(41 - 119)
Phenol-d5	60	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-445-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-017 **Work Order #...:** J9HXJ1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:47 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	36	(24 - 112)
2-Fluorobiphenyl	41	(34 - 110)
Terphenyl-d14	55	(41 - 119)
Phenol-d5	42	(28 - 110)
2-Fluorophenol	38	(26 - 110)
2,4,6-Tribromophenol	41	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-445-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-018 **Work Order #...:** J9H0R1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:49 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	55	(24 - 112)
2-Fluorobiphenyl	55	(34 - 110)
Terphenyl-d14	74	(41 - 119)
Phenol-d5	59	(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-445-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-019 **Work Order #...:** J9H0T1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:51 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	56	(24 - 112)
2-Fluorobiphenyl	58	(34 - 110)
Terphenyl-d14	78	(41 - 119)
Phenol-d5	59	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	58	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-445-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200209-020 **Work Order #...:** J9H0V1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 10:53 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7297510
Dilution Factor: 1
% Moisture.....: 19 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	60	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	57	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

15

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
Tetra Tech	M. Machin	10/19/07	227035
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 2
20251 Century Blvd #200	301-528-3022		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Germantown / MD / 20874	S. Hadley	K. Eves	
Project Name and Location (State)	**Carrier/Waybill Number**		
LMC MA	Courier		
Contract/Purchase Order/Quote No.			
112IC00985			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): 8270	Special Instructions/ Conditions of Receipt
SB-442-0102	10/19	1009				X	1						X	Block G - Benzo(a)pyrene
-0203		1011												
-0304		1013												
-0506		1015												
442-0708		1017												
443-0102		1020												
-0203		1022												
-0304		1024												
-0506		1026												
443-0708		1028												
444-0102		1030												
SB-444-0203	10/19	1032				X	1						X	Benzo(a)pyrene

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Stnd

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.		10/19/07	1430		10-19-07	1430
2.					10-20-07	1050
3.						

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

Chain of Custody Record

SEVERN TRENT STL
Severn Trent Laboratories, Inc.

16

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
Tetra Tech	M. Martin	10/19/07	227036
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 2 of 2
20251 Century Blvd #300	301-528-3022		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Germantown / MD / 20874	S. Hadley	K. Ives	
Project Name and Location (State)	**Carrier/Waybill Number**		
LMC MR	Courier		
Contract/Purchase Order/Quote No.			
112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): 8270	Special Instructions/ Conditions of Receipt
SB-444-0304	10/19	1034				X	1						X	Benzo(a)pyrene
-0506		1036												
444-0709		1038												
445-0102		1045												
0203		1047												
0304		1049												
0506		1051												
445-0709		1053												
SB-445-0304	10/19	1049				X	1						X	Benzo(a)pyrene

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STD

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/19/07	1430	1. Received By	10-19-07	1430
2. Relinquished By			2. Received By	10-20-07	1050
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

TestAmerica Cooler Receipt Form/Narrative Lot Number: ATS200209
North Canton Facility

Client: TetraTech Project: _____ Quote#: 77083

Cooler Received on: 10-20-07 Opened on: 10-20-07 By: _____ (Signature)

FedEx ☑ Client Drop Off ☐ UPS ☐ DHL ☐ FAS ☐ TestAmerica Courier ☐
Stetson ☐ US Cargo ☐ Other: _____

TestAmerica Cooler No# _____ Foam Box ☐ Client Cooler ☑ Other _____

1. Were custody seals on the outside of the cooler? Yes ☑ No ☐ Intact? Yes ☑ No ☐ NA ☐
   If YES, Quantity 1
   Were custody seals on the outside of cooler signed and dated? Yes ☑ No ☐ NA ☐
   Were custody seals on the bottles? Yes ☐ No ☑
   If YES, are there any exceptions _____
2. Shipper's packing slip attached to this form? Yes ☑ No ☐
3. Did custody papers accompany the samples? Yes ☑ No ☐ Relinquished by client? Yes ☑ No ☐
4. Did you sign the custody papers in the appropriate place? Yes ☑ No ☐
5. Packing material used: Bubble Wrap ☑ Foam ☐ None ☐ Other: _____
6. Cooler temperature upon receipt 2.9 °C (see back of form for multiple coolers/temp)

METHOD: IR ☑ Other ☐ _____

COOLANT: Wet Ice ☑ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐

7. Did all bottles arrive in good condition (Unbroken)? Yes ☑ No ☐
8. Could all bottle labels and/or tags be reconciled with the COC? Yes ☑ No ☐
9. Were samples at the correct pH upon receipt? Yes ☐ No ☐ NA ☑
10. Were correct bottles used for the tests indicated? Yes ☑ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☐ NA ☑
12. Sufficient quantity received to perform indicated analyses? Yes ☑ No ☐
13. Was a Trip Blank present in the cooler? Yes ☐ No ☑ Were VOAs on the COC? Yes ☐ No ☑

Contacted PM PDC Date: 10/20/07 by: KM via Voice Mail ☐ Verbal ☑ Other ☐
Concerning: #14

14. CHAIN OF CUSTODY

The following discrepancies occurred:
MS/MSD not indicated on COC SD-445-0304 @ 1049
listed twice on COC 227036 - will log as MS/MSD.

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in sample receiving to meet recommended pH level(s). *Nitric Acid Lot #042607-HNO3 - Sulfuric Acid Lot # 092006-H2SO4; Sodium Hydroxide Lot # 122805 -NaOH; Hydrochloric Acid Lot # 092006-HCl; Sodium Hydroxide and Zinc Acetate Lot # 050205-CH3COO2ZN/NaOH*
What time was preservative added to samples? _____
Sample(s) _____ were received with bubble > 6 mm in diameter (Notify PM)

Client ID	pH	Date	Initials

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler	Temp °C	Method	Coolant

Discrepancies Cont'd

CASE NARRATIVE

7J20209

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 20, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J200209.

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 07, 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 temperature of the cooler upon sample receipt was 2.9°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.

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 reprepparation 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.

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20209

Lot #: A7J200209

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-442-0102 RE-2	57	64	89	67	63	79	00
02	SB-442-0203	54	58	75	58	54	64	00
03	SB-442-0304	57	58	79	60	60	68	00
04	SB-442-0506	62	61	79	61	61	68	00
05	SB-442-0708	57	53	74	57	57	56	00
06	SB-443-0102	60	62	76	65	62	69	00
07	SB-443-0203	59	63	82	64	62	64	00
08	SB-443-0304	59	60	79	65	62	60	00
09	SB-443-0506	75	77	94	76	77	73	00
10	SB-443-0708	64	71	92	64	65	52	00
11	SB-444-0102	61	65	90	65	64	70	00
12	SB-444-0203	59	68	88	59	60	63	00
13	SB-444-0304	68	68	84	65	67	59	00
14	SB-444-0506	66	69	93	67	67	71	00
15	SB-444-0708	46	49	89	50	48	48	00
16	SB-445-0102	60	65	82	60	61	64	00
17	SB-445-0203	36	41	55	42	38	41	00
18	SB-445-0304	55	55	74	59	57	65	00
19	SB-445-0506	56	58	78	59	60	58	00
20	SB-445-0708	61	60	84	61	62	57	00
21	INTRA-LAB QC RE-1	80	78	102	80	81	95	00
22	METHOD BLK. J9QGH1AA	65	64	78	66	65	49	00
23	METHOD BLK. J98R61AA	80	80	106	83	86	83	00
24	LCS J9QGH1AC	58	64	78	64	62	62	00
25	LCS J98R61AC	72	73	90	73	76	83	00
26	SB-445-0304 D	58	60	80	63	60	71	00
27	LAB MS/MSD D	73	77	92	75	72	86	00

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20209

Lot #: A7J200209

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-445-0304 S	53	57	76	57	54	68	00
02	LAB MS/MSD S	73	74	88	75	76	85	00

SURROGATES		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

FORM II

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.

J9QGH1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J20209

Lab File ID: J9QGH1AA.

Lot Number: A7J200209

Date Analyzed: 10/26/07

Time Analyzed: 07:14

Matrix: SOLID

Date Extracted:10/25/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-442-0203	J9HV81AC	J9HV81AC.	10/26/07	08:57
02	SB-442-0304	J9HWD1AC	J9HWD1AC.	10/26/07	09:14
03	SB-442-0506	J9HWF1AC	J9HWF1AC.	10/26/07	09:32
04	SB-442-0708	J9HWK1AC	J9HWK1AC.	10/26/07	09:49
05	SB-443-0102	J9HWP1AC	J9HWP1AC.	10/26/07	10:06
06	SB-443-0203	J9HWW1AC	J9HWW1AC.	10/26/07	10:23
07	SB-443-0304	J9HW01AC	J9HW01AC.	10/26/07	10:41
08	SB-443-0506	J9HW21AC	J9HW21AC.	10/26/07	15:34
09	SB-443-0708	J9HW31AC	J9HW31AC.	10/26/07	15:51
10	SB-444-0102	J9HW41AC	J9HW41AC.	10/26/07	16:08
11	SB-444-0203	J9HW61AC	J9HW61AC.	10/26/07	16:26
12	SB-444-0304	J9HW91AC	J9HW91AC.	10/26/07	16:43
13	SB-444-0506	J9HXD1AC	J9HXD1AC.	10/26/07	17:00
14	SB-444-0708	J9HXF1AC	J9HXF1AC.	10/26/07	17:17
15	SB-445-0102	J9HXG1AC	J9HXG1AC.	10/26/07	17:35
16	SB-445-0203	J9HXJ1AC	J9HXJ1AC.	10/26/07	17:52
17	SB-445-0304	J9H0R1AC	J9H0R1AC.	10/26/07	07:48
18	SB-445-0304	J9H0R1AF S	J9H0R1AF.	10/26/07	08:05
19	SB-445-0304	J9H0R1AG D	J9H0R1AG.	10/26/07	08:23
20	SB-445-0506	J9H0T1AC	J9H0T1AC.	10/26/07	18:09
21	SB-445-0708	J9H0V1AC	J9H0V1AC.	10/26/07	18:27
22	CHECK SAMPLE	J9QGH1AC C	J9QGH1AC.	10/26/07	07:31
23					
24					
25					
26					
27					
28					
29					
30					

COMMENTS:

FORM IV

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J98R61AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J20209

Lab File ID: J98R61AA.

Lot Number: A7J200209

Date Analyzed: 11/01/07

Time Analyzed: 12:04

Matrix: SOLID

Date Extracted:10/31/07

GC Column: DB .625 ID: .32

Extraction Method: 3550B

Instrument ID: HP9

Level:(low/med) LOW

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

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-442-0102	J9HV23AC	J9HV23AC.	11/01/07	13:44
02	LAB MS/MSD	J902F1AQ S	J902F1AQ.	11/01/07	14:24
03	LAB MS/MSD	J902F1AR D	J902F1AR.	11/01/07	14:44
04	INTRA-LAB QC	J902F2AM	J902F2AM.	11/01/07	14:04
05	CHECK SAMPLE	J98R61AC C	J98R61AC.	11/01/07	12:24
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

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.: SDG No.: 7J20209

Lab File ID: 2DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4AG2 DFTPP Injection Time: 1212

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.5
68	Less than 2.0% of mass 69	0.6 (1.6)1
69	Mass 69 relative abundance	40.3
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	50.2
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	24.7
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	10.9
442	Greater than 40.0% of mass 198	79.1
443	17.0 - 23.0% of mass 442	14.9 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD009	L9	2SHHH1024	10/24/07	1223
02	SSTD008	L8	2SHH1024	10/24/07	1240
03	SSTD007	L7	2SH1024	10/24/07	1257
04	SSTD006	L6	2SMH1024	10/24/07	1315
05	SSTD005	L5	2SMM1024	10/24/07	1332
06	SSTD004	L4	2SM1024	10/24/07	1349
07	SSTD003	L3	2SML1024	10/24/07	1406
08	SSTD002	L2	2SL1024	10/24/07	1424
09	SSTD001	L1	2SLL1024	10/24/07	1441
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J20209

Lab File ID: 2DF1026 DFTPP Injection Date: 10/26/07

Instrument ID: A4AG2 DFTPP Injection Time: 0642

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.1
68	Less than 2.0% of mass 69	0.6 (1.6)1
69	Mass 69 relative abundance	39.1
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	40.0 - 60.0% of mass 198	49.3
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	6.6
275	10.0 - 30.0% of mass 198	25.8
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	11.8
442	Greater than 40.0% of mass 198	82.3
443	17.0 - 23.0% of mass 442	15.6 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	2SMH1026	10/26/07	0653
02	J9QGHBLK	J9QGH1AA	J9QGH1AA	10/26/07	0714
03	J9QGHCHK	J9QGH1AC	J9QGH1AC	10/26/07	0731
04	SB-445-0304	J9H0R1AC	J9H0R1AC	10/26/07	0748
05	SB-445-0304	J9H0R1AF	J9H0R1AF	10/26/07	0805
06	SB-445-0304	J9H0R1AG	J9H0R1AG	10/26/07	0823
07	SB-442-0203	J9HV81AC	J9HV81AC	10/26/07	0857
08	SB-442-0304	J9HWD1AC	J9HWD1AC	10/26/07	0914
09	SB-442-0506	J9HWF1AC	J9HWF1AC	10/26/07	0932
10	SB-442-0708	J9HWK1AC	J9HWK1AC	10/26/07	0949
11	SB-443-0102	J9HWP1AC	J9HWP1AC	10/26/07	1006
12	SB-443-0203	J9HWW1AC	J9HWW1AC	10/26/07	1023
13	SB-443-0304	J9HW01AC	J9HW01AC	10/26/07	1041
14	SB-443-0506	J9HW21AC	J9HW21AC	10/26/07	1534
15	SB-443-0708	J9HW31AC	J9HW31AC	10/26/07	1551
16	SB-444-0102	J9HW41AC	J9HW41AC	10/26/07	1608
17	SB-444-0203	J9HW61AC	J9HW61AC	10/26/07	1626
18	SB-444-0304	J9HW91AC	J9HW91AC	10/26/07	1643
19	SB-444-0506	J9HXD1AC	J9HXD1AC	10/26/07	1700
20	SB-444-0708	J9HXF1AC	J9HXF1AC	10/26/07	1717
21	SB-445-0102	J9HXG1AC	J9HXG1AC	10/26/07	1735
22	SB-445-0203	J9HXJ1AC	J9HXJ1AC	10/26/07	1752

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.: 7J20209

Lab File ID: 2DF1026 DFTPP Injection Date: 10/26/07

Instrument ID: A4AG2 DFTPP Injection Time: 0642

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.1
68	Less than 2.0% of mass 69	0.6 (1.6)1
69	Mass 69 relative abundance	39.1
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	40.0 - 60.0% of mass 198	49.3
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	6.6
275	10.0 - 30.0% of mass 198	25.8
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	11.8
442	Greater than 40.0% of mass 198	82.3
443	17.0 - 23.0% of mass 442	15.6 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-445-0506	J9H0T1AC	J9H0T1AC	10/26/07	1809
02	SB-445-0708	J9H0V1AC	J9H0V1AC	10/26/07	1827
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J20209

Lab File ID: 9DF1030A DFTPP Injection Date: 10/30/07

Instrument ID: A4HP9 DFTPP Injection Time: 1224

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	48.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	77.6
70	Less than 2.0% of mass 69	0.2 (0.3)1
127	40.0 - 60.0% of mass 198	50.0
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	25.3
365	Greater than 1.0% of mass 198	2.4
441	Present, but less than mass 443	1.1
442	Greater than 40.0% of mass 198	51.6
443	17.0 - 23.0% of mass 442	10.0 (19.4)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	9SMH1030	10/30/07	1241
02	SSTD005	L5	9SMM1030	10/30/07	1304
03	SSTD004	L4	9SM1030	10/30/07	1324
04	SSTD003	L3	9SML1030	10/30/07	1344
05	SSTD002	L2	9SL1030	10/30/07	1404
06	SSTD001	L1	9SLL1030	10/30/07	1424
07	SSTD007	L7	9SH1030	10/30/07	1444
08	SSTD008	L8	9SHH1030	10/30/07	1504
09	SSTD009	L9	9HHH1030	10/30/07	1524
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J20209

Lab File ID: 9DF1101 DFTPP Injection Date: 11/01/07

Instrument ID: A4HP9 DFTPP Injection Time: 1107

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	76.8
70	Less than 2.0% of mass 69	0.1 (0.2)1
127	40.0 - 60.0% of mass 198	49.2
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	6.6
275	10.0 - 30.0% of mass 198	25.6
365	Greater than 1.0% of mass 198	2.8
441	Present, but less than mass 443	1.2
442	Greater than 40.0% of mass 198	52.9
443	17.0 - 23.0% of mass 442	10.3 (19.4)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	9SMH1101	11/01/07	1143
02	J98R6BLK	J98R61AA	J98R61AA	11/01/07	1204
03	J98R6CHK	J98R61AC	J98R61AC	11/01/07	1224
04	SB-442-0102	J9HV23AC	J9HV23AC	11/01/07	1344
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-2007 15:56
End Cal Date : 24-OCT-2007 14:41
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m
Last Edit : 24-Oct-2007 15:10 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						
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
146 Benzo(a)pyrene	1.13356	0.91950	0.94978	0.99564	1.01295	1.09296			
	1.09655	1.13883	1.25011				1.06554	9.852	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.11314	0.98476	1.04225	1.09901	1.11743	1.20553			
	1.21453	1.25502	1.37265				1.15604	10.210	
150 Dibenz(a,h)anthracene	0.95549	0.85855	0.90658	0.93889	0.95736	1.03913			
	1.04814	1.07257	1.18011				0.99520	9.898	
151 Benzo(g,h,i)perylene	1.07565	0.85637	0.88607	0.92765	0.94183	1.01237			
	1.02211	1.05245	1.14437				0.99099	9.537	
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-2007 15:56
End Cal Date : 24-OCT-2007 14:41
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m
Last Edit : 24-Oct-2007 15:10 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						
203 Diphenyl ether	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
204 6-Methylchrysene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
205 Benzenethiol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
207 Indene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
208 Dibenz(a,j)acridine	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
209 Benzaldehyde	+++++	0.89311	0.86871	0.91715	0.90285	0.87889			
	0.70027	0.66323	0.45280				0.78463	21.065	<-
210 Caprolactam	+++++	0.06663	0.08110	0.08918	0.09199	0.09610			
	0.09805	0.09910	0.10732				0.09118	13.771	<-
211 1,1'-Biphenyl	+++++	1.35114	1.32679	1.44613	1.39888	1.50586			
	1.46566	1.18601	1.28964				1.37126	7.636	<-
212 Atrazine	+++++	0.15241	0.16147	0.17413	0.16416	0.17515			
	0.16931	0.15614	0.16758				0.16504	4.921	<-
213 Benzothiazole	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
214 1,3-Dimethyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-2007 15:56
End Cal Date : 24-OCT-2007 14:41
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m
Last Edit : 24-Oct-2007 15:10 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						
215 Phenyl ether	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
216 1,3-Diethyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
217 1,3-Dibutyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	
218 1,1,3,3-Tetramethyl-2-Thioure	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
219 o-Benzyl Phenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
220 Diphenyl Thiourea	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
221 Hexabromobenzene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
222 Dibenz(a,h)acridine	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
223 1,2-bis(2-chloroethoxy)ethane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
224 Acrylamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
225 Methyl parathion	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-2007 15:56
End Cal Date : 24-OCT-2007 14:41
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m
Last Edit : 24-Oct-2007 15:10 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						
226 Parathion	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
227 Isodrin	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
228 Kepone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
M 229 Famphur,Total	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
230 Famphur 2	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
231 2-Chloroacetophenone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
232 2-Methylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 3-Methylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Methylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 Tributyl phosphate	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
236 Phenyl sulfone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-2007 15:56
End Cal Date : 24-OCT-2007 14:41
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m
Last Edit : 24-Oct-2007 15:10 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						
237 3,4-Dichloronitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
238 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
239 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
240 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
241 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
242 2,5-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
243 Octachlorostyrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
244 Octachlorocyclopentene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
$ 154 Nitrobenzene-d5	0.30804	0.27552	0.29745	0.31452	0.28914	0.30925			
	0.29952	0.30810	0.33327				0.30387	5.362	
$ 155 2-Fluorobiphenyl	1.33985	1.16495	1.13145	1.19085	1.16625	1.25055			
	1.18576	1.12936	1.18483				1.19376	5.488	
$ 156 Terphenyl-d14	0.94440	0.76679	0.76661	0.81130	0.80695	0.87581			
	0.83517	0.78772	0.76670				0.81794	7.309	

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 17-OCT-2007 15:56
End Cal Date : 24-OCT-2007 14:41
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4ag2.i\71024A.b\8270p.m
Last Edit : 24-Oct-2007 15:10 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						
$ 157 Phenol-d5	1.50550	1.37070	1.43625	1.50009	1.49475	1.56479			
	1.56974	1.60690	1.70714				1.52843	6.417	
$ 158 2-Fluorophenol	1.31667	1.12942	1.08277	1.15012	1.16604	1.19086			
	1.20549	1.23266	1.31120				1.19836	6.564	
$ 159 2,4,6-Tribromophenol	+++++	0.12726	0.13348	0.14626	0.15349	0.15951			
	0.16217	0.16852	0.18616				0.15460	12.310	<-
$ 186 2-Chlorophenol-d4	+++++	1.20269	1.20595	1.28291	1.27363	1.32482			
	1.33266	1.37145	1.44511				1.30490	6.276	<-
$ 187 1,2-Dichlorobenzene-d4	+++++	0.84041	0.80127	0.82384	0.83008	0.84717			
	0.80762	0.81688	0.86213				0.82867	2.481	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2007 12:41
End Cal Date : 30-OCT-2007 15:24
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp9.i\71030a.b\8270p.m
Last Edit : 30-Oct-2007 15:41 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	1.17883	1.04508	1.05898	1.09823	1.16043	1.15001			
	1.13563	1.17639	1.31422				1.14642	6.942	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.17366	1.02584	1.02654	1.14200	1.18909	1.17997			
	1.17998	1.22297	1.35167				1.16575	8.491	
150 Dibenz(a,h)anthracene	0.98125	0.84014	0.85099	0.94498	0.98858	0.99795			
	1.00879	1.05286	1.16524				0.98120	10.081	
151 Benzo(g,h,i)perylene	1.05489	0.89488	0.93431	0.95338	0.99831	0.98644			
	0.97646	0.99162	1.07945				0.98553	5.761	
230 2-Chloroacetophenone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2007 12:41
End Cal Date : 30-OCT-2007 15:24
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp9.i\71030a.b\8270p.m
Last Edit : 30-Oct-2007 15:41 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						
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
203 Diphenyl ether	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
204 6-Methylchrysene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
205 Benzenethiol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
207 Indene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
208 Dibenz(a,j)acridine	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
214 Dibenz(a,h)acridine	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
209 Benzaldehyde	+++++	1.72728	1.78140	1.78983	1.66536	1.48661			
	1.40413	1.17824	+++++				1.57612	14.527	<-
210 Caprolactam	+++++	+++++	0.10884	0.10942	0.13552	0.12964			
	0.12241	0.12715	0.13695				0.12427	9.212	<-
211 1,1'-Biphenyl	+++++	1.28557	1.41975	1.39359	1.47489	1.46738			
	1.54754	1.67182	1.88033				1.51761	12.185	<-
212 Atrazine	+++++	0.18356	0.17733	0.21045	0.21238	0.19535			
	0.18922	0.18255	0.19476				0.19320	6.624	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2007 12:41
End Cal Date : 30-OCT-2007 15:24
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp9.i\71030a.b\8270p.m
Last Edit : 30-Oct-2007 15:41 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	7.500 Level 7	10.000 Level 8	12.500 Level 9	___ RRF	% RSD	
220 Diphenyl Thiourea	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
216 1,3-Diethyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
218 1,1,3,3-Tetramethyl-2-Thioure	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
217 1,3-Dibutyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
221 Hexabromobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
219 o-Benzyl Phenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
223 bis(2-chloroethoxy)ethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
224 Benzothiazole	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
225 1,3-Dimethyl-2-Thiourea	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
226 Methyl parathion	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
227 Parathion	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2007 12:41
End Cal Date : 30-OCT-2007 15:24
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp9.i\71030a.b\8270p.m
Last Edit : 30-Oct-2007 15:41 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						
228 Isodrin	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
229 Kepone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
231 Phenyl sulfone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
232 3,4-Dichloronitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
$ 154 Nitrobenzene-d5	0.69373	0.59498	0.58985	0.59807	0.59110	0.61115			
	0.56886	0.57322	0.62409				0.60501	6.174	
$ 155 2-Fluorobiphenyl	1.51550	1.21575	1.21350	1.24025	1.22858	1.25065			
	1.22786	1.31041	1.45921				1.29574	8.741	
$ 156 Terphenyl-d14	0.99219	0.79290	0.80027	0.81625	0.83623	0.88055			
	0.83568	0.86786	0.96175				0.86485	8.098	
$ 157 Phenol-d5	2.66058	2.08142	2.01861	2.20187	2.28907	2.24855			
	2.25533	2.22206	2.55023				2.28086	8.995	
$ 158 2-Fluorophenol	1.51317	1.43612	1.49964	1.43928	1.48566	1.51792			
	1.48720	1.46537	1.66287				1.50080	4.492	
$ 159 2,4,6-Tribromophenol	0.10275	0.11226	0.11939	0.12994	0.14382	0.13927			
	0.15043	0.15212	+++++				0.13125	13.934	<-
$ 186 2-Chlorophenol-d4	1.43000	1.22400	1.14873	1.23142	1.30464	1.27312			
	1.25159	1.25125	1.41752				1.28136	7.111	

STL North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2007 12:41
End Cal Date : 30-OCT-2007 15:24
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\cansvr11\dd\chem\MSS\a4hp9.i\71030a.b\8270p.m
Last Edit : 30-Oct-2007 15:41 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					
$ 187 1,2-Dichlorobenzene-d4	1.00721	0.87081	0.86697	0.83187	0.84303	0.83786		
	0.79578	0.78620	0.91668				0.86182	7.801

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i Injection Date: 26-OCT-2007 06:53
Lab File ID: 2SMH1026.D Init. Cal. Date(s): 17-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:56 14:41
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71026A.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
146 Benzo(a)pyrene	1.06554	1.07886	1.07886	0.010	-1.24937	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.15604	1.21994	1.21994	0.010	-5.52819	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.99520	1.03062	1.03062	0.010	-3.55865	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.99099	1.02047	1.02047	0.010	-2.97552	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.30387	0.30639	0.30639	0.010	-0.82935	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.19376	1.24421	1.24421	0.010	-4.22587	50.00000	Averaged
$ 156 Terphenyl-d14	0.81794	0.86631	0.86631	0.010	-5.91389	50.00000	Averaged
$ 157 Phenol-d5	1.52843	1.49359	1.49359	0.010	2.27930	50.00000	Averaged
$ 158 2-Fluorophenol	1.19836	1.20823	1.20823	0.010	-0.82385	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.15460	0.16507	0.16507	0.010	-6.76783	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.30490	1.29772	1.29772	0.010	0.55008	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82867	0.82929	0.82929	0.010	-0.07473	50.00000	Averaged
M 195 Cresols, total	2.49329	2.68822	2.68822	0.010	-7.81826	50.00000	Averaged
101 Diphenylamine	0.51130	0.53341	0.53341	0.010	-4.32578	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp9.i Injection Date: 01-NOV-2007 11:43
Lab File ID: 9SMH1101.D Init. Cal. Date(s): 30-OCT-2007 31-OCT-2007
Analysis Type: Init. Cal. Times: 12:41 14:42
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp9.i\71101a.b\8270p.m

COMPOUND	RRF / AMOUNT	RFS	CCAL RRFS	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.29764	1.24963	1.24963	0.010	3.69960	50.00000	Averaged
146 Benzo(a)pyrene	1.14642	1.13284	1.13284	0.010	1.18508	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.16575	1.18928	1.18928	0.010	-2.01892	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.98120	1.00196	1.00196	0.010	-2.11621	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.98553	0.98339	0.98339	0.010	0.21734	50.00000	Averaged
198 1,4-Dioxane	0.76120	0.70124	0.70124	0.010	7.87729	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.60501	0.60005	0.60005	0.010	0.81966	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.29574	1.21460	1.21460	0.010	6.26242	50.00000	Averaged
$ 156 Terphenyl-d14	0.86485	0.87195	0.87195	0.010	-0.82072	50.00000	Averaged
$ 157 Phenol-d5	2.28086	2.17017	2.17017	0.010	4.85281	50.00000	Averaged
$ 158 2-Fluorophenol	1.50080	1.47999	1.47999	0.010	1.38722	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.13125	0.14288	0.14288	0.010	-8.86278	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.28136	1.24972	1.24972	0.010	2.46952	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.86182	0.83109	0.83109	0.010	3.56590	50.00000	Averaged
M 195 Cresols, total	3.13362	3.03674	3.03674	0.010	3.09181	50.00000	Averaged
101 Diphenylamine	0.53245	0.52691	0.52691	0.010	1.04118	50.00000	Averaged

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20209

Lab File ID (Standard): 2SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4AG2 Time Analyzed: 0653

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	304679	3.60	1259272	4.50	623790	5.77
	UPPER LIMIT	609358	4.10	2518544	5.00	1247580	6.27
	LOWER LIMIT	152340	3.10	629636	4.00	311895	5.27
	EPA SAMPLE NO.						
01	J9QGHBLK	386701	3.60	1658761	4.50	907145	5.77
02	J9QGHCHK	246691	3.60	1059878	4.50	558354	5.77
03	SB-445-0304	482667	3.60	2089436	4.50	1122789	5.77
04	SB-445-0304	289966	3.60	1241533	4.50	666397	5.77
05	SB-445-0304	343701	3.60	1502518	4.50	802550	5.77
06	SB-442-0203	297442	3.60	1247324	4.50	657903	5.77
07	SB-442-0304	384683	3.60	1683761	4.50	875285	5.77
08	SB-442-0506	359707	3.60	1492631	4.50	792150	5.77
09	SB-442-0708	241066	3.60	989311	4.50	545006	5.77
10	SB-443-0102	432088	3.60	1873726	4.50	1000884	5.77
11	SB-443-0203	423619	3.60	1847838	4.50	953748	5.77
12	SB-443-0304	415557	3.60	1847833	4.50	966081	5.77
13	SB-443-0506	384129	3.60	1638290	4.50	833736	5.77
14	SB-443-0708	221012	3.60	931037	4.50	443897	5.77
15	SB-444-0102	400500	3.60	1728690	4.50	893021	5.77
16	SB-444-0203	242530	3.60	1012424	4.50	492217	5.77
17	SB-444-0304	268759	3.60	1127306	4.50	569351	5.77
18	SB-444-0506	407119	3.60	1732396	4.50	869393	5.77
19	SB-444-0708	384175	3.60	1675092	4.50	842172	5.77
20	SB-445-0102	227635	3.60	954244	4.50	479084	5.77
21	SB-445-0203	425359	3.60	1795707	4.50	905291	5.77
22	SB-445-0506	353614	3.60	1542247	4.50	750099	5.77

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20209

Lab File ID (Standard): 2SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4AG2 Time Analyzed: 0653

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	1072166	6.86	972413	8.83	947293	10.32
	UPPER LIMIT	2144332	7.36	1944826	9.33	1894586	10.82
	LOWER LIMIT	536083	6.36	486207	8.33	473647	9.82
	EPA SAMPLE NO.						
01	J9QGHBLK	1576743	6.86	1532969	8.84	1538774	10.32
02	J9QGHCHK	974002	6.86	872506	8.82	869521	10.31
03	SB-445-0304	1948569	6.85	1800498	8.82	1743020	10.31
04	SB-445-0304	1132930	6.86	1045642	8.82	1038087	10.31
05	SB-445-0304	1358491	6.85	1281056	8.82	1239455	10.30
06	SB-442-0203	1149571	6.85	1063038	8.82	1060088	10.30
07	SB-442-0304	1525228	6.85	1387115	8.82	1387162	10.30
08	SB-442-0506	1380456	6.85	1268932	8.82	1261815	10.31
09	SB-442-0708	931125	6.85	858976	8.82	844912	10.30
10	SB-443-0102	1748729	6.85	1624871	8.82	1602745	10.31
11	SB-443-0203	1665702	6.85	1524663	8.82	1510686	10.31
12	SB-443-0304	1715906	6.86	1571074	8.83	1542260	10.32
13	SB-443-0506	1427439	6.86	1309569	8.84	1283743	10.32
14	SB-443-0708	778450	6.87	705176	8.84	693140	10.32
15	SB-444-0102	1489649	6.86	1382556	8.84	1375237	10.32
16	SB-444-0203	856887	6.86	789663	8.84	776671	10.32
17	SB-444-0304	974149	6.86	902834	8.84	882842	10.32
18	SB-444-0506	1478496	6.86	1376032	8.84	1367776	10.32
19	SB-444-0708	1473984	6.86	1309231	8.83	1265346	10.32
20	SB-445-0102	806451	6.86	732996	8.83	727107	10.32
21	SB-445-0203	1526898	6.86	1402207	8.83	1381480	10.32
22	SB-445-0506	1322265	6.86	1203547	8.83	1178796	10.32

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20209

Lab File ID (Standard): 2SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4AG2 Time Analyzed: 0653

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	304679	3.60	1259272	4.50	623790	5.77
	UPPER LIMIT	609358	4.10	2518544	5.00	1247580	6.27
	LOWER LIMIT	152340	3.10	629636	4.00	311895	5.27
	EPA SAMPLE NO.						
01	SB-445-0708	331666	3.60	1396365	4.50	702063	5.77
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20209

Lab File ID (Standard): 2SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4AG2 Time Analyzed: 0653

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	1072166	6.86	972413	8.83	947293	10.32
	UPPER LIMIT	2144332	7.36	1944826	9.33	1894586	10.82
	LOWER LIMIT	536083	6.36	486207	8.33	473647	9.82
	EPA SAMPLE NO.						
01	SB-445-0708	1184553	6.86	1074797	8.83	1056027	10.32
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20209

Lab File ID (Standard): 9SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4HP9 Time Analyzed: 1143

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	112186	3.89	442278	4.85	259863	6.15
	UPPER LIMIT	224372	4.39	884556	5.35	519726	6.65
	LOWER LIMIT	56093	3.39	221139	4.35	129932	5.65
	EPA SAMPLE NO.						
01	J98R6BLK	127800	3.89	531213	4.85	297284	6.15
02	J98R6CHK	130370	3.89	526549	4.85	296273	6.15
03	SB-442-0102	115775	3.89	493507	4.85	289362	6.15
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20209

Lab File ID (Standard): 9SMH1101 Date Analyzed: 11/01/07

Instrument ID: A4HP9 Time Analyzed: 1143

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	452989	7.25	457657	9.23	390322	10.73
	UPPER LIMIT	905978	7.75	915314	9.73	780644	11.23
	LOWER LIMIT	226495	6.75	228829	8.73	195161	10.23
	EPA SAMPLE NO.						
01	J98R6BLK	536330	7.24	535577	9.23	474442	10.72
02	J98R6CHK	538834	7.24	532079	9.23	470110	10.71
03	SB-442-0102	507341	7.25	491833	9.23	450617	10.72
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

Tetra Tech NUS, Inc

Client Sample ID: SB-443-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J200209-006	**Work Order #...:**	J9HWP1AC	**Matrix.....:**	SO
Date Sampled...:	10/19/07 10:20	**Date Received..:**	10/20/07		
Prep Date.....:	10/25/07	**Analysis Date..:**	10/26/07		
Prep Batch #...:	7297510				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.01 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	13	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**53 J**	**380**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	76	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	69	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

SAMPLE CALC **SAMPLE ID: SB-443-0102** **COMPOUND: BAP**

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
1602745	1	296762	2	2000	1.0655	0.87	0.5	53.25

Sample Amount (g)
30.01

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4ag2.i\71026A.b\J9HWP1AC.D
Lab Smp Id: J9HWP1AC Client Smp ID: SB-443-0102
Inj Date : 26-OCT-2007 10:06
Operator : 046900 Inst ID: a4ag2.i
Smp Info : J9HWP1AC,71026A.b,8270P,BAP.SUB
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4ag2.i\71026A.b\8270p.m
Meth Date : 27-Oct-2007 08:47 hulat Quant Type: ISTD
Cal Date : 24-OCT-2007 12:23 Cal File: 2SHHH1024.D
Als bottle: 14
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	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.010	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	CONCENTRATIONS FINAL (ug/kg)	
* 1 1,4-Dichlorobenzene-d4	152	3.601	3.601	(1.000)	432088	2.00000		(Q)
* 2 Naphthalene-d8	136	4.495	4.501	(1.000)	1873726	2.00000		
* 3 Acenaphthene-d10	164	5.765	5.766	(1.000)	1000884	2.00000		
* 4 Phenanthrene-d10	188	6.854	6.860	(1.000)	1748729	2.00000		
* 5 Chrysene-d12	240	8.824	8.830	(1.000)	1624871	2.00000		
* 6 Perylene-d12	264	10.306	10.318	(1.000)	1602745	2.00000		
146 Benzo(a)pyrene	252	10.236	10.254	(0.993)	296762	0.34754	46.323	
$ 154 Nitrobenzene-d5	82	3.977	3.983	(0.885)	856034	3.00699	400.80	
$ 155 2-Fluorobiphenyl	172	5.254	5.254	(0.911)	1840319	3.08051	410.60	
$ 156 Terphenyl-d14	244	8.001	8.001	(0.907)	2536104	3.81643	508.69	
$ 157 Phenol-d5	99	3.307	3.307	(0.918)	1599048	4.84256	645.46	
$ 158 2-Fluorophenol	112	2.736	2.725	(0.760)	1211199	4.67828	623.56	
$ 159 2,4,6-Tribromophenol	330	6.342	6.342	(1.100)	398591	5.15170	686.66	
$ 186 2-Chlorophenol-d4	132	3.448	3.448	(0.958)	1327666	4.70943	627.72	
$ 187 1,2-Dichlorobenzene-d4	152	3.713	3.713	(1.031)	509398	2.84532	379.25	

QC Flag Legend

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): 7J20210

SAMPLES: 17/Soil/

SB-446-0102	SB-446-0203	SB-446-0304	SB-446-0506	SB-446-0708
SB-447-0102	SB-447-0203	SB-448-0102	SB-448-0203	SB-448-0304
SB-448-0506	SB-448-0708	SB-449-0102	SB-449-0203	SB-449-0304
SB-449-0506	SB-449-0708			

Overview

The sample set for SDG 7J20210 Lockheed MRC, consists of seventeen (17) soil environmental samples.

All soil samples were analyzed for benzo(a)pyrene. The samples were collected by TetraTech NUS on October 19, 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 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: 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: 00885

SDG: 7J20210 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-446-0102	nsample	SB-446-0203	nsample	SB-446-0304
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200210001	lab_id	A7J200210002	lab_id	A7J200210003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	90.0	Pct_Solids	89.0	Pct_Solids	89.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	110	J	P

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: 7J20210 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-446-0506
samp_date	10/19/2007
lab_id	A7J200210004
qc_type	NM
units	UG/KG
Pct_Solids	90.0
DUP_OF:	

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

nsample	SB-446-0708
samp_date	10/19/2007
lab_id	A7J200210005
qc_type	NM
units	UG/KG
Pct_Solids	83.0
DUP_OF:	

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

nsample	SB-447-0102
samp_date	10/19/2007
lab_id	A7J200210006
qc_type	NM
units	UG/KG
Pct_Solids	86.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J20210 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-447-0203	nsample	SB-448-0102	nsample	SB-448-0203
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200210007	lab_id	A7J200210008	lab_id	A7J200210009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	88.0	Pct_Solids	88.0	Pct_Solids	87.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	28	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	22	J	P

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

PROJ_NO: 00885

SDG: 7J20210 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-448-0304	nsample	SB-448-0506	nsample	SB-448-0708
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200210010	lab_id	A7J200210011	lab_id	A7J200210012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	85.0	Pct_Solids	85.0	Pct_Solids	87.0
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	1.5	U	

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

PROJ_NO: 00885

SDG: 7J20210 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-449-0102	nsample	SB-449-0203	nsample	SB-449-0304
samp_date	10/19/2007	samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200210013	lab_id	A7J200210014	lab_id	A7J200210015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	90.8	Pct_Solids	90.0	Pct_Solids	90.0
DUP_OF:		DUP_OF:		DUP_OF:	

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

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	21	J	P

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

PROJ_NO: 00885

SDG: 7J20210 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-449-0506	nsample	SB-449-0708
samp_date	10/19/2007	samp_date	10/19/2007
lab_id	A7J200210016	lab_id	A7J200210017
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	85.0	Pct_Solids	82.0
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	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Tetra Tech NUS, Inc

Client Sample ID: SB-446-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-001 **Work Order #...:** J9HWQ1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:00 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**110 J**	**370**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-446-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-002 **Work Order #...:** J9HXP1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:02 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	96	(41 - 119)
Phenol-d5	68	(28 - 110)
2-Fluorophenol	69	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-446-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-003 **Work Order #...:** J9HXW1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:04 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	92	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	78	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-446-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-004 **Work Order #...:** J9HX11AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:06 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-446-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-005 **Work Order #...:** J9HX21AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:07 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	67	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-447-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-006 **Work Order #...:** J9HX31AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:11 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	44	(24 - 112)
2-Fluorobiphenyl	50	(34 - 110)
Terphenyl-d14	79	(41 - 119)
Phenol-d5	52	(28 - 110)
2-Fluorophenol	51	(26 - 110)
2,4,6-Tribromophenol	63	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-447-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-007 **Work Order #...:** J9HX41AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:13 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**28 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	71	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	100	(41 - 119)
Phenol-d5	72	(28 - 110)
2-Fluorophenol	74	(26 - 110)
2,4,6-Tribromophenol	81	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-448-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-008 **Work Order #...:** J9HX51AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:20 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	22 J	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	99	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	59	(26 - 110)
2,4,6-Tribromophenol	84	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-448-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-009 **Work Order #...:** J9HX61AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:22 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-448-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-010 **Work Order #...:** J9HX71AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:24 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	66	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	98	(41 - 119)
Phenol-d5	71	(28 - 110)
2-Fluorophenol	68	(26 - 110)
2,4,6-Tribromophenol	78	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-448-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-011 **Work Order #...:** J9HX81AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:26 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	64	(34 - 110)
Terphenyl-d14	95	(41 - 119)
Phenol-d5	69	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	78	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-448-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-012 **Work Order #...:** J9HX91AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:28 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7298390
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	54	(34 - 110)
Terphenyl-d14	100	(41 - 119)
Phenol-d5	69	(28 - 110)
2-Fluorophenol	68	(26 - 110)
2,4,6-Tribromophenol	76	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-449-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-013 **Work Order #...:** J9H0A1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:37 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297508
Dilution Factor: 1
% Moisture.....: 9.2 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	360	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	67	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-449-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-014 **Work Order #...:** J9H0D1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:39 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297508
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**21 J**	**370**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	55	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	82	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	56	(26 - 110)
2,4,6-Tribromophenol	69	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-449-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-015 **Work Order #...:** J9H0E1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:41 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297508
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	49	(24 - 112)
2-Fluorobiphenyl	53	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	53	(28 - 110)
2-Fluorophenol	49	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-449-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-016 **Work Order #...:** J9H0F1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:43 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297508
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	49	(24 - 112)
2-Fluorobiphenyl	49	(34 - 110)
Terphenyl-d14	76	(41 - 119)
Phenol-d5	50	(28 - 110)
2-Fluorophenol	48	(26 - 110)
2,4,6-Tribromophenol	61	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-449-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J200210-017 **Work Order #...:** J9H0G1AC **Matrix.....:** SO
Date Sampled...: 10/19/07 11:45 **Date Received..:** 10/20/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7297508
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

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	84	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	63	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG 7J20210

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-447-0102	A7J200210006	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-446-0203	A7J200210002	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-446-0304	A7J200210003	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-449-0708	A7J200210017	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-446-0708	A7J200210005	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-446-0102	A7J200210001	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-447-0203	A7J200210007	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-448-0102	A7J200210008	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-449-0506	A7J200210016	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-448-0304	A7J200210010	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-448-0506	A7J200210011	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-448-0708	A7J200210012	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-449-0102	A7J200210013	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-449-0203	A7J200210014	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-449-0304	A7J200210015	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-448-0203	A7J200210009	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
PCS	%	SB-446-0506	A7J200210004	NM	10/19/2007	10/26/2007	10/27/2007	7	1	8
OS	%	SB-446-0102	A7J200210001	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	%	SB-448-0304	A7J200210010	NM	10/19/2007	10/25/2007	10/29/2007	6	4	10
OS	%	SB-448-0506	A7J200210011	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	%	SB-448-0708	A7J200210012	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	%	SB-449-0102	A7J200210013	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	%	SB-449-0203	A7J200210014	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	%	SB-449-0506	A7J200210016	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	%	SB-449-0304	A7J200210015	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	%	SB-448-0203	A7J200210009	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	%	SB-448-0102	A7J200210008	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	%	SB-447-0203	A7J200210007	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	%	SB-447-0102	A7J200210006	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	%	SB-446-0708	A7J200210005	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	%	SB-446-0506	A7J200210004	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	%	SB-449-0708	A7J200210017	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	%	SB-446-0203	A7J200210002	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	%	SB-446-0304	A7J200210003	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-448-0304	A7J200210010	NM	10/19/2007	10/25/2007	10/29/2007	6	4	10
OS	UG/KG	SB-448-0203	A7J200210009	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-449-0708	A7J200210017	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	UG/KG	SB-449-0506	A7J200210016	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	UG/KG	SB-449-0304	A7J200210015	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	UG/KG	SB-449-0203	A7J200210014	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	UG/KG	SB-449-0102	A7J200210013	NM	10/19/2007	10/25/2007	10/27/2007	6	2	8
OS	UG/KG	SB-448-0102	A7J200210008	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-448-0506	A7J200210011	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-446-0102	A7J200210001	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-447-0203	A7J200210007	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-447-0102	A7J200210006	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-446-0708	A7J200210005	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-446-0506	A7J200210004	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-446-0304	A7J200210003	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-446-0203	A7J200210002	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7
OS	UG/KG	SB-448-0708	A7J200210012	NM	10/19/2007	10/25/2007	10/26/2007	6	1	7

[redacted]

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Martin	Date: 10/19/07	Chain of Custody Number: 227037
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 1 of 2
City: Germantown; State: MD; Zip Code: 20874	Site Contact: S. Hadley; Lab Contact: K. Ives		
Project Name and Location (State): LMC MR	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): *LL 8270	Special Instructions/ Conditions of Receipt
SB-446-0102	10/19	1100				X	1						X	Block 'G'
-0203		1102												*benzo (a) pyrene
-0304		1104												
-0506		1106												
446-0708		~~1108~~ 1107												
447-0102		1111												
447-0203		1113												
448-0102		1120												
-0203		1122												
-0304		1124												
-0506		1126												
SB-448-0708	10/19	1128				X	1						X	*benzo (a) pyrene

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Stnd

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	10/19/07	1430	1. Received By: [signature]	10-19-07	1430
2. Relinquished By:			2. Received By: [signature]	10.20.07	1050
3. Relinquished By:			3. Received By:		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

15

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Martin	Date: 10/19/07	Chain of Custody Number: 227038
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 2 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: S. Hadley	Lab Contact: K. Ives	
Project Name and Location (State): LMC MA	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112 EC 00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
SB-449-0102	10/19	1137				X	1						X #27270	Block 'G'
-0203		1139												* benzo(a)pyrene
-0304		1141												
449-0304 MS/SD	10/19	1143												
-0506		1143												
SB-449-0708	10/19	1145				X	1						X	* benzo(a)pyrene

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☒ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STD

QC Requirements (Specify)

	Date	Time
1. Relinquished By	10/19/07	1430
2. Relinquished By		
3. Relinquished By		

	Date	Time
1. Received By	10-19-07	1523
2. Received By	10-20-07	1000
3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

CASE NARRATIVE

7J20210

The following report contains the analytical results for seventeen 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 20, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID's: A7J200210.

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 October 30, 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 temperature of the cooler upon sample receipt was 2.9°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.

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

- 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.

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20210

Lot #: A7J200210

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-446-0102	58	66	90	61	62	72	00
02	SB-446-0203	58	63	96	68	69	72	00
03	SB-446-0304	58	66	92	66	64	78	00
04	SB-446-0506	60	61	93	66	65	72	00
05	SB-446-0708	64	64	90	65	67	67	00
06	SB-447-0102	44	50	79	52	51	63	00
07	SB-447-0203	71	74	100	72	74	81	00
08	SB-448-0102	57	63	99	66	59	84	00
09	SB-448-0203	64	67	87	64	64	72	00
10	SB-448-0304	66	64	98	71	68	78	00
11	SB-448-0506	64	64	95	69	67	78	00
12	SB-448-0708	58	54	100	69	68	76	00
13	SB-449-0102	67	68	84	66	66	72	00
14	SB-449-0203	55	62	82	61	56	69	00
15	SB-449-0304	49	53	86	53	49	64	00
16	SB-449-0506	49	49	76	50	48	61	00
17	SB-449-0708	65	63	84	62	64	63	00
18	INTRA-LAB QC	68	68	90	70	68	64	00
19	METHOD BLK. J9QF91AA	66	71	95	69	68	59	00
20	METHOD BLK. J9TRK1AA	71	75	101	71	71	63	00
21	LCS J9QF91AC	74	75	89	71	70	67	00
22	LCS J9TRK1AC	76	80	99	75	77	83	00
23	SB-446-0102 D	74	81	93	76	75	82	00
24	SB-449-0304 D	68	70	85	69	67	73	00
25	LAB MS/MSD D	68	68	85	68	67	68	00
26	SB-446-0102 S	71	79	96	74	72	84	00
27	SB-449-0304 S	64	70	88	69	66	73	00

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J20210

Lot #: A7J200210

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	LAB MS/MSD S	72	67	79	70	70	65	00

SURROGATES		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

FORM II

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9QF91AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J20210

Lab File ID: J9QF91AA.

Lot Number: A7J200210

Date Analyzed: 10/27/07

Time Analyzed: 09:44

Matrix: SOLID

Date Extracted:10/25/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-449-0102	J9H0A1AC	J9H0A1AC.	10/27/07	10:58
02	SB-449-0203	J9H0D1AC	J9H0D1AC.	10/27/07	11:15
03	SB-449-0304	J9H0E1AC	J9H0E1AC.	10/27/07	11:33
04	SB-449-0304	J9H0E1AD S	J9H0E1AD.	10/27/07	11:50
05	SB-449-0304	J9H0E1AE D	J9H0E1AE.	10/27/07	12:07
06	SB-449-0506	J9H0F1AC	J9H0F1AC.	10/27/07	12:24
07	SB-449-0708	J9H0G1AC	J9H0G1AC.	10/27/07	12:42
08	INTRA-LAB QC	J9PPJ1A5	J9PPJ1A5.	10/27/07	14:42
09	LAB MS/MSD	J9PPJ1A6 S	J9PPJ1A6.	10/27/07	15:00
10	LAB MS/MSD	J9PPJ1A7 D	J9PPJ1A7.	10/27/07	15:17
11	CHECK SAMPLE	J9QF91AC C	J9QF91AC.	10/27/07	10:07
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

COMMENTS:

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9TRK1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN SDG Number:7J20210

Lab File ID: J9TRK1AA. Lot Number: A7J200210

Date Analyzed: 10/26/07 Time Analyzed: 11:55

Matrix: SOLID Date Extracted:10/25/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-446-0102	J9HWQ1AC	J9HWQ1AC.	10/26/07	12:33
02	SB-446-0102	J9HWQ1AD S	J9HWQ1AD.	10/26/07	12:52
03	SB-446-0102	J9HWQ1AE D	J9HWQ1AE.	10/26/07	13:11
04	SB-446-0203	J9HXP1AC	J9HXP1AC.	10/26/07	15:06
05	SB-446-0304	J9HXW1AC	J9HXW1AC.	10/26/07	16:03
06	SB-446-0506	J9HX11AC	J9HX11AC.	10/26/07	16:22
07	SB-446-0708	J9HX21AC	J9HX21AC.	10/26/07	16:41
08	SB-447-0102	J9HX31AC	J9HX31AC.	10/26/07	17:00
09	SB-447-0203	J9HX41AC	J9HX41AC.	10/26/07	17:19
10	SB-448-0102	J9HX51AC	J9HX51AC.	10/26/07	17:38
11	SB-448-0203	J9HX61AC	J9HX61AC.	10/26/07	17:57
12	SB-448-0304	J9HX71AC	J9HX71AC.	10/29/07	18:47
13	SB-448-0506	J9HX81AC	J9HX81AC.	10/26/07	18:36
14	SB-448-0708	J9HX91AC	J9HX91AC.	10/26/07	18:55
15	CHECK SAMPLE	J9TRK1AC C	J9TRK1AC.	10/26/07	12:14
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

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.: SDG No.: 7J20210

Lab File ID: 2DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4AG2 DFTPP Injection Time: 1212

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.5
68	Less than 2.0% of mass 69	0.6 (1.6)1
69	Mass 69 relative abundance	40.3
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	50.2
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	24.7
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	10.9
442	Greater than 40.0% of mass 198	79.1
443	17.0 - 23.0% of mass 442	14.9 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD009	L9	2SHHH1024	10/24/07	1223
02	SSTD008	L8	2SHH1024	10/24/07	1240
03	SSTD007	L7	2SH1024	10/24/07	1257
04	SSTD006	L6	2SMH1024	10/24/07	1315
05	SSTD005	L5	2SMM1024	10/24/07	1332
06	SSTD004	L4	2SM1024	10/24/07	1349
07	SSTD003	L3	2SML1024	10/24/07	1406
08	SSTD002	L2	2SL1024	10/24/07	1424
09	SSTD001	L1	2SLL1024	10/24/07	1441
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J20210

Lab File ID: 8DF1024 DFTPP Injection Date: 10/24/07

Instrument ID: A4HP8 DFTPP Injection Time: 1405

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.3
68	Less than 2.0% of mass 69	0.2 (0.4)1
69	Mass 69 relative abundance	53.0
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	51.9
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	6.5
275	10.0 - 30.0% of mass 198	26.5
365	Greater than 1.0% of mass 198	3.3
441	Present, but less than mass 443	8.3
442	Greater than 40.0% of mass 198	52.9
443	17.0 - 23.0% of mass 442	9.8 (18.6)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	L5	8SMM1024	10/24/07	1522
02	SSTD004	L4	8SM1024	10/24/07	1541
03	SSTD003	L3	8SML1024	10/24/07	1600
04	SSTD002	L2	8SL1024	10/24/07	1619
05	SSTD001	L1	8SLL1024	10/24/07	1638
06	SSTD009	L9	8HHH1024	10/24/07	1656
07	SSTD008	L8	8SHH1024	10/24/07	1715
08	SSTD007	L7	8SH1024	10/24/07	1734
09	SSTD006	L6	8SMH1024	10/24/07	1753
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J20210

Lab File ID: 8DF1026 DFTPP Injection Date: 10/26/07

Instrument ID: A4HP8 DFTPP Injection Time: 1114

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	54.5
70	Less than 2.0% of mass 69	0.5 (0.9)1
127	40.0 - 60.0% of mass 198	53.1
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	24.5
365	Greater than 1.0% of mass 198	3.4
441	Present, but less than mass 443	7.3
442	Greater than 40.0% of mass 198	46.0
443	17.0 - 23.0% of mass 442	8.9 (19.3)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1026	10/26/07	1133
02	J9TRKBLK	J9TRK1AA	J9TRK1AA	10/26/07	1155
03	J9TRKCHK	J9TRK1AC	J9TRK1AC	10/26/07	1214
04	SB-446-0102	J9HWQ1AC	J9HWQ1AC	10/26/07	1233
05	SB-446-0102	J9HWQ1AD	J9HWQ1AD	10/26/07	1252
06	SB-446-0102	J9HWQ1AE	J9HWQ1AE	10/26/07	1311
07	SB-446-0203	J9HXP1AC	J9HXP1AC	10/26/07	1506
08	SB-446-0304	J9HXW1AC	J9HXW1AC	10/26/07	1603
09	SB-446-0506	J9HX11AC	J9HX11AC	10/26/07	1622
10	SB-446-0708	J9HX21AC	J9HX21AC	10/26/07	1641
11	SB-447-0102	J9HX31AC	J9HX31AC	10/26/07	1700
12	SB-447-0203	J9HX41AC	J9HX41AC	10/26/07	1719
13	SB-448-0102	J9HX51AC	J9HX51AC	10/26/07	1738
14	SB-448-0203	J9HX61AC	J9HX61AC	10/26/07	1757
15	SB-448-0506	J9HX81AC	J9HX81AC	10/26/07	1836
16	SB-448-0708	J9HX91AC	J9HX91AC	10/26/07	1855
17					
18					
19					
20					
21					
22					

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.: 7J20210

Lab File ID: 2DF1027 DFTPP Injection Date: 10/27/07

Instrument ID: A4AG2 DFTPP Injection Time: 0855

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.1
68	Less than 2.0% of mass 69	0.4 (1.0)1
69	Mass 69 relative abundance	40.4
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	40.0 - 60.0% of mass 198	50.7
197	Less than 1.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	25.6
365	Greater than 1.0% of mass 198	3.3
441	Present, but less than mass 443	11.3
442	Greater than 40.0% of mass 198	79.4
443	17.0 - 23.0% of mass 442	14.9 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	2SMH1027	10/27/07	0923
02	J9QF9BLK	J9QF91AA	J9QF91AA	10/27/07	0944
03	J9QF9CHK	J9QF91AC	J9QF91AC	10/27/07	1007
04	SB-449-0102	J9H0A1AC	J9H0A1AC	10/27/07	1058
05	SB-449-0203	J9H0D1AC	J9H0D1AC	10/27/07	1115
06	SB-449-0304	J9H0E1AC	J9H0E1AC	10/27/07	1133
07	SB-449-0304	J9H0E1AD	J9H0E1AD	10/27/07	1150
08	SB-449-0304	J9H0E1AE	J9H0E1AE	10/27/07	1207
09	SB-449-0506	J9H0F1AC	J9H0F1AC	10/27/07	1224
10	SB-449-0708	J9H0G1AC	J9H0G1AC	10/27/07	1242
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J20210

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	30.0 - 60.0% of mass 198	41.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	51.1
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	40.0 - 60.0% of mass 198	49.5
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	6.5
275	10.0 - 30.0% of mass 198	25.5
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	8.6
442	Greater than 40.0% of mass 198	55.3
443	17.0 - 23.0% of mass 442	10.6 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	8SMH1029	10/29/07	1020
02	SB-448-0304	J9HX71AC	J9HX71AC	10/29/07	1847
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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

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	1.16862	0.94500	0.99660	1.06264	1.04702	1.14009			
	1.17535	1.24000	1.40500				1.13115	12.298	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.15525	1.02036	1.08130	1.16366	1.14381	1.23994			
	1.26288	1.32864	1.47228				1.20757	11.285	
150 Dibenz(a,h)anthracene	0.98770	0.87713	0.89316	0.96975	0.95807	1.05400			
	1.09661	1.15927	1.28968				1.03171	12.905	
151 Benzo(g,h,i)perylene	1.12101	0.90918	0.87601	0.98078	0.94801	1.00857			
	1.02246	1.07093	1.17786				1.01275	9.694	
232 Bis(2-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
233 Bis(4-hydroxyphenyl)methane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
234 4-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-
235 2,3-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++	+++++				+++++	+++++	<-

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
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: icvtcl Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71024a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.28668	1.28668	0.010	-0.81506	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.11216	1.11216	0.010	1.67860	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.20643	1.20643	0.010	0.09417	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.02848	1.02848	0.010	0.31240	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	0.96293	0.96293	0.010	4.91974	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.56331	0.56331	0.010	8.63212	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.48504	0.48504	0.010	2.45568	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.25695	1.25695	0.010	2.13125	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.79942	0.79942	0.010	-0.26527	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.81077	1.81077	0.010	2.60337	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.22639	1.22639	0.010	4.19358	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14093	0.14093	0.010	1.19563	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.20697	1.20697	0.010	2.13638	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.82261	0.82261	0.010	0.39586	50.00000	Averaged
M 195 Cresols, total	2.85006	2.88600	2.88600	0.010	-1.26094	50.00000	Averaged
101 Diphenylamine	0.50153	0.49164	0.49164	0.010	1.97267	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 26-OCT-2007 11:33
Lab File ID: 8SMH1026.D Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71026a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.38115	1.38115	0.010	-8.21678	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.21342	1.21342	0.010	-7.27306	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.32138	1.32138	0.010	-9.42501	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.12973	1.12973	0.010	-9.50064	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.08997	1.08997	0.010	-7.62405	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.56904	0.56904	0.010	7.70306	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.50173	0.50173	0.010	-0.90080	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.28432	1.37646	1.37646	0.010	-7.17442	50.00000	Averaged
$ 156 Terphenyl-d14	0.79730	0.84955	0.84955	0.010	-6.55212	50.00000	Averaged
$ 157 Phenol-d5	1.85917	1.87156	1.87156	0.010	-0.66650	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.26117	1.26117	0.010	1.47659	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14957	0.14957	0.010	-4.86249	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.26630	1.26630	0.010	-2.67417	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.87015	0.87015	0.010	-5.36108	50.00000	Averaged
M 195 Cresols, total	2.85006	2.93764	2.93764	0.010	-3.07276	50.00000	Averaged
101 Diphenylamine	0.50153	0.54465	0.54465	0.010	-8.59669	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i Injection Date: 27-OCT-2007 09:23
Lab File ID: 2SMH1027.D Init. Cal. Date(s): 17-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:56 14:41
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71027A.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
146 Benzo(a)pyrene	1.06554	1.09318	1.09318	0.010	-2.59379	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.15604	1.22071	1.22071	0.010	-5.59421	50.00000	Averaged
150 Dibenz(a,h)anthracene	0.99520	1.03882	1.03882	0.010	-4.38287	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.99099	1.03153	1.03153	0.010	-4.09113	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.30387	0.31759	0.31759	0.010	-4.51708	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.19376	1.24743	1.24743	0.010	-4.49562	50.00000	Averaged
$ 156 Terphenyl-d14	0.81794	0.85008	0.85008	0.010	-3.92958	50.00000	Averaged
$ 157 Phenol-d5	1.52843	1.47845	1.47845	0.010	3.26964	50.00000	Averaged
$ 158 2-Fluorophenol	1.19836	1.13748	1.13748	0.010	5.08057	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.15460	0.15808	0.15808	0.010	-2.24819	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.30490	1.28353	1.28353	0.010	1.63806	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82867	0.84706	0.84706	0.010	-2.21875	50.00000	Averaged
M 195 Cresols, total	2.49329	2.79208	2.79208	0.010	-11.98385	50.00000	Averaged
101 Diphenylamine	0.51130	0.53185	0.53185	0.010	-4.01972	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 29-OCT-2007 10:20
Lab File ID: 8SMH1029.D Init. Cal. Date(s): 24-OCT-2007 24-OCT-2007
Analysis Type: Init. Cal. Times: 15:22 17:53
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4hp8.i\71029a.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
142 Benzo(k)fluoranthene	1.27628	1.38094	1.38094	0.010	-8.20028	50.00000	Averaged
146 Benzo(a)pyrene	1.13115	1.21421	1.21421	0.010	-7.34356	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.20757	1.31849	1.31849	0.010	-9.18538	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.03171	1.11948	1.11948	0.010	-8.50778	50.00000	Averaged
151 Benzo(g,h,i)perylene	1.01275	1.08001	1.08001	0.010	-6.64054	50.00000	Averaged
198 1,4-Dioxane	0.61653	0.49897	0.49897	0.010	19.06790	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.49725	0.50747	0.50747	0.010	-2.05536	50.00000	Averaged
$ 155 2-Fluorobiphenyl	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	Averaged
$ 157 Phenol-d5	1.85917	1.93240	1.93240	0.010	-3.93874	50.00000	Averaged
$ 158 2-Fluorophenol	1.28007	1.28357	1.28357	0.010	-0.27316	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.14264	0.14936	0.14936	0.010	-4.71595	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.23332	1.30061	1.30061	0.010	-5.45612	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82588	0.87349	0.87349	0.010	-5.76451	50.00000	Averaged
M 195 Cresols, total	2.85006	3.11050	3.11050	0.010	-9.13792	50.00000	Averaged
101 Diphenylamine	0.50153	0.56377	0.56377	0.010	-12.40883	50.00000	Averaged

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20210

Lab File ID (Standard): 2SMH1027 Date Analyzed: 10/27/07

Instrument ID: A4AG2 Time Analyzed: 0923

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	305928	3.57	1294015	4.47	646014	5.73
	UPPER LIMIT	611856	4.07	2588030	4.97	1292028	6.23
	LOWER LIMIT	152964	3.07	647008	3.97	323007	5.23
	EPA SAMPLE NO.						
01	J9QF9BLK	387301	3.57	1659669	4.46	833399	5.73
02	J9QF9CHK	320310	3.57	1350819	4.47	683538	5.73
03	SB-449-0102	385334	3.57	1628614	4.46	842892	5.73
04	SB-449-0203	392651	3.57	1650899	4.46	832402	5.73
05	SB-449-0304	396074	3.57	1697850	4.46	860383	5.73
06	SB-449-0304	329938	3.57	1440118	4.46	740710	5.73
07	SB-449-0304	361208	3.57	1524412	4.46	772352	5.73
08	SB-449-0506	382559	3.57	1653376	4.46	838284	5.73
09	SB-449-0708	358574	3.57	1513539	4.46	773111	5.73
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20210

Lab File ID (Standard): 2SMH1027 Date Analyzed: 10/27/07

Instrument ID: A4AG2 Time Analyzed: 0923

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	305928	3.57	1294015	4.47	646014	5.73
	UPPER LIMIT	611856	4.07	2588030	4.97	1292028	6.23
	LOWER LIMIT	152964	3.07	647008	3.97	323007	5.23
	EPA SAMPLE NO.						
01	J9QF9BLK	387301	3.57	1659669	4.46	833399	5.73
02	J9QF9CHK	320310	3.57	1350819	4.47	683538	5.73
03	SB-449-0102	385334	3.57	1628614	4.46	842892	5.73
04	SB-449-0203	392651	3.57	1650899	4.46	832402	5.73
05	SB-449-0304	396074	3.57	1697850	4.46	860383	5.73
06	SB-449-0304	329938	3.57	1440118	4.46	740710	5.73
07	SB-449-0304	361208	3.57	1524412	4.46	772352	5.73
08	SB-449-0506	382559	3.57	1653376	4.46	838284	5.73
09	SB-449-0708	358574	3.57	1513539	4.46	773111	5.73
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20210

Lab File ID (Standard): 2SMH1027 Date Analyzed: 10/27/07

Instrument ID: A4AG2 Time Analyzed: 0923

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	1090631	6.82	1003896	8.78	970618	10.23
	UPPER LIMIT	2181262	7.32	2007792	9.28	1941236	10.73
	LOWER LIMIT	545316	6.32	501948	8.28	485309	9.73
	EPA SAMPLE NO.						
01	J9QF9BLK	1430377	6.82	1303954	8.78	1271032	10.24
02	J9QF9CHK	1192208	6.82	1113930	8.79	1083751	10.24
03	SB-449-0102	1467283	6.82	1349366	8.78	1329986	10.24
04	SB-449-0203	1421615	6.82	1309626	8.78	1306856	10.23
05	SB-449-0304	1460365	6.82	1335243	8.78	1303912	10.23
06	SB-449-0304	1261945	6.82	1191132	8.78	1150093	10.23
07	SB-449-0304	1328523	6.82	1247290	8.78	1190044	10.23
08	SB-449-0506	1422998	6.82	1318916	8.78	1266460	10.23
09	SB-449-0708	1342199	6.82	1244234	8.78	1205720	10.23
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20210

Lab File ID (Standard): 8SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4HP8 Time Analyzed: 1133

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	152275	3.50	618398	4.39	346919	5.66
	UPPER LIMIT	304550	4.00	1236796	4.89	693838	6.16
	LOWER LIMIT	76138	3.00	309199	3.89	173460	5.16
	EPA SAMPLE NO.						
01	J9TRKBLK	136362	3.49	543574	4.39	303860	5.66
02	J9TRKCHK	137690	3.50	560815	4.39	304738	5.65
03	SB-446-0102	124017	3.49	514426	4.38	276230	5.65
04	SB-446-0102	131589	3.49	547752	4.39	296179	5.66
05	SB-446-0102	135561	3.49	558147	4.39	305374	5.66
06	SB-446-0203	114484	3.49	484902	4.39	260314	5.66
07	SB-446-0304	118738	3.49	483634	4.39	268083	5.66
08	SB-446-0506	123657	3.49	510290	4.39	271435	5.66
09	SB-446-0708	101385	3.49	408257	4.39	221434	5.66
10	SB-447-0102	123927	3.49	516205	4.39	278013	5.66
11	SB-447-0203	98477	3.49	407534	4.38	217431	5.65
12	SB-448-0102	99399	3.49	402226	4.39	223865	5.66
13	SB-448-0203	106556	3.49	425337	4.39	232247	5.66
14	SB-448-0506	91857	3.49	368278	4.39	204558	5.66
15	SB-448-0708	81755	3.49	330152	4.39	186581	5.66
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20210

Lab File ID (Standard): 8SMH1026 Date Analyzed: 10/26/07

Instrument ID: A4HP8 Time Analyzed: 1133

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	670016	6.74	666460	8.75	546573	10.20
	UPPER LIMIT	1340032	7.24	1332920	9.25	1093146	10.70
	LOWER LIMIT	335008	6.24	333230	8.25	273287	9.70
	EPA SAMPLE NO.						
01	J9TRKBLK	558188	6.74	550611	8.78	476788	10.23
02	J9TRKCHK	579737	6.74	577525	8.74	489817	10.18
03	SB-446-0102	515875	6.74	501961	8.74	442262	10.19
04	SB-446-0102	559815	6.74	550648	8.74	466364	10.19
05	SB-446-0102	560595	6.74	553325	8.75	468750	10.21
06	SB-446-0203	514697	6.74	498209	8.72	440341	10.17
07	SB-446-0304	521421	6.74	516874	8.73	455828	10.17
08	SB-446-0506	543907	6.74	535617	8.72	464871	10.17
09	SB-446-0708	425986	6.74	423073	8.72	365026	10.17
10	SB-447-0102	534521	6.74	521979	8.73	452458	10.19
11	SB-447-0203	423331	6.74	389516	8.73	346423	10.18
12	SB-448-0102	436286	6.74	420929	8.73	362429	10.18
13	SB-448-0203	445468	6.74	437140	8.72	381800	10.17
14	SB-448-0506	388895	6.74	392488	8.72	352543	10.17
15	SB-448-0708	362103	6.74	367260	8.72	322989	10.17
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20210

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP8 Time Analyzed: 1020

		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	SB-448-0304	62603	3.53	264821	4.43	153802	5.70
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J20210

Lab File ID (Standard): 8SMH1029 Date Analyzed: 10/29/07

Instrument ID: A4HP8 Time Analyzed: 1020

		IS4 (PHN) 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	SB-448-0304	317302	6.79	307561	8.77	268444	10.25
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

SAMPLE CALC SAMPLE ID: SB-446-0102 COMPOUND: BAP

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
442262	1	194029	2	2000	1.1312	0.9	0.5	114.58

Sample Amount (g)
30.09

Tetra Tech NUS, Inc

Client Sample ID: SB-446-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J200210-001	**Work Order #...:**	J9HWQ1AC	**Matrix.....:**	SO
Date Sampled...:	10/19/07 11:00	**Date Received..:**	10/20/07		
Prep Date.....:	10/25/07	**Analysis Date..:**	10/26/07		
Prep Batch #...:	7298390				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.09 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	10	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**110 J**	**370**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	61	(28 - 110)
2-Fluorophenol	62	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)
115 Phenanthrene	178	6.758	6.762	(1.003)	71982	0.25809	34.310
116 Anthracene	178	Compound Not Detected.					
119 Carbazole	167	Compound Not Detected.					
120 Di-n-Butylphthalate	149	Compound Not Detected.					
123 Fluoranthene	202	7.633	7.637	(1.133)	255290	0.85550	113.72
124 Benzidine	184	Compound Not Detected.					
125 Pyrene	202	7.811	7.815	(0.894)	452835	1.47463	196.03
131 Butylbenzylphthalate	149	Compound Not Detected.					
133 3,3'-Dimethoxybenzidine	244	Compound Not Detected.					
135 3,3'-Dichlorobenzidine	252	Compound Not Detected.					
136 Benzo(a)Anthracene	228	8.730	8.739	(0.999)	190406	0.65053	86.477
137 Chrysene	228	8.759	8.767	(1.003)	209514	0.77067	102.45
138 4,4'-Methylene bis(o-chloroan	231	Compound Not Detected.					
139 bis(2-ethylhexyl)Phthalate	149	Compound Not Detected.					
140 Di-n-octylphthalate	149	Compound Not Detected.					
141 Benzo(b)fluoranthene	252	9.735	9.744	(0.956)	250930	0.89878	119.48(M)
142 Benzo(k)fluoranthene	252	9.759	9.777	(0.958)	48617	0.17226	22.900(M)
146 Benzo(a)pyrene	252	10.120	10.133	(0.993)	194029	0.77571	103.12
149 Indeno(1,2,3-cd)pyrene	276	11.755	11.778	(1.154)	130842	0.48999	65.136
150 Dibenz(a,h)anthracene	278	11.755	11.797	(1.154)	31958	0.14008	18.621
151 Benzo(g,h,i)perylene	276	12.236	12.263	(1.201)	153235	0.68423	90.958
198 1,4-Dioxane	88	Compound Not Detected.					
$ 154 Nitrobenzene-d5	82	3.868	3.872	(0.883)	367760	2.87541	382.24
$ 155 2-Fluorobiphenyl	172	5.143	5.146	(0.910)	582605	3.28443	436.61
$ 156 Terphenyl-d14	244	7.893	7.897	(0.904)	897994	4.48755	596.55
$ 157 Phenol-d5	99	3.200	3.199	(0.916)	531061	4.60653	612.37
$ 158 2-Fluorophenol	112	2.632	2.622	(0.754)	367735	4.63287	615.87
$ 159 2,4,6-Tribromophenol	330	6.229	6.228	(1.102)	106663	5.41432	719.75
$ 186 2-Chlorophenol-d4	132	3.339	3.343	(0.956)	363232	4.74961	631.39
$ 187 1,2-Dichlorobenzene-d4	152	3.599	3.603	(1.030)	116051	2.26611	301.24
M 195 Cresols, total	100	Compound Not Detected.					
101 Diphenylamine	169	Compound Not Detected.					

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4hp8.i\71026a.b\J9HWQ1AC.D
Lab Smp Id: j9hwq1ac Client Smp ID: SB-446-0102
Inj Date : 26-OCT-2007 12:33
Operator : 001710 Inst ID: a4hp8.i
Smp Info : j9hwq1ac,71026a.b,8270p,1-827042d.sub
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4hp8.i\71026a.b\8270P.m
Meth Date : 27-Oct-2007 13:39 gruberj Quant Type: ISTD
Cal Date : 24-OCT-2007 17:53 Cal File: 8SMH1024.D
Als bottle: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-827042d.sub
Target Version: 4.14
Processing Host: CANPMSSV01

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

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.090	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)	
* 1 1,4-Dichlorobenzene-d4	152	3.493	3.497	(1.000)	124017	2.00000		(Q)
* 2 Naphthalene-d8	136	4.383	4.387	(1.000)	514426	2.00000		
* 3 Acenaphthene-d10	164	5.652	5.656	(1.000)	276230	2.00000		
* 4 Phenanthrene-d10	188	6.739	6.743	(1.000)	515875	2.00000		
* 5 Chrysene-d12	240	8.735	8.748	(1.000)	501961	2.00000		
* 6 Perylene-d12	264	10.187	10.196	(1.000)	442262	2.00000		
9 Pyridine	79	Compound Not Detected.						
10 N-Nitrosodimethylamine	74	Compound Not Detected.						
11 Ethyl methacrylate	69	Compound Not Detected.						
12 3-Chloropropionitrile	54	Compound Not Detected.						
13 Malononitrile	66	Compound Not Detected.						
209 Benzaldehyde	77	Compound Not Detected.						
21 Aniline	93	Compound Not Detected.						
22 Phenol	94	Compound Not Detected.						
23 bis(2-Chloroethyl)ether	93	Compound Not Detected.						
24 2-Chlorophenol	128	Compound Not Detected.						
26 1,3-Dichlorobenzene	146	Compound Not Detected.						
27 1,4-Dichlorobenzene	146	Compound Not Detected.						

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): 7J23247

SAMPLES: 20/Soil/

SB-450-0102	SB-450-0203	SB-450-0304	SB-450-0506	SB-450-0708
SB-451-0102	SB-451-0203	SB-451-0304	SB-451-0506	SB-451-0708
SB-452-0102	SB-452-0203	SB-452-0304	SB-452-0506	SB-452-0708
SB-453-0102	SB-453-0203	SB-453-0304	SB-453-0506	SB-453-0708

Overview

The sample set for SDG 7J23247, 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 22, 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 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: 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: 00885

SDG: 7J23247 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-450-0102
samp_date	10/22/2007
lab_id	A7J230247001
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	12	J	P

nsample	SB-450-0203
samp_date	10/22/2007
lab_id	A7J230247002
qc_type	NM
units	UG/KG
Pct_Solids	86.0
DUP_OF:	

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

nsample	SB-450-0304
samp_date	10/22/2007
lab_id	A7J230247003
qc_type	NM
units	UG/KG
Pct_Solids	83.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J23247 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-450-0506	nsample	SB-450-0708	nsample	SB-451-0102
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230247004	lab_id	A7J230247005	lab_id	A7J230247006
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	84.0	Pct_Solids	79.0	Pct_Solids	86.0
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	1.7	U	

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

PROJ_NO: 00885

SDG: 7J23247 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-451-0203	nsample	SB-451-0304	nsample	SB-451-0506
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230247007	lab_id	A7J230247008	lab_id	A7J230247009
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	79.0
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	

PROJ_NO: 00885

SDG: 7J23247 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-451-0708	nsample	SB-452-0102	nsample	SB-452-0203
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230247010	lab_id	A7J230247011	lab_id	A7J230247012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	84.0	Pct_Solids	91.4	Pct_Solids	91.8
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	120	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	22	J	P

PROJ_NO: 00885

SDG: 7J23247 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-452-0304RE	nsample	SB-452-0506	nsample	SB-452-0708
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230247013	lab_id	A7J230247014	lab_id	A7J230247015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	87.0	Pct_Solids	86.0	Pct_Solids	85.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	38	J	P

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: 7J23247 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-453-0102	nsample	SB-453-0203	nsample	SB-453-0304
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230247016	lab_id	A7J230247017	lab_id	A7J230247018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	86.0	Pct_Solids	85.0	Pct_Solids	72.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	7.9	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	28	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	640		

PROJ_NO: 00885

SDG: 7J23247 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-453-0506
samp_date	10/22/2007
lab_id	A7J230247019
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

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

nsample	SB-453-0708
samp_date	10/22/2007
lab_id	A7J230247020
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

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

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Tetra Tech NUS, Inc

Client Sample ID: SB-450-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-001 **Work Order #...:** J9MHN1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 09:48 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**12 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	71	(24 - 112)
2-Fluorobiphenyl	75	(34 - 110)
Terphenyl-d14	101	(41 - 119)
Phenol-d5	74	(28 - 110)
2-Fluorophenol	75	(26 - 110)
2,4,6-Tribromophenol	75	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-450-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-002 **Work Order #...:** J9MH01AC **Matrix.....:** SO
Date Sampled...: 10/22/07 09:50 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	93	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	69	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-450-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-003 **Work Order #...:** J9MH31AC **Matrix.....:** SO
Date Sampled...: 10/22/07 09:52 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	65	(34 - 110)
Terphenyl-d14	97	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	64	(26 - 110)
2,4,6-Tribromophenol	67	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-450-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-004 **Work Order #...:** J9MH41AC **Matrix.....:** SO
Date Sampled...: 10/22/07 09:54 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	53	(24 - 112)
2-Fluorobiphenyl	57	(34 - 110)
Terphenyl-d14	85	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	56	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-450-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-005 **Work Order #...:** J9MH51AC **Matrix.....:** SO
Date Sampled...: 10/22/07 09:56 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 21 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.7

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	94	(41 - 119)
Phenol-d5	67	(28 - 110)
2-Fluorophenol	66	(26 - 110)
2,4,6-Tribromophenol	66	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-451-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-006 **Work Order #...:** J9MH81AC **Matrix.....:** SO
Date Sampled...: 10/22/07 10:25 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	95	(41 - 119)
Phenol-d5	66	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	61	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-451-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-007 **Work Order #...:** J9MJC1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 10:27 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	92	(41 - 119)
Phenol-d5	67	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	68	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-451-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-008 **Work Order #...:** J9MJD1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 10:29 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	70	(24 - 112)
2-Fluorobiphenyl	71	(34 - 110)
Terphenyl-d14	95	(41 - 119)
Phenol-d5	70	(28 - 110)
2-Fluorophenol	71	(26 - 110)
2,4,6-Tribromophenol	67	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-451-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-009 **Work Order #...:** J9MJE1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 10:31 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 21 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	55	(24 - 112)
2-Fluorobiphenyl	56	(34 - 110)
Terphenyl-d14	78	(41 - 119)
Phenol-d5	57	(28 - 110)
2-Fluorophenol	58	(26 - 110)
2,4,6-Tribromophenol	55	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-451-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-010 **Work Order #...:** J9MJF1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 10:33 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	59	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	95	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	59	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-452-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-011 **Work Order #...:** J9MJH1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 10:36 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 8.6 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**120 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	78	(24 - 112)
2-Fluorobiphenyl	80	(34 - 110)
Terphenyl-d14	101	(41 - 119)
Phenol-d5	79	(28 - 110)
2-Fluorophenol	80	(26 - 110)
2,4,6-Tribromophenol	80	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-452-0203

GC/MS Semivolatiles

Lot-Sample #...:	A7J230247-012	**Work Order #...:**	J9MKN1AC	**Matrix.....:**	SO
Date Sampled...:	10/22/07 10:38	**Date Received..:**	10/23/07		
Prep Date.....:	10/25/07	**Analysis Date..:**	10/31/07		
Prep Batch #...:	7298391				
Dilution Factor:	1				
% Moisture.....:	8.2	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**22 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	65	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-452-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-013 **Work Order #...:** J9MKW2AC **Matrix.....:** SO
Date Sampled...: 10/22/07 10:40 **Date Received..:** 10/23/07
Prep Date.....: 11/01/07 **Analysis Date..:** 11/02/07
Prep Batch #...: 7305292
Dilution Factor: 1
% Moisture.....: 13 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**38 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65	(24 - 112)
2-Fluorobiphenyl	61	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	71	(28 - 110)
2-Fluorophenol	70	(26 - 110)
2,4,6-Tribromophenol	63	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-452-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-014 **Work Order #...:** J9MKX1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 10:42 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	58	(24 - 112)
2-Fluorobiphenyl	62	(34 - 110)
Terphenyl-d14	89	(41 - 119)
Phenol-d5	60	(28 - 110)
2-Fluorophenol	61	(26 - 110)
2,4,6-Tribromophenol	62	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-452-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-015 **Work Order #...:** J9MK11AC **Matrix.....:** SO
Date Sampled...: 10/22/07 10:44 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	70	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	103	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	75	(26 - 110)
2,4,6-Tribromophenol	71	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-453-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-016 **Work Order #...:** J9MK21AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:30 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**7.9 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-453-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-017 **Work Order #...:** J9MK31AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:32 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 11/01/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**28 J**	**390**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	37	(24 - 112)
2-Fluorobiphenyl	50	(34 - 110)
Terphenyl-d14	99	(41 - 119)
Phenol-d5	46	(28 - 110)
2-Fluorophenol	38	(26 - 110)
2,4,6-Tribromophenol	83	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-453-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-018 **Work Order #...:** J9MK51AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:34 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 28 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**640**	**460**	**ug/kg**	**1.8**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	71	(24 - 112)
2-Fluorobiphenyl	74	(34 - 110)
Terphenyl-d14	96	(41 - 119)
Phenol-d5	75	(28 - 110)
2-Fluorophenol	74	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-453-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-019 **Work Order #...:** J9MK61AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:36 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 16 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	62	(24 - 112)
2-Fluorobiphenyl	66	(34 - 110)
Terphenyl-d14	101	(41 - 119)
Phenol-d5	65	(28 - 110)
2-Fluorophenol	65	(26 - 110)
2,4,6-Tribromophenol	61	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-453-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J230247-020 **Work Order #...:** J9MK81AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:38 **Date Received..:** 10/23/07
Prep Date.....: 10/25/07 **Analysis Date..:** 10/31/07
Prep Batch #...: 7298391
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(24 - 112)
2-Fluorobiphenyl	63	(34 - 110)
Terphenyl-d14	91	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	63	(26 - 110)
2,4,6-Tribromophenol	62	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG 7J23247

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-451-0102	A7J230247006	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-450-0203	A7J230247002	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-450-0304	A7J230247003	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-453-0708	A7J230247020	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-450-0708	A7J230247005	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-450-0102	A7J230247001	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-451-0203	A7J230247007	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-451-0304	A7J230247008	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-451-0506	A7J230247009	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-451-0708	A7J230247010	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-452-0203	A7J230247012	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-452-0304	A7J230247013	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-452-0506	A7J230247014	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-452-0708	A7J230247015	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-453-0102	A7J230247016	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-453-0203	A7J230247017	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-453-0304	A7J230247018	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-453-0506	A7J230247019	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-452-0102	A7J230247011	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-450-0506	A7J230247004	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
OS	%	SB-453-0506	A7J230247019	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-452-0102	A7J230247011	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-450-0102	A7J230247001	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-452-0203	A7J230247012	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-452-0304RE	A7J230247013	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
OS	%	SB-452-0506	A7J230247014	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-452-0708	A7J230247015	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-453-0102	A7J230247016	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-453-0304	A7J230247018	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-453-0203	A7J230247017	NM	10/22/2007	10/25/2007	11/1/2007	3	7	10
OS	%	SB-451-0708	A7J230247010	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-451-0506	A7J230247009	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-451-0304	A7J230247008	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	%	SB-451-0203	A7J230247007	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-451-0102	A7J230247006	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-450-0708	A7J230247005	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-450-0506	A7J230247004	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-453-0708	A7J230247020	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-450-0203	A7J230247002	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	%	SB-450-0304	A7J230247003	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-452-0102	A7J230247011	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-451-0708	A7J230247010	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-453-0708	A7J230247020	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-453-0506	A7J230247019	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-453-0304	A7J230247018	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-453-0203	A7J230247017	NM	10/22/2007	10/25/2007	11/1/2007	3	7	10
OS	UG/KG	SB-453-0102	A7J230247016	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-452-0708	A7J230247015	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-452-0506	A7J230247014	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-451-0506	A7J230247009	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-452-0203	A7J230247012	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	SB-450-0102	A7J230247001	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-451-0304	A7J230247008	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-451-0203	A7J230247007	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-451-0102	A7J230247006	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-450-0708	A7J230247005	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-450-0506	A7J230247004	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-450-0304	A7J230247003	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-450-0203	A7J230247002	NM	10/22/2007	10/25/2007	10/31/2007	3	6	9
OS	UG/KG	SB-452-0304RE	A7J230247013	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11

Chain of Custody Record

SEVERN TRENT STL
Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Martin	Date: 10/22/07	Chain of Custody Number: 227039
Address: 20251 Century Blvd #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 1 of 2
City: Germantown / State: MD / Zip Code: 20874	Site Contact: S. Hadley	Lab Contact: K. Ives	
Project Name and Location (State): LMC MK	Carrier/Waybill Number: * Courier		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis (Attach list if more space is needed): LL8270 *	Special Instructions/ Conditions of Receipt
SB-450-0102	10/22	0948				X	1						X	#block 'G'
-0203		0950												*benzo(a) pyrene
-0304		0952												
-0506		0954												
450-0708		0956												
451-0102		1025												
-0203		1027												
-0304		1029 (1027 1029)												
-0506		1031												
451-0708		1033												
452-0102		1036												
SB-452-0203	10/22	1038				X	1						X	*benzo(a) pyrene

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

Sample Disposal
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☑ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/22/07	1630	1. Received By	10/22/07	1630
2. Relinquished By			2. Received By	10/23/07	10:00
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

16

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Tetra Tech	Project Manager: M. Martin	Date: 10/22/07	Chain of Custody Number: 227040
Address: 20251 Century Bld #200	Telephone Number (Area Code)/Fax Number: 301-528-3022	Lab Number:	Page 2 of 2
City: Germantown; State: MD; Zip Code: 20874	Site Contact: S. Hadley; Lab Contact: K. Ives		
Project Name and Location (State): LMC MR	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): LL 8270*	Special Instructions/ Conditions of Receipt
SB-452-0304	10/22	1040				X	1						X	*Block 'G' *benzo(a)pyrene
-0506		1042												
452-0708		1044												
453-0102		1130												
-0203		1132												
-0304		1134												
-0506		1136												
-0506 ms/sd		1136												
SB-453-0708	10/22	1138				X	X						X	*benzo(a)pyrene

KS/ 10/22

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	10/22/07	1630	1. Received By: [signature]	10-22-07	1630
2. Relinquished By			2. Received By: [signature]	10/22/07	10:00
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

CASE NARRATIVE

7J23247

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 23, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID: A7J230247.

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 06, 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 temperature of the cooler upon sample receipt was 1.3°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-453-0506 had RPD's and recoveries 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) 7305292 had RPD's and recoveries 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-450-0304, SB-452-0506, SB-452-0708 and SB-453-0304 were double surrogated. Recoveries were adjusted accordingly.

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

- 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.

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J23247

Lot #: A7J230247

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-450-0102	71	75	101	74	75	75	00
02	SB-450-0203	59	69	93	66	63	69	00
03	SB-450-0304	61	65	97	64	64	67	00
04	SB-450-0506	53	57	85	55	56	64	00
05	SB-450-0708	63	67	94	67	66	66	00
06	SB-451-0102	65	68	95	66	67	61	00
07	SB-451-0203	64	67	92	67	67	68	00
08	SB-451-0304	70	71	95	70	71	67	00
09	SB-451-0506	55	56	78	57	58	55	00
10	SB-451-0708	59	62	95	62	63	59	00
11	SB-452-0102	78	80	101	79	80	80	00
12	SB-452-0203	61	67	90	65	65	65	00
13	SB-452-0304 RE-1	65	61	89	71	70	63	00
14	SB-452-0506	58	62	89	60	61	62	00
15	SB-452-0708	70	74	103	75	75	71	00
16	SB-453-0102	64	66	84	64	65	64	00
17	SB-453-0203	37	50	99	46	38	83	00
18	SB-453-0304	71	74	96	75	74	74	00
19	SB-453-0506	62	66	101	65	65	61	00
20	SB-453-0708	60	63	91	62	63	62	00
21	INTRA-LAB QC	87 D	81 D	95 D	88 D	86 D	64 D	00
22	METHOD BLK. J9TRR1AA	61	61	84	63	64	52	00
23	METHOD BLK. KAA5L1AA	74	67	90	75	77	52	00
24	LCS J9TRR1AC	70	69	84	73	73	73	00
25	LCS KAA5L1AC	78	72	86	76	83	63	00
26	SB-453-0506 D	34	46	77	40	32	53	00
27	LAB MS/MSD D	53 D	67 D	87 D	57 D	50 D	60 D	00

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8270C SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: Tetra Tech NUS, Inc

Lab Code: TALCAN SDG No: 7J23247

Lot #: A7J230247

Extraction: XXA13QL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	SB-453-0506 S	54	58	87	56	56	63	00
02	LAB MS/MSD S	83 D	76 D	87 D	83 D	83 D	65 D	00

SURROGATES		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

FORM II

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: J9TRR1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN SDG Number:7J23247

Lab File ID: J9TRR1AA. Lot Number: A7J230247

Date Analyzed: 10/31/07 Time Analyzed: 07:24

Matrix: SOLID Date Extracted:10/25/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-450-0102	J9MHN1AC	J9MHN1AC.	10/31/07	10:50
02	SB-450-0203	J9MH01AC	J9MH01AC.	10/31/07	11:07
03	SB-450-0304	J9MH31AC	J9MH31AC.	10/31/07	11:24
04	SB-450-0506	J9MH41AC	J9MH41AC.	10/31/07	11:41
05	SB-450-0708	J9MH51AC	J9MH51AC.	10/31/07	11:58
06	SB-451-0102	J9MH81AC	J9MH81AC.	10/31/07	12:16
07	SB-451-0203	J9MJC1AC	J9MJC1AC.	10/31/07	12:33
08	SB-451-0304	J9MJD1AC	J9MJD1AC.	10/31/07	12:50
09	SB-451-0506	J9MJE1AC	J9MJE1AC.	10/31/07	13:07
10	SB-451-0708	J9MJF1AC	J9MJF1AC.	10/31/07	14:16
11	SB-452-0102	J9MJH1AC	J9MJH1AC.	10/31/07	16:34
12	SB-452-0203	J9MKN1AC	J9MKN1AC.	10/31/07	14:51
13	SB-452-0506	J9MKX1AC	J9MKX1AC.	10/31/07	15:25
14	SB-452-0708	J9MK11AC	J9MK11AC.	10/31/07	15:42
15	SB-453-0102	J9MK21AC	J9MK21AC.	10/31/07	15:59
16	SB-453-0203	J9MK31AC	J9MK31AC.	11/01/07	12:33
17	SB-453-0304	J9MK51AC	J9MK51AC.	10/31/07	16:51
18	SB-453-0506	J9MK61AC	J9MK61AC.	10/31/07	13:24
19	SB-453-0506	J9MK61AF S	J9MK61AF.	10/31/07	13:42
20	SB-453-0506	J9MK61AG D	J9MK61AG.	10/31/07	13:59
21	SB-453-0708	J9MK81AC	J9MK81AC.	10/31/07	14:33
22	CHECK SAMPLE	J9TRR1AC C	J9TRR1AC.	10/31/07	07:41
23					
24					
25					
26					
27					
28					
29					
30					

COMMENTS:

FORM IV

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.: KAA5L1AA

Lab Name: TestAmerica Laboratories, Inc.

Lab Code: TALCAN

SDG Number:7J23247

Lab File ID: KAA5L1AA.

Lot Number: A7J230247

Date Analyzed: 11/02/07

Time Analyzed: 10:54

Matrix: SOLID

Date Extracted:11/01/07

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:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-452-0304	J9MKW2AC	J9MKW2AC.	11/02/07	13:12
02	INTRA-LAB QC	KAATG1AC	KAATG1AC.	11/02/07	20:04
03	LAB MS/MSD	KAATG1A2 S	KAATG1A2.	11/02/07	20:21
04	LAB MS/MSD	KAATG1A3 D	KAATG1A3.	11/02/07	20:39
05	CHECK SAMPLE	KAA5L1AC C	KAA5L1AC.	11/02/07	11:12
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

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.: SDG No.: 7J23247

Lab File ID: 2DF1031 DFTPP Injection Date: 10/31/07

Instrument ID: A4AG2 DFTPP Injection Time: 0645

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.3
68	Less than 2.0% of mass 69	0.2 (0.5)1
69	Mass 69 relative abundance	40.6
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	49.9
197	Less than 1.0% of mass 198	0.6
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	25.0
365	Greater than 1.0% of mass 198	3.1
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

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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	2SMH1031	10/31/07	0656
02	J9TRRBLK	J9TRR1AA	J9TRR1AA	10/31/07	0724
03	J9TRRCHK	J9TRR1AC	J9TRR1AC	10/31/07	0741
04	SB-450-0102	J9MHN1AC	J9MHN1AC	10/31/07	1050
05	SB-450-0203	J9MH01AC	J9MH01AC	10/31/07	1107
06	SB-450-0304	J9MH31AC	J9MH31AC	10/31/07	1124
07	SB-450-0506	J9MH41AC	J9MH41AC	10/31/07	1141
08	SB-450-0708	J9MH51AC	J9MH51AC	10/31/07	1158
09	SB-451-0102	J9MH81AC	J9MH81AC	10/31/07	1216
10	SB-451-0203	J9MJC1AC	J9MJC1AC	10/31/07	1233
11	SB-451-0304	J9MJD1AC	J9MJD1AC	10/31/07	1250
12	SB-451-0506	J9MJE1AC	J9MJE1AC	10/31/07	1307
13	SB-453-0506	J9MK61AC	J9MK61AC	10/31/07	1324
14	SB-453-0506	J9MK61AF	J9MK61AF	10/31/07	1342
15	SB-453-0506	J9MK61AG	J9MK61AG	10/31/07	1359
16	SB-451-0708	J9MJF1AC	J9MJF1AC	10/31/07	1416
17	SB-453-0708	J9MK81AC	J9MK81AC	10/31/07	1433
18	SB-452-0203	J9MKN1AC	J9MKN1AC	10/31/07	1451
19	SB-452-0506	J9MKX1AC	J9MKX1AC	10/31/07	1525
20	SB-452-0708	J9MK11AC	J9MK11AC	10/31/07	1542
21	SB-453-0102	J9MK21AC	J9MK21AC	10/31/07	1559
22	SB-452-0102	J9MJH1AC	J9MJH1AC	10/31/07	1634

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.: 7J23247

Lab File ID: 2DF1031 DFTPP Injection Date: 10/31/07

Instrument ID: A4AG2 DFTPP Injection Time: 0645

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.3
68	Less than 2.0% of mass 69	0.2 (0.5)1
69	Mass 69 relative abundance	40.6
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	49.9
197	Less than 1.0% of mass 198	0.6
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	25.0
365	Greater than 1.0% of mass 198	3.1
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

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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SB-453-0304	J9MK51AC	J9MK51AC	10/31/07	1651
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J23247

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	30.0 - 60.0% of mass 198	35.9
68	Less than 2.0% of mass 69	0.6 (1.6)1
69	Mass 69 relative abundance	41.0
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	50.5
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.5
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	11.2
442	Greater than 40.0% of mass 198	79.6
443	17.0 - 23.0% of mass 442	14.9 (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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	2SMH1101	11/01/07	0629
02	SB-453-0203	J9MK31AC	J9MK31AC	11/01/07	1233
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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.: 7J23247

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	30.0 - 60.0% of mass 198	40.4
68	Less than 2.0% of mass 69	0.6 (1.4)1
69	Mass 69 relative abundance	45.0
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	52.9
197	Less than 1.0% of mass 198	0.5
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	24.5
365	Greater than 1.0% of mass 198	3.2
441	Present, but less than mass 443	9.1
442	Greater than 40.0% of mass 198	65.0
443	17.0 - 23.0% of mass 442	12.5 (19.2)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 SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD006	L6	2SMH1102	11/02/07	0907
02	KAA5LBLK	KAA5L1AA	KAA5L1AA	11/02/07	1054
03	KAA5LCHK	KAA5L1AC	KAA5L1AC	11/02/07	1112
04	SB-452-0304	J9MKW2AC	J9MKW2AC	11/02/07	1312
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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
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	7.500 Level 7	10.000 Level 8	12.500 Level 9	___ RRF	% RSD	
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
146 Benzo(a)pyrene	1.19388	0.91500	0.94599	1.00463	0.99585	1.06396	1.10598	1.11559	1.23742	1.06425	10.275	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.22899	1.01257	1.04827	1.12537	1.12255	1.19394	1.24288	1.24889	1.38394	1.17860	9.699	
150 Dibenz(a,h)anthracene	1.02002	0.86564	0.89445	0.94052	0.96776	1.01881	1.06353	1.07575	1.19310	1.00440	10.044	
151 Benzo(g,h,i)perylene	1.00163	0.91708	0.90740	0.94530	0.95685	1.00796	1.03882	1.04345	1.14812	0.99629	7.576	
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i Injection Date: 29-OCT-2007 09:55
Lab File ID: ICVTCL.D Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007
Analysis Type: Init. Cal. Times: 07:15 09:38
Lab Sample ID: ICVTCL Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71029A.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
146 Benzo(a)pyrene	1.06425	1.06595	1.06595	0.010	-0.15952	20.00000	Averaged
149 Indeno(1,2,3-cd)pyrene	1.17860	1.19840	1.19840	0.010	-1.68001	50.00000	Averaged
150 Dibenz(a,h)anthracene	1.00440	1.02613	1.02613	0.010	-2.16310	50.00000	Averaged
151 Benzo(g,h,i)perylene	0.99629	1.02560	1.02560	0.010	-2.94146	50.00000	Averaged
$ 154 Nitrobenzene-d5	0.30329	0.31342	0.31342	0.010	-3.34090	50.00000	Averaged
$ 155 2-Fluorobiphenyl	1.19472	1.24940	1.24940	0.010	-4.57642	50.00000	Averaged
$ 156 Terphenyl-d14	0.82049	0.85940	0.85940	0.010	-4.74153	50.00000	Averaged
$ 157 Phenol-d5	1.50322	1.50799	1.50799	0.010	-0.31754	50.00000	Averaged
$ 158 2-Fluorophenol	1.14183	1.17848	1.17848	0.010	-3.20947	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.15946	0.17206	0.17206	0.010	-7.90069	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.29469	1.29546	1.29546	0.010	-0.05975	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82582	0.83692	0.83692	0.010	-1.34346	50.00000	Averaged
M 195 Cresols, total	2.47068	2.50499	2.50499	0.010	-1.38839	50.00000	Averaged
101 Diphenylamine	0.51815	0.52590	0.52590	0.010	-1.49725	50.00000	Averaged

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i
Lab File ID: 2SMH1031.D
Analysis Type:
Lab Sample ID: L6
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71031A.b\8270p.m

Injection Date: 31-OCT-2007 06:56
Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007
Init. Cal. Times: 07:15 09:38
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %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

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
Analysis Type: Init. Cal. Times: 07:15 09:38
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71101A.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %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

STL North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4ag2.i Injection Date: 02-NOV-2007 09:07
Lab File ID: 2SMH1102.D Init. Cal. Date(s): 29-OCT-2007 29-OCT-2007
Analysis Type: Init. Cal. Times: 07:15 09:38
Lab Sample ID: L6 Quant Type: ISTD
Method: \\cansvr11\dd\chem\MSS\a4ag2.i\71102A.b\8270p.m

COMPOUND	RRF / AMOUNT	RF5	CCAL RRF5	MIN RRF	%D / %DRIFT	MAX %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	Averaged
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	Averaged
$ 157 Phenol-d5	1.50322	1.48870	1.48870	0.010	0.96601	50.00000	Averaged
$ 158 2-Fluorophenol	1.14183	1.17816	1.17816	0.010	-3.18161	50.00000	Averaged
$ 159 2,4,6-Tribromophenol	0.15946	0.15784	0.15784	0.010	1.01260	50.00000	Averaged
$ 186 2-Chlorophenol-d4	1.29469	1.28467	1.28467	0.010	0.77342	50.00000	Averaged
$ 187 1,2-Dichlorobenzene-d4	0.82582	0.83897	0.83897	0.010	-1.59167	50.00000	Averaged
M 195 Cresols, total	2.47068	2.72373	2.72373	0.010	-10.24192	50.00000	Averaged
101 Diphenylamine	0.51815	0.52362	0.52362	0.010	-1.05600	50.00000	Averaged

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J23247

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

Instrument ID: A4AG2 Time Analyzed: 0656

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	357582	3.61	1543702	4.51	756387	5.78
	UPPER LIMIT	715164	4.11	3087404	5.01	1512774	6.28
	LOWER LIMIT	178791	3.11	771851	4.01	378194	5.28
	EPA SAMPLE NO.						
01	J9TRRBLK	345386	3.61	1501809	4.51	794905	5.78
02	J9TRRCHK	401607	3.61	1775085	4.51	920935	5.78
03	SB-450-0102	321675	3.61	1372892	4.51	723741	5.78
04	SB-450-0203	348005	3.61	1506339	4.51	790511	5.78
05	SB-450-0304	344405	3.61	1475478	4.51	789454	5.78
06	SB-450-0506	378957	3.61	1632634	4.51	835961	5.78
07	SB-450-0708	346840	3.61	1460949	4.51	778941	5.78
08	SB-451-0102	340189	3.61	1468736	4.51	784992	5.78
09	SB-451-0203	326463	3.61	1411519	4.51	749081	5.78
10	SB-451-0304	355885	3.61	1493940	4.51	782917	5.78
11	SB-451-0506	357463	3.61	1521056	4.51	819604	5.78
12	SB-453-0506	313629	3.61	1362707	4.51	724926	5.78
13	SB-453-0506	335066	3.61	1479599	4.51	806226	5.78
14	SB-453-0506	354322	3.61	1577662	4.51	862733	5.78
15	SB-451-0708	353673	3.61	1521747	4.51	806586	5.78
16	SB-453-0708	331924	3.61	1440266	4.51	747241	5.78
17	SB-452-0203	363413	3.61	1582698	4.51	822269	5.78
18	SB-452-0506	368640	3.61	1570628	4.51	817799	5.78
19	SB-452-0708	329357	3.61	1442509	4.51	757280	5.78
20	SB-453-0102	356617	3.61	1505371	4.51	790522	5.78
21	SB-452-0102	354242	3.61	1520868	4.51	791254	5.78
22	SB-453-0304	348561	3.61	1525092	4.51	826733	5.78

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J23247

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

Instrument ID: A4AG2 Time Analyzed: 0656

		IS4 (PHN) AREA #	RT	IS5 (CRY) AREA #	RT	IS6 (PRY) AREA #	RT
	12 HOUR STD	1273448	6.87	1189792	8.85	1146138	10.34
	UPPER LIMIT	2546896	7.37	2379584	9.35	2292276	10.84
	LOWER LIMIT	636724	6.37	594896	8.35	573069	9.84
	EPA SAMPLE NO.						
01	J9TRRBLK	1350128	6.88	1263372	8.87	1230980	10.36
02	J9TRRCHK	1585953	6.87	1481687	8.85	1434331	10.34
03	SB-450-0102	1231941	6.87	1016519	8.85	877106	10.34
04	SB-450-0203	1361779	6.87	1101787	8.85	950286	10.34
05	SB-450-0304	1372934	6.87	1098281	8.84	955034	10.33
06	SB-450-0506	1466695	6.87	1209187	8.84	1069998	10.33
07	SB-450-0708	1345255	6.87	1084149	8.84	935074	10.33
08	SB-451-0102	1369832	6.87	1108347	8.84	943922	10.33
09	SB-451-0203	1276260	6.87	1026450	8.84	873075	10.33
10	SB-451-0304	1357912	6.87	1099108	8.84	958514	10.34
11	SB-451-0506	1433120	6.87	1160123	8.84	1011567	10.33
12	SB-453-0506	1255540	6.87	1014853	8.84	867595	10.33
13	SB-453-0506	1399641	6.87	1169234	8.85	1012859	10.33
14	SB-453-0506	1494965	6.87	1207949	8.84	1018217	10.33
15	SB-451-0708	1405556	6.87	1129049	8.84	972978	10.33
16	SB-453-0708	1295161	6.87	1054901	8.84	891116	10.33
17	SB-452-0203	1433362	6.87	1160462	8.84	992012	10.34
18	SB-452-0506	1411328	6.87	1146038	8.85	955088	10.34
19	SB-452-0708	1296850	6.87	1060863	8.85	901833	10.34
20	SB-453-0102	1376486	6.87	1098623	8.84	953904	10.34
21	SB-452-0102	1347582	6.87	1085384	8.84	952217	10.33
22	SB-453-0304	1392207	6.87	1136846	8.85	1002220	10.34

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J23247

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

Instrument ID: A4AG2 Time Analyzed: 0629

		IS1 (DCB) AREA #	RT	IS2 (NPT) AREA #	RT	IS3 (ANT) AREA #	RT
	12 HOUR STD	204046	3.60	864274	4.50	441616	5.77
	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	SB-453-0203	128939	3.60	595482	4.50	341791	5.77
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

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.: 7J23247

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	SB-453-0203	617733	6.87	573759	8.84	578105	10.32
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

8B
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J23247

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

Instrument ID: A4AG2 Time Analyzed: 0907

		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	KAA5LBLK	212907	3.57	925750	4.47	471529	5.74
02	KAA5LCHK	165439	3.57	764390	4.47	382569	5.74
03	SB-452-0304	213494	3.57	941082	4.47	485393	5.74
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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.

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: TESTAMERICA-NORTH CANTON Contract:

Lab Code: TALCAN Case No.: SAS No.: SDG No.: 7J23247

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

Instrument ID: A4AG2 Time Analyzed: 0907

		IS4 (PHN) 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	KAA5LBLK	799431	6.83	712049	8.80	690258	10.26
02	KAA5LCHK	639214	6.83	576815	8.80	555231	10.25
03	SB-452-0304	821955	6.83	716979	8.81	700917	10.27
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
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.

SAMPLE CALC SAMPLE ID: SB-450-0102 COMPOUND: BAP

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	PERCENT SOLIDS	AMOUNT INJECTED (UL)	CONCENTRATION PPB
877106	1	36050	2	2000	1.0643	0.85	0.5	12.04

Sample Amount (g)
30.19

Tetra Tech NUS, Inc

Client Sample ID: SB-450-0102

GC/MS Semivolatiles

Lot-Sample #...:	A7J230247-001	**Work Order #...:**	J9MHN1AC	**Matrix.....:**	SO
Date Sampled...:	10/22/07 09:48	**Date Received..:**	10/23/07		
Prep Date.....:	10/25/07	**Analysis Date..:**	10/31/07		
Prep Batch #...:	7298391				
Dilution Factor:	1	**Initial Wgt/Vol:**	30.19 g	**Final Wgt/Vol..:**	2 mL
% Moisture.....:	15	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	**12 J**	**390**	**ug/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	71	(24 - 112)
2-Fluorobiphenyl	75	(34 - 110)
Terphenyl-d14	101	(41 - 119)
Phenol-d5	74	(28 - 110)
2-Fluorophenol	75	(26 - 110)
2,4,6-Tribromophenol	75	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4ag2.i\71031A.b\J9MHN1AC.D
Lab Smp Id: J9MHN1AC Client Smp ID: SB-450-0102
Inj Date : 31-OCT-2007 10:50
Operator : 046900 Inst ID: a4ag2.i
Smp Info : J9MHN1AC,71031A.b,8270P,BAP.SUB
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4ag2.i\71031A.b\8270p.m
Meth Date : 01-Nov-2007 07:46 hulat Quant Type: ISTD
Cal Date : 29-OCT-2007 07:15 Cal File: 2SHHH1029.D
Als bottle: 15
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	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.190	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)	
* 1 1,4-Dichlorobenzene-d4	152	3.613	3.613	(1.000)	321675	2.00000		(Q)
* 2 Naphthalene-d8	136	4.513	4.513	(1.000)	1372892	2.00000		
* 3 Acenaphthene-d10	164	5.783	5.783	(1.000)	723741	2.00000		
* 4 Phenanthrene-d10	188	6.871	6.871	(1.000)	1231941	2.00000		
* 5 Chrysene-d12	240	8.848	8.848	(1.000)	1016519	2.00000		
* 6 Perylene-d12	264	10.336	10.336	(1.000)	877106	2.00000		
146 Benzo(a)pyrene	252	10.265	10.271	(0.993)	36050	0.07724	10.234	
$ 154 Nitrobenzene-d5	82	3.989	3.995	(0.884)	734975	3.53025	467.74	
$ 155 2-Fluorobiphenyl	172	5.271	5.272	(0.912)	1631816	3.77442	500.09	
$ 156 Terphenyl-d14	244	8.018	8.018	(0.906)	2114050	5.06937	671.66	
$ 157 Phenol-d5	99	3.319	3.313	(0.919)	1337050	5.53016	732.71	
$ 158 2-Fluorophenol	112	2.748	2.736	(0.761)	1037537	5.64955	748.53	
$ 159 2,4,6-Tribromophenol	330	6.359	6.354	(1.100)	322514	5.58920	740.54	
$ 186 2-Chlorophenol-d4	132	3.460	3.460	(0.958)	1137231	5.46131	723.59	
$ 187 1,2-Dichlorobenzene-d4	152	3.724	3.725	(1.031)	457524	3.44461	456.39	(Q)

QC Flag Legend

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO : **MIKE MARTIN** **DATE:** **JANUARY 8, 2008**

FROM: **THOMAS JACKMAN** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC AND INORGANIC DATA VALIDATION – BENZO(A)PYRENE / ARSENIC**
LOCKHEED MIDDLE RIVER FACILITY
SAMPLE DELIVERY GROUP (SDG) – 7J23269

SAMPLES: 19/Solid for Benzo(a)pyrene Analysis

SB-454-0102	SB-454-0203	SB-454-0203	SB-454-0506	SB-454-0708
SB-455-0102	SB-455-0203	SB-455-0203	SB-455-0506	SB-455-0708
SB-456-0102	SB-456-0203	SB-456-0203	SB-456-0506	SB-456-0708
SB-457-0000	SB-457-0102	SB-458-0000	SB-458-0102	

4/Solid for Arsenic Analysis

SB-457-0000	SB-457-0102	SB-458-0000	SB-458-0102

Overview

This sample set for the Lockheed Middle River, SDG 7J23269, consists of 19 environmental soil samples. All samples were analyzed for benzo(a)pyrene. Four samples were analyzed for arsenic. No field duplicates were included in this data set.

The samples were collected by Tetra Tech NUS, Inc. on October 22, 2007 and analyzed by Test America. The samples were analyzed by SW-846 Method 8270C for benzo(a)pyrene and SW-Method 6020 for arsenic.

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, interference check standards, matrix spike 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

- None.

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".

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 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

PROJ_NO: 00885

SDG: 7J23269 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-454-0102	nsample	SB-454-0203	nsample	SB-454-0304
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230269001	lab_id	A7J230269002	lab_id	A7J230269003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	82.0	Pct_Solids	80.0	Pct_Solids	82.0
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	1.6	U	

PROJ_NO: 00885

SDG: 7J23269 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-454-0506	nsample	SB-454-0708	nsample	SB-455-0102
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230269004	lab_id	A7J230269005	lab_id	A7J230269006
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	81.0	Pct_Solids	80.0	Pct_Solids	85.0
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	1.5	U	

PROJ_NO: 00885

SDG: 7J23269 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-455-0203	nsample	SB-455-0304	nsample	SB-455-0506
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230269007	lab_id	A7J230269008	lab_id	A7J230269009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	86.0	Pct_Solids	85.0	Pct_Solids	82.0
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	1.5	U	

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

PROJ_NO: 00885

SDG: 7J23269 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-455-0708	nsample	SB-456-0102	nsample	SB-456-0203
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230269010	lab_id	A7J230269011	lab_id	A7J230269012
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	88.0	Pct_Solids	85.0
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	1.5	U	

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

PROJ_NO: 00885

SDG: 7J23269 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-456-0304	nsample	SB-456-0506	nsample	SB-456-0708
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230269013	lab_id	A7J230269014	lab_id	A7J230269015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	79.0	Pct_Solids	89.0	Pct_Solids	90.8
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	1.5	U	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	310	J	P

PROJ_NO: 00885

SDG: 7J23269 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-457-0000	nsample	SB-457-0102	nsample	SB-458-0000
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J230269016	lab_id	A7J230269017	lab_id	A7J230269018
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	86.0	Pct_Solids	90.0	Pct_Solids	88.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	300	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	260	J	P

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	8.9	J	P

PROJ_NO: 00885

SDG: 7J23269 MEDIA: SOIL DATA FRACTION: OS

nsample	SB-458-0102
samp_date	10/22/2007
lab_id	A7J230269019
qc_type	NM
units	UG/KG
Pct_Solids	88.0
DUP_OF:	

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

PROJ_NO: 00885

SDG: 7J23269 MEDIA: SOIL DATA FRACTION: M

nsample	SB-457-0000
samp_date	10/22/2007
lab_id	A7J230269016
qc_type	NM
units	MG/KG
Pct_Solids	86.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	1.4		

nsample	SB-457-0102
samp_date	10/22/2007
lab_id	A7J230269017
qc_type	NM
units	MG/KG
Pct_Solids	90.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	1.6		

nsample	SB-458-0000
samp_date	10/22/2007
lab_id	A7J230269018
qc_type	NM
units	MG/KG
Pct_Solids	88.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	2.3		

PROJ_NO: 00885

SDG: 7J23269 MEDIA: SOIL DATA FRACTION: M

nsample	SB-458-0102
samp_date	10/22/2007
lab_id	A7J230269019
qc_type	NM
units	MG/KG
Pct_Solids	88.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	2.4		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Tetra Tech NUS, Inc

Client Sample ID: SB-454-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-001 **Work Order #...:** J9MRJ1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:50 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	63	(24 - 112)
2-Fluorobiphenyl	69	(34 - 110)
Terphenyl-d14	96	(41 - 119)
Phenol-d5	72	(28 - 110)
2-Fluorophenol	69	(26 - 110)
2,4,6-Tribromophenol	81	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-454-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-002 **Work Order #...:** J9MRQ1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:52 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 20 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	50	(24 - 112)
2-Fluorobiphenyl	52	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	62	(28 - 110)
2-Fluorophenol	54	(26 - 110)
2,4,6-Tribromophenol	68	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-454-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-003 **Work Order #...:** J9MRT1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:54 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	44	(24 - 112)
2-Fluorobiphenyl	51	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	59	(28 - 110)
2-Fluorophenol	53	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-454-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-004 **Work Order #...:** J9MRW1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:56 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 19 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	48	(24 - 112)
2-Fluorobiphenyl	55	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	60	(28 - 110)
2-Fluorophenol	56	(26 - 110)
2,4,6-Tribromophenol	66	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-454-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-005 **Work Order #...:** J9MR91AC **Matrix.....:** SO
Date Sampled...: 10/22/07 11:58 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 20 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	410	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	35	(24 - 112)
2-Fluorobiphenyl	44	(34 - 110)
Terphenyl-d14	83	(41 - 119)
Phenol-d5	43	(28 - 110)
2-Fluorophenol	39	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-455-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-006 **Work Order #...:** J9MTA1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:17 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	35	(24 - 112)
2-Fluorobiphenyl	28 *	(34 - 110)
Terphenyl-d14	86	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	51	(26 - 110)
2,4,6-Tribromophenol	63	(10 - 118)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-455-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-007 **Work Order #...:** J9MTC1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:19 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	34	(24 - 112)
2-Fluorobiphenyl	37	(34 - 110)
Terphenyl-d14	75	(41 - 119)
Phenol-d5	48	(28 - 110)
2-Fluorophenol	44	(26 - 110)
2,4,6-Tribromophenol	53	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-455-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-008 **Work Order #...:** J9MTD1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:21 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	45	(24 - 112)
2-Fluorobiphenyl	44	(34 - 110)
Terphenyl-d14	84	(41 - 119)
Phenol-d5	46	(28 - 110)
2-Fluorophenol	49	(26 - 110)
2,4,6-Tribromophenol	58	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-455-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-009 **Work Order #...:** J9MTG1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:23 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 18 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	47	(24 - 112)
2-Fluorobiphenyl	47	(34 - 110)
Terphenyl-d14	90	(41 - 119)
Phenol-d5	51	(28 - 110)
2-Fluorophenol	54	(26 - 110)
2,4,6-Tribromophenol	65	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-455-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-010 **Work Order #...:** J9MTK1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:25 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 17 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	400	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	32	(24 - 112)
2-Fluorobiphenyl	32 *	(34 - 110)
Terphenyl-d14	71	(41 - 119)
Phenol-d5	37	(28 - 110)
2-Fluorophenol	43	(26 - 110)
2,4,6-Tribromophenol	44	(10 - 118)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-456-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-011 **Work Order #...:** J9MTM1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:36 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	54	(24 - 112)
2-Fluorobiphenyl	52	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	58	(28 - 110)
2-Fluorophenol	60	(26 - 110)
2,4,6-Tribromophenol	65	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-456-0203

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-012 **Work Order #...:** J9MTN1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:38 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 15 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	390	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	41	(24 - 112)
2-Fluorobiphenyl	41	(34 - 110)
Terphenyl-d14	85	(41 - 119)
Phenol-d5	47	(28 - 110)
2-Fluorophenol	48	(26 - 110)
2,4,6-Tribromophenol	61	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-456-0304

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-013 **Work Order #...:** J9MTP1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:40 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 21 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	420	ug/kg	1.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	51	(24 - 112)
2-Fluorobiphenyl	50	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	55	(28 - 110)
2-Fluorophenol	58	(26 - 110)
2,4,6-Tribromophenol	64	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-456-0506

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-014 **Work Order #...:** J9MTQ1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:42 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 11/01/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 11 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	370	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	46	(24 - 112)
2-Fluorobiphenyl	45	(34 - 110)
Terphenyl-d14	92	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	55	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech NUS, Inc

Client Sample ID: SB-456-0708

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-015 **Work Order #...:** J9MTV1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 13:44 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 11/02/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 9.2 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**310 J**	**360**	**ug/kg**	**1.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	67	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	110	(41 - 119)
Phenol-d5	76	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	82	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-457-0000

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-016 **Work Order #...:** J9MTW1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 14:06 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 11/02/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**300 J**	**380**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(24 - 112)
2-Fluorobiphenyl	58	(34 - 110)
Terphenyl-d14	97	(41 - 119)
Phenol-d5	80	(28 - 110)
2-Fluorophenol	79	(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.

Tetra Tech NUS, Inc

Client Sample ID: SB-457-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-017 **Work Order #...:** J9MTX1AC **Matrix.....:** SO
Date Sampled...: 10/22/07 14:08 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 11/01/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**260 J**	**370**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	42	(24 - 112)
2-Fluorobiphenyl	43	(34 - 110)
Terphenyl-d14	83	(41 - 119)
Phenol-d5	63	(28 - 110)
2-Fluorophenol	52	(26 - 110)
2,4,6-Tribromophenol	67	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-458-0000

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-018 **Work Order #...:** J9MT11AC **Matrix.....:** SO
Date Sampled...: 10/22/07 14:12 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 11/01/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	**8.9 J**	**370**	**ug/kg**	**1.5**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	66	(24 - 112)
2-Fluorobiphenyl	67	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	77	(28 - 110)
2-Fluorophenol	73	(26 - 110)
2,4,6-Tribromophenol	74	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech NUS, Inc

Client Sample ID: SB-458-0102

GC/MS Semivolatiles

Lot-Sample #...: A7J230269-019 **Work Order #...:** J9MT21AC **Matrix.....:** SO
Date Sampled...: 10/22/07 14:14 **Date Received..:** 10/23/07
Prep Date.....: 10/26/07 **Analysis Date..:** 10/29/07
Prep Batch #...: 7298516
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzo(a)pyrene	ND	380	ug/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	47	(24 - 112)
2-Fluorobiphenyl	46	(34 - 110)
Terphenyl-d14	87	(41 - 119)
Phenol-d5	64	(28 - 110)
2-Fluorophenol	57	(26 - 110)
2,4,6-Tribromophenol	72	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9MTW **Client ID:** SB-457-0000

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/07 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 13.601

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.031	0.58	1.4		1	ICPMS	10/30/07	0:32

Comments: Lot #: A7J230269 Sample #: 16

5.21.0

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9MTX **Client ID:** SB-457-0102

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/07 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 10.43

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.030	0.56	1.6		1	ICPMS	10/30/07	0:48

Comments: Lot #: A7J230269 Sample #: 17

5.21.0

E Serial dilution percent difference not within limits
U Result is less than the IDL
B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9MT1 **Client ID:** SB-458-0000

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/07 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 11.944

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.031	0.57	2.3		1	ICPMS	10/30/07	0:52

Comments: Lot #: A7J230269 Sample #: 18

5.21.0

E Serial dilution percent difference not within limits
U Result is less than the IDL
B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9MT2 **Client ID:** SB-458-0102

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/07 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 12.346

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.031	0.57	2.4		1	ICPMS	10/30/07	0:56

Comments: Lot #: A7J230269 Sample #: 19

5.21.0

E Serial dilution percent difference not within limits
U Result is less than the IDL
B Result is between IDL and RL

Form 1 Equivalent

APPENDIX C

SUPPORT DOCUMENTATION

CASE NARRATIVE

7J23269

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 112IC00885. The samples were received October 23, 2007, according to documented sample acceptance procedures.

This SDG consists of (1) laboratory ID: A7J230269.

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 temperature of the cooler upon sample receipt was 1.3°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.

Sample(s) SB-455-0102 and SB-455-0708 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.

Double surrogates were added to sample(s) SB-456-0708. 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.

Chain of Custody Record

SEVERN TRENT STL
Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
Tetra Tech	M. McKN	10/22/07	227041
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 2
20251 Century Blvd #200	301-528-3022		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Germantown MD 20874	S. Hadley	K. Ives	
Project Name and Location (State)	**Carrier/Waybill Number**		
BMC MA	Courier		
Contract/Purchase Order/Quote No.			
112RC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): 1L 8270 *	Special Instructions/ Conditions of Receipt
SB-454-0102	10/22	1150				X	1						X	Block G
-0203		1152												
-0304		1154												
-0506		1156												
454-0708		1158												
455-0102		1317												
-0203		1319												
-0304		1321												
-0506		1323												
455-0708		1325												
456-0102		1336												
SB-456-0203	10/22	1338				X	1						X	* benzo(g) perylene

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/22/07	1636	1. Received By	10-22-07	16:30
2. Relinquished By			2. Received By	10/23/07	10:00
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

15

Chain of Custody Record

SEVERN TRENT STL

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
Tetra Tech	M. McKay	10/22/07	227043
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 2**
20251 Century Blvd #200	301-528-3022		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Germantown / MD / 20874	S. Hardy	K. Ives	
Project Name and Location (State)	**Carrier/Waybill Number**		
LMC MR	Carrier		
Contract/Purchase Order/Quote No.			
112 IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: L18270	Arsenic (As)	Special Instructions/ Conditions of Receipt
SB-456-0304	10/22	1340				X	1						X		Block 6
0506		1342													benzo (a) pyrene
456-0708		1344													
457-0000		1406												X	
457-0102		1408													
458-0000		1412													
458-0102		1414													
SB-458-0102 MS/SD	10/22	1414				X	1						X	X	benzo (a) pyrene

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/22	1630	1. Received By	10-22-07	1630
2. Relinquished By			2. Received By	10/23/07	10:00 Am
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

16

HOLDTIME

SDG 7J23269

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	SB-458-0000	A7J230269018	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-457-0000	A7J230269016	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-458-0102	A7J230269019	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-457-0102	A7J230269017	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
PCS	%	SB-454-0203	A7J230269002	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-458-0000	A7J230269018	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-458-0102	A7J230269019	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-456-0708	A7J230269015	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-457-0102	A7J230269017	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-454-0102	A7J230269001	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-454-0304	A7J230269003	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-454-0506	A7J230269004	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-454-0708	A7J230269005	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-456-0203	A7J230269012	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-455-0203	A7J230269007	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-455-0304	A7J230269008	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-455-0506	A7J230269009	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-456-0506	A7J230269014	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-455-0708	A7J230269010	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-456-0304	A7J230269013	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-456-0102	A7J230269011	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-455-0102	A7J230269006	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
PCS	%	SB-457-0000	A7J230269016	NM	10/22/2007	10/31/2007	11/1/2007	9	1	10
OS	%	SB-456-0102	A7J230269011	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-456-0203	A7J230269012	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-456-0304	A7J230269013	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-456-0506	A7J230269014	NM	10/22/2007	10/26/2007	11/1/2007	4	6	10
OS	%	SB-458-0102	A7J230269019	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-457-0102	A7J230269017	NM	10/22/2007	10/26/2007	11/1/2007	4	6	10
OS	%	SB-457-0000	A7J230269016	NM	10/22/2007	10/26/2007	11/2/2007	4	7	11
OS	%	SB-455-0708	A7J230269010	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-456-0708	A7J230269015	NM	10/22/2007	10/26/2007	11/2/2007	4	7	11
OS	%	SB-458-0000	A7J230269018	NM	10/22/2007	10/26/2007	11/1/2007	4	6	10

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	%	SB-455-0506	A7J230269009	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-455-0304	A7J230269008	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-455-0203	A7J230269007	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-455-0102	A7J230269006	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-454-0708	A7J230269005	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-454-0506	A7J230269004	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-454-0102	A7J230269001	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-454-0203	A7J230269002	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	%	SB-454-0304	A7J230269003	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-455-0506	A7J230269009	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-456-0102	A7J230269011	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-458-0102	A7J230269019	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-458-0000	A7J230269018	NM	10/22/2007	10/26/2007	11/1/2007	4	6	10
OS	UG/KG	SB-457-0102	A7J230269017	NM	10/22/2007	10/26/2007	11/1/2007	4	6	10
OS	UG/KG	SB-457-0000	A7J230269016	NM	10/22/2007	10/26/2007	11/2/2007	4	7	11
OS	UG/KG	SB-456-0708	A7J230269015	NM	10/22/2007	10/26/2007	11/2/2007	4	7	11
OS	UG/KG	SB-456-0506	A7J230269014	NM	10/22/2007	10/26/2007	11/1/2007	4	6	10
OS	UG/KG	SB-455-0203	A7J230269007	NM	10/22/2007	10/26/2007	10/29/2007	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-456-0203	A7J230269012	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-454-0102	A7J230269001	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-455-0708	A7J230269010	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-455-0304	A7J230269008	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-455-0102	A7J230269006	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-454-0708	A7J230269005	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-454-0506	A7J230269004	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-454-0304	A7J230269003	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-454-0203	A7J230269002	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7
OS	UG/KG	SB-456-0304	A7J230269013	NM	10/22/2007	10/26/2007	10/29/2007	4	3	7

CALCULATION WORKSHEET

CLIENT: LOCKHEED MIDDLE RIVER	**SDG No.** 7J23269
SUBJECT: EXAMPLE CALCULATION - BENZO(A)PYRENE - SOIL	
BY: T. JACKMAN	**DATE:** **12/05/07**

Sample ID = SB-456-0708
Concentration = 310 ug/kg

Benzo(a)pyrene

EQUATION:

$$C_s = \frac{A_x \times Is \times Vt \times Df}{Ais \times RRF \times V_i \times W_s \times D}$$

Where:

C_s	=	analyte concentration in soil		ug/kg
A_x	=	analyte response	=	492710
Is	=	amount of internal standard	=	2 ng
V_t	=	volume of final extract	=	2000 uL
Df	=	dilution factor	=	1
Ais	=	response of internal standard	=	444405
RRF	=	response factor of compound	=	1.06425
V_i	=	volume injected	=	0.5 uL
Ws	=	sample weight	=	30.07 g
D	=	percent solids	=	0.908

Therefore: benzo(a)pyrene concentration in soil =

$$\frac{492710 \times 2ng \times 2000uL \times 1}{444405 \times 1.06425 \times 0.5uL \times 30.07g \times 0.908}$$

C_s = 305.2 ug/kg

Tetra Tech NUS, Inc

Client Sample ID: SB-456-0708

GC/MS Semivolatiles

Lot-Sample #...:	A7J230269-015	Work Order #...:	J9MTV1AC	Matrix.....:	SO
Date Sampled...:	10/22/07 13:44	Date Received..:	10/23/07		
Prep Date.....:	10/26/07	Analysis Date..:	11/02/07		
Prep Batch #...:	7298516				
Dilution Factor:	1	Initial Wgt/Vol:	30.07 g	Final Wgt/Vol...:	2 mL
% Moisture....:	9.2	Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzo(a)pyrene	310 J	360	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	67	(24 - 112)
2-Fluorobiphenyl	68	(34 - 110)
Terphenyl-d14	110	(41 - 119)
Phenol-d5	76	(28 - 110)
2-Fluorophenol	67	(26 - 110)
2,4,6-Tribromophenol	82	(10 - 118)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

STL North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\cansvr11\dd\chem\MSS\a4ag2.i\71102A.b\J9MTV1AC.D
Lab Smp Id: J9MTV1AC Client Smp ID: SB-456-0708
Inj Date : 02-NOV-2007 12:03
Operator : 046900 Inst ID: a4ag2.i
Smp Info : J9MTV1AC,71102A.b,8270P,BAP.SUB
Misc Info :
Comment :
Method : \\cansvr11\dd\chem\MSS\a4ag2.i\71102A.b\8270p.m
Meth Date : 04-Nov-2007 10:03 hulat Quant Type: ISTD
Cal Date : 29-OCT-2007 07:15 Cal File: 2SHHH1029.D
Als bottle: 12
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	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	2000.000	Volume of final extract (uL)(1000 low, 2
Vi	0.50000	Volume injected (uL)
Ws	30.070	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)	
* 1 1,4-Dichlorobenzene-d4	152	3.571	3.572	(1.000)	140678	2.00000		(Q)
* 2 Naphthalene-d8	136	4.465	4.472	(1.000)	593431	2.00000		
* 3 Acenaphthene-d10	164	5.736	5.742	(1.000)	303080	2.00000		
* 4 Phenanthrene-d10	188	6.830	6.830	(1.000)	510091	2.00000		
* 5 Chrysene-d12	240	8.800	8.801	(1.000)	449139	2.00000		
* 6 Perylene-d12	264	10.259	10.259	(1.000)	444405	2.00000		
146 Benzo(a)pyrene	252	10.195	10.195	(0.994)	492710	2.08352	277.16	
$ 154 Nitrobenzene-d5	82	3.948	3.954	(0.884)	599275	6.65925	885.83	
$ 155 2-Fluorobiphenyl	172	5.224	5.230	(0.911)	1233470	6.81292	906.27	
$ 156 Terphenyl-d14	244	7.977	7.977	(0.906)	2019011	10.9575	1457.6	
$ 157 Phenol-d5	99	3.277	3.277	(0.918)	1197600	11.3264	1506.7	
$ 158 2-Fluorophenol	112	2.701	2.695	(0.756)	812389	10.1150	1345.5	
$ 159 2,4,6-Tribromophenol	330	6.312	6.313	(1.100)	298468	12.3516	1643.0	
$ 186 2-Chlorophenol-d4	132	3.418	3.419	(0.957)	893869	9.81552	1305.7	
$ 187 1,2-Dichlorobenzene-d4	152	3.683	3.683	(1.031)	239929	4.13047	549.45	

QC Flag Legend

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
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	7.500 Level 7	10.000 Level 8	12.500 Level 9	RRF	% RSD	
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
146 Benzo(a)pyrene	1.19388	0.91500	0.94599	1.00463	0.99585	1.06396	1.10598	1.11559	1.23742	1.06425	10.275	
148 3-Methylcholanthrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
149 Indeno(1,2,3-cd)pyrene	1.22899	1.01257	1.04827	1.12537	1.12255	1.19394	1.24288	1.24889	1.38394	1.17860	9.699	
150 Dibenz(a,h)anthracene	1.02002	0.86564	0.89445	0.94052	0.96776	1.01881	1.06353	1.07575	1.19310	1.00440	10.044	
151 Benzo(g,h,i)perylene	1.00163	0.91708	0.90740	0.94530	0.95685	1.00796	1.03882	1.04345	1.14812	0.99629	7.576	
199 3-Picoline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
200 N,N-Dimethylacetamide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO :	**MIKE MARTIN**	**DATE:**	**JANUARY 10, 2008**
FROM:	**THOMAS JACKMAN**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – ARSENIC**
LOCKHEED MIDDLE RIVER FACILITY
SAMPLE DELIVERY GROUP (SDG) – 7J25151

SAMPLES: 12/Solid

SB-459-0000	SB-459-0102	SB-460-0000	SB-460-0102
SB-461-0000	SB-461-0102	SB-494-0000	SB-494-0102
SB-495-0000	SB-495-0102	SB-496-0000	SB-496-0102

Overview

This sample set for the Lockheed Middle River, SDG 7J25151, consists of 12 environmental soil samples. The samples were analyzed for arsenic. No field duplicates were included in this data set.

The samples were collected by Tetra Tech NUS, Inc. on October 22, 2007 and analyzed by Test America. The samples were analyzed by SW-846 Method 6020.

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, interference check standards, matrix spike 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

- None.

Minor Problems

- The matrix spike recovery for arsenic (59.2%) was less than the 75 quality control limit. All positive results for arsenic are qualified "L", biased low.

Executive Summary

Laboratory Performance: The matrix spike recovery for arsenic was below the lower QC limit.

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

PROJ_NO: 00885

SDG: 7J25151 MEDIA: SOIL DATA FRACTION: M

nsample	SB-459-0000	nsample	SB-459-0102	nsample	SB-460-0000
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J250151001	lab_id	A7J250151002	lab_id	A7J250151003
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	88.0	Pct_Solids	88.0	Pct_Solids	90.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	0.91	L	D

Parameter	Result	Val Qual	Qual Code
ARSENIC	1.8	L	D

Parameter	Result	Val Qual	Qual Code
ARSENIC	0.99	L	D

PROJ_NO: 00885

SDG: 7J25151 MEDIA: SOIL DATA FRACTION: M

nsample	SB-460-0102	nsample	SB-461-0000	nsample	SB-461-0102
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J250151004	lab_id	A7J250151005	lab_id	A7J250151006
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	90.5	Pct_Solids	86.0	Pct_Solids	87.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	1.9	L	D

Parameter	Result	Val Qual	Qual Code
ARSENIC	0.8	L	D

Parameter	Result	Val Qual	Qual Code
ARSENIC	2.5	L	D

PROJ_NO: 00885

SDG: 7J25151 MEDIA: SOIL DATA FRACTION: M

nsample	SB-494-0000	nsample	SB-494-0102	nsample	SB-495-0000
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J250151007	lab_id	A7J250151008	lab_id	A7J250151009
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	89.0	Pct_Solids	88.0	Pct_Solids	90.6
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	1.3	L	D

Parameter	Result	Val Qual	Qual Code
ARSENIC	1.6	L	D

Parameter	Result	Val Qual	Qual Code
ARSENIC	0.92	L	D

PROJ_NO: 00885

SDG: 7J25151 MEDIA: SOIL DATA FRACTION: M

nsample	SB-495-0102	nsample	SB-496-0000	nsample	SB-496-0102
samp_date	10/22/2007	samp_date	10/22/2007	samp_date	10/22/2007
lab_id	A7J250151010	lab_id	A7J250151011	lab_id	A7J250151012
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	90.9	Pct_Solids	90.0	Pct_Solids	90.3
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	0.92	L	D

Parameter	Result	Val Qual	Qual Code
ARSENIC	1.2	L	D

Parameter	Result	Val Qual	Qual Code
ARSENIC	1.1	L	D

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9R90 **Client ID:** SB-459-0000

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 12.476

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.031	0.57	0.91		1	ICPMS	10/30/2007	1:08

Comments: Lot #: A7J250151 Sample #: 1

5.21.0

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9R97 **Client ID:** SB-459-0102

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 12.361

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.031	0.57	1.8		1	ICPMS	10/30/2007	1:12

Comments: Lot #: A7J250151 Sample #: 2

5.21.0

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TAH **Client ID:** SB-460-0000

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 10.245

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.030	0.56	0.99		1	ICPMS	10/30/2007	1:16

Comments: Lot #: A7J250151 Sample #: 3

5.21.0

E Serial dilution percent difference not within limits
U Result is less than the IDL
B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TAL **Client ID:** SB-460-0102

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 9.491

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.030	0.55	1.9		1	ICPMS	10/30/2007	1:20

Comments: Lot #: A7J250151 Sample #: 4

5.21.0

E Serial dilution percent difference not within limits
U Result is less than the IDL
B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TAM **Client ID:** SB-461-0000

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 13.624

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.031	0.58	0.80		1	ICPMS	10/30/2007	1:25

Comments: Lot #: A7J250151 Sample #: 5

5.21.0

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TAQ **Client ID:** SB-461-0102

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 12.731

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.031	0.57	2.5		1	ICPMS	10/30/2007	1:41

Comments: Lot #: A7J250151 Sample #: 6

5.21.0

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TAR **Client ID:** SB-494-0000

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 11.145

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.030	0.56	1.3		1	ICPMS	10/30/2007	1:45

Comments: Lot #: A7J250151 Sample #: 7

5.21.0

E Serial dilution percent difference not within limits
U Result is less than the IDL
B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TAT **Client ID:** SB-494-0102

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 12.099

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.031	0.57	1.6		1	ICPMS	10/30/2007	1:49

Comments: Lot #: A7J250151 Sample #: 8

5.21.0

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TAX **Client ID:** SB-495-0000

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 9.437

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.030	0.55	0.92		1	ICPMS	10/30/2007	1:53

Comments: Lot #: A7J250151 Sample #: 9

5.21.0

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TA1 **Client ID:** SB-495-0102

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 9.11

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.030	0.55	0.92		1	ICPMS	10/30/2007	1:56

Comments: Lot #: A7J250151 Sample #: 10

5.21.0

E Serial dilution percent difference not within limits
U Result is less than the IDL
B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TA2 **Client ID:** SB-496-0000

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 10.16

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.030	0.56	1.2		1	ICPMS	10/30/2007	2:00

Comments: Lot #: A7J250151 Sample #: 11

5.21.0

E Serial dilution percent difference not within limits
U Result is less than the IDL
B Result is between IDL and RL

Form 1 Equivalent

Test America North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: J9TA3 **Client ID:** SB-496-0102

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 9.685

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	75	0.030	0.55	1.1		1	ICPMS	10/30/2007	2:08

Comments: Lot #: A7J250151 Sample #: 12

5.21.0

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

APPENDIX C

SUPPORT DOCUMENTATION

CASE NARRATIVE

7J25151

The following report contains the analytical results for twelve 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: A7J250151.

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 temperature of the cooler upon sample receipt was 1.7 and 2.6°C.

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.

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
Tetra Tech	M. Mathew	10/23/07	227044
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
20251 Century Blvd #200	301 528 3022		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Germantown / MD / 20874	S. Hadley	K. Ives	
Project Name and Location (State)	**Carrier/Waybill Number**		
LMC MA	Courier		
Contract/Purchase Order/Quote No.			
112IC00885			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: Arsenic MS	Special Instructions/ Conditions of Receipt
SB-459-0000	10/22	1618				X	1						X	
459-0102		1620												
460-0000		1424												
460-0102		1426												
461-0000		1429												
461-0102		1431												
494-0000		1436												
494-0102		1438												
495-0000		1442												
495-0102		1444												
496-0000		~~1442~~ 1430												
SB-496-0102	10/22	~~1444~~ 1433				X	1						X	+ MS/SD

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STND

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	[signature]	10/23/07	1630	[signature]	10-23-07	1630
2.				1800	10-24-07	1000
3.						

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

15

HOLDTIME

SDG 7J25151

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	SB-496-0102	A7J250151012	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-459-0102	A7J250151002	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-460-0000	A7J250151003	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-460-0102	A7J250151004	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-461-0000	A7J250151005	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-461-0102	A7J250151006	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-494-0000	A7J250151007	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-494-0102	A7J250151008	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-495-0000	A7J250151009	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-495-0102	A7J250151010	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-459-0000	A7J250151001	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
M	MG/KG	SB-496-0000	A7J250151011	NM	10/22/2007	10/26/2007	10/30/2007	4	4	8
PCS	%	SB-496-0102	A7J250151012	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-459-0102	A7J250151002	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-460-0000	A7J250151003	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCS	%	SB-460-0102	A7J250151004	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-461-0000	A7J250151005	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-461-0102	A7J250151006	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-494-0000	A7J250151007	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-494-0102	A7J250151008	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-495-0000	A7J250151009	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-495-0102	A7J250151010	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-496-0000	A7J250151011	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11
PCS	%	SB-459-0000	A7J250151001	NM	10/22/2007	11/1/2007	11/2/2007	10	1	11

Test America North Canton

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: J9TA3S

Original Sample ID: J9TA3 **Client ID:** SB-496-0102S

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/26/2007 **Prep Batch:** 7299028

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 9.685

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
Arsenic	75	1.1		7.6		11.072	59.2	1	1	ICPMS	10/30/2007	2:08	10/30/2007	2:17

Comments: Lot #: A7J250151 Sample #: 12

5.21.0

N Spike recovery failed
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

Form 5A Equivalent

APPENDIX E - ADMINISTRATIVE REQUIREMENTS
Written Agreement
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

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.

Brad W. Owens
Printed Name

Director, Environmental Remediation
Title

Signature

4/14/08
Date

Zoning Certification
Block G Lot 1
Soil Response Action Plan
Lockheed Martin Middle River Complex, Middle River, Maryland

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 Remediation
Title

Brad W.
Signature

4/14/08
Date