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Transmitted Electronically

May 31, 2013

Mr. Jeffery Crowley
On-Scene Coordinator
U.S. Environmental Protection Agency
61 Forsyth Street
Atlanta, Georgia 30303

Subject: Field Sampling Report, Revision I
Five Mile Creek
EPA Contract No.: EP-W-05-053
Technical Direction Document (TDD) No.: TNA-05-003-0169

Dear Mr. Crowley:

Oneida Total Integrated Enterprises (OTIE) Superfund Technical Assessment and Response Team (START) is submitting one copy of the Field Sampling Report, Revision I for the Five Mile Creek site located in Birmingham, Jefferson County, Alabama.

Please contact me at (678) 355-5550 if you any questions or comments regarding this report.

Sincerely,

Russell Henderson
START Project Manager

Enclosure

cc: Katrina Jones, EPA Project Officer
Darryl Walker, EPA Project Officer
Greg Kowalski, START Program Manager (w/o enclosure)
START File

FIELD SAMPLING REPORT
FIVE MILE CREEK SAMPLING EVENT

FIVE MILE CREEK
BIRMINGHAM, JEFFERSON COUNTY, ALABAMA

Revision 1

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4
61 Forsyth Street
Atlanta, Georgia 30303

Prepared by:

Oneida Total Integrated Enterprises
1220 Kennestone Circle, Suite 106
Marietta, Georgia 30066

Contract No.	:	EP-W-05-053
Task Order No.	:	TNA-05-003-0169
Date Submitted	:	May 31,2013
EPA Task Monitor	:	Jeff Crowley
Telephone No.	:	404-562-9587

Prepared by
Russell Henderson

Technical Reviewer
Limari Krebs

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FIVE MILE CREEK SAMPLING EVENT

FIVE MILE CREEK
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CONTENTS

Section — Page

1.0 INTRODUCTION **1**

2.0 SITE BACKGROUND **3**

2.1 SITE LOCATION AND DESCRIPTION 3
2.2 SITE CHARACTERISTICS 3
2.3 SITE OPERATIONS AND HISTORY 3
2.4 PREVIOUS INVESTIGATIONS 4

3.0 FIELD INVESTIGATION ACTIVITIES **5**

3.1 APRIL 23-APRIL 26, 2012 SAMPLING 5
3.2 JANUARY 28-FEBRUARY 1, 2013 SAMPLING 6

4.0 QUALITY ASSURANCE/QUALITY CONTROL **7**

4.1 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES 7
4.1.1 April 23-April 26, 2012 Sampling 7
4.1.2 January 28 – February 1, 2013 Sampling 8
4.2 FIELD ANALYSIS 8
4.3 LABORATORY ANALYSIS 9
4.3.1 April 23-April 26, 2012 Sampling 9
4.3.2 January 28-February 1, 2013 Sampling 10

5.0 SITE INVESTIGATION RESULTS **11**

5.1 XRF RESULTS 11
5.1.1 Warwick Property 11
5.1.2 ABC Coke 12
5.1.3 Walter Coke 12
5.1.4 Chief William C. "Billy" Hewitt Park 12
5.2 SEDIMENT AND SOIL LABORATORY RESULTS 12
5.2.1 Warwick Property 13
5.2.2 ABC Coke Property 13
5.2.3 Walter Coke Property 14
5.2.4 Chief William C. "Billy" Hewitt Park 14
5.2.5 City of Birmingham Property 14
5.2.6 Freshwater Land Trust Property 15
5.2.7 Wright Brothers Construction 15
5.3 SURFACE WATER LABORATORY RESULTS 16
5.3.1 ABC Coke Property 16
5.3.2 Walter Coke Property 16
5.3.3 Chief William C. "Billy" Hewitt Park 16

6.0 SUMMARY AND CONCLUSIONS **17**

REFERENCES **18**

APPENDICES

A FIGURES

1 – Topographical Map
2 – Aerial Map
3 – Parcel Identification Map
4 – Sample Location Map
5 – Warwick Property Sediment and Overburden Sample Results
6 – ABC Coke Property Sediment and Overburden Sample Results
7 – Walter Coke Property Sediment Sample Results
8 – Chief Wm. C. Billy Hewitt Park Sediment Sample Results
9 – City of Birmingham Sediment Sample Results
10 – Freshwater Land Trust Sediment Sample Results
11 – Wright Brothers Property Sediment Sample Results
12 – Walter Coke Addendum Property Sediment Sample Results

B TABLES

1 – Summary of Samples Collected
2 – Water Quality Results
3 – QA Sample Summary of Analytical Results
4 – Summary of XRF Field Screening Results
5 – Summary of Sediment Sample Results - Creekbed
6 - Summary of Sediment Sample Results- Unnamed Tributary
7 – Summary of Overburden Soil Sample Results
8 – Summary of Surface Water Sample Analytical Results

C DATA VALIDATION MEMOS

D ANALYTICAL REPORTS

E LOGBOOK NOTES

Acronyms List

As - Arsenic
ASTM - American Standard Testing Materials
cBaP eq - carcinogenic benzo(a)pyrene equivalents
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CLP - Contract Laboratory Program
Cond - Conductivity
DO - Dissolved Oxygen
DQO - Data Quality Objectives
DUP - Field Duplicate
EcoSSV - Ecological Soil Screening Levels
EPA - U.S. Environmental Protection Agency
FBQSTP - Field Branches Quality System and Technical Procedures
FMC - Five Mile Creek
GPS - Global Positioning System
HASP - Health and Safety Plan
J - Estimated
LCS - laboratory control sample
LOD - Limit of Detection
mg/Kg - milligrams/Kilogram
MS - Matrix Spike
MSD - Matrix Spike Duplicate
NFG - National Functional Guidelines
NOAA - National Oceanic Atmospheric Administration
ORP - Oxygenation Reduction Potential
OTIE - Oneida Total Integrated Enterprises
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyls
pH - parts Hydrogen
ppm - parts per million
QA - quality assurance
QAPP - Quality Assurance Project Plan
QC - quality control
RAL - Region 4 Removal Action Level
RCRA - Resource Conservation and Recovery Act
RML -Removal Management Levels
SARA - Superfund Amendments and Reauthorization Act
SD - Sediment Sample
SESD - EPA Region 4 Science and Ecosystem Support Division
SIM - Selective Ion Monitoring
SQuiRT - Screening Quick Reference Tables
(http://response.restoration.noaa.gov/sites/default/files/SQuiRTs.pdf)
SRM - Standard Reference Materials
SSP - Site Sampling Plan
START - Superfund Technical Assessment and Response Team
SVOC - semi-volatile organic compound

Acronyms List (cont.)

SW - Surface Water Sample
SW-846 - EPA Publication SW-846 *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*
TAL - Target Analyte List
TCL - Target Compound List
TDD - Technical Directive Document
TDS - Total Dissolved Solids
TOC - Total Organic Carbon
Turb - Turbidity
U - nondetect
XRF - X-Ray Fluorescence
µg/Kg - micrograms/Kilogram

1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) tasked the Oneida Total Integrated Enterprises (OTIE) Superfund Technical Assessment and Response Team (START) to perform two sampling events in support of a Removal Investigation at Five Mile Creek (site), located in Birmingham, Jefferson County, Alabama under Contract Number (No.) EP-W-05-053, Technical Directive Document (TDD) No. TNA-05-003-0169. The first sampling focused on sediment sampling along an approximate 1.5-mile stretch of Five Mile Creek between Highway 31 and Pinson Valley Parkway and was conducted from April 23 through April 26, 2012. The second sampling focused on sediment and bank sampling approximately 2.5 miles further downstream or west along Five Mile Creek from Pinson Valley Parkway to Summit Way.

The purpose of this investigation was to collect information to determine whether contaminants associated with former and current coke and chemical manufacturing operations at nearby facilities have impacted Five Mile Creek at levels hazardous to human health and/or the environment. Findings will assist EPA to determine the need for federal intervention under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986.

Under this TDD, START completed the following tasks:

- developed a Health and Safety Plan (HASP) that included site-specific health and safety measures for conducting a field investigation designed to identify target compound list (TCL) semi-volatile organic compound (SVOC), low-level polycyclic aromatic hydrocarbon (PAH), polychlorinated biphenyls (PCB), and target analyte list (TAL) metals contamination at designated locations within the study area;
- documented site conditions and field investigation activities with written logbook notes;
- developed a Quality Assurance Project Plan (QAPP)/Site Sampling Plan (SSP) that included site-specific sampling and analysis procedures and quality assurance (QA) measures for conducting an investigation designed to identify TCL SVOC, low-level PAH, PCB, and TAL metals contamination at the site;
- performed field investigation activities including field screening using a X-Ray Fluorescence (XRF) instrument, and sediment and surface water sampling as outlined in the QAPP/SSP;
- performed water quality testing using a multi-parameter water quality monitoring instrument during the field sampling event; and,
- prepared a comprehensive report summarizing the site conditions, field investigation activities, and analytical results of the sampling conducted.

This comprehensive report summarizes the existing conditions at the site; describes the field investigation activities; and summarizes the analytical results for water and sediment samples collected within the study area of the site. The report provides information to assess immediate risks to human health and the environment within the study area. Environmental and quality assurance/quality control (QA/QC) analytical data was evaluated and summary data tables are included as Appendix B. Significant QA/QC issues regarding sample collection, handling, and analysis are identified as necessary within the report.

All activities and procedures described in this document were conducted in accordance with the EPA Region 4 Science and Ecosystem Support Division (SESD) *Field Branches Quality System and Technical Procedures* (FBQSTP); and the site-specific QAPP/Site Sampling Plan (SSP) which was prepared by START and approved by EPA prior to field activities (Refs. 1; 2). The site-specific QAPP/SSP describes the data quality objectives (DQO), sampling strategy, sampling methodology, and analytical procedures used during the investigation.

The following sections provide the details of this report:

- Section 2 – Describes the site background
- Section 3 – Describes the field investigation
- Section 4 – Describes the QA/QC
- Section 5 – Describes the analytical results
- Section 6 – Describes the summary and conclusion

Figures and summary data tables are provided as Appendices A and B, respectively. The data validation memos are provided as Appendix C, and the analytical laboratory report is provided as Appendix D. A complete copy of the field logbook notes is presented as Appendix E. References are cited throughout the report to substantiate site-specific statements. A reference list is provided in Section 7.0.

2.0 SITE BACKGROUND

This section describes the site location, site characteristics, site history, and previous investigations conducted at the site.

2.1 SITE LOCATION AND DESCRIPTION

The Five Mile Creek site is located along the northern boundary of the 35th Avenue Superfund Site, Birmingham, Jefferson County, Alabama (Appendix A, Figure 1). The section of Five Mile Creek that was investigated in April 2012 begins at Latitude 33° 35' 17.88"North/Longitude 86° 46'32.71" West and continues downstream for approximately 1.5 miles to Latitude 33° 35' 18.29"North /Longitude 86° 48' 00.61" West. This investigation included sampling points located on property owned by ABC Coke (a Drummond Company), Walter Coke, Inc., and Warwick, Inc. The section of Five Mile Creek that was investigated in January 2013 begins at Latitude 33° 35' 18.29"North /Longitude 86° 48' 00.61" West and continues downstream for approximately 1.5-miles to Latitude 33° 35' 20.09" North/Longitude 86° 49' 49.00". Figures 1 through 3 provided in Appendix A illustrates the portion of Five Mile Creek that was sampled.

2.2 SITE CHARACTERISTICS

Five Mile Creek stretches approximately 45 miles of stream bed, 26 miles of navigable water beginning in Fultondale at Highway 31. Portions of the creek, upstream from the study area, are well known fisheries. The creek originates in an area near the city of Center Point and flows roughly westward through the communities of Tarrant, Fultondale, Coalburg, Republic, Birmingham, Brookside, and Graysville, until it joins the Locust Fork of the Black Warrior River below Linn Crossing. Its major tributaries are Newfound Creek, Black Creek and Tarrant Springs Branch.

2.3 SITE OPERATIONS AND HISTORY

Coke and chemical manufacturing facilities have been operational in the study area since the early 1900s. Elevated concentrations of hazardous constituents associated with former coke and chemical manufacturing operations have been identified in Five Mile Creek. Previous investigations have indicated the presence of PAH contamination in the study area. There are active facilities in the area that may be contributing to the contamination observed in the creek.

2.4 PREVIOUS INVESTIGATIONS

Five Mile Creek was assessed in 2006 as part of the Phase III Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) conducted by Walter Coke. Elevated levels of PAH were identified in the sediment samples collected within Five Mile Creek.

On March 13 and 14, 2012, START, in conjunction with the EPA, conducted site walks along Five Mile Creek. These walks were conducted along the banks of Five Mile Creek owned by ABC Coke, Walter Coke, and Warwick. The creek at ABC Coke was visibly clear but there were thin streaks of black material present in strata that paralleled the creek along the banks. ABC Coke representatives, who were present during this site walk, stated that these were strata of "burned" coke.

Black substances were encountered at the creek on Warwick property. Strong coal-tar like odors were emitting from small pools and eddies located along the bank of Five Mile Creek. The center portion of the creek was largely clear, but several areas were stained black, and mosses growing on rocks underwater exhibited strong hydrocarbon aromas when exposed to the air.

The site walk on Walter Coke owned property covered portions of an unnamed tributary that flows into Five Mile Creek. The bottom and sides of this tributary were stained black and piles of coal-tar like substances were noted all along the bank. Sediment that was disturbed and brought into contact with the air exhibited a strong hydrocarbon aroma. Plants and bushes along the unnamed tributary were covered in a black soot-like material that immediately stained gloves when touched.

3.0 FIELD INVESTIGATION ACTIVITIES

START performed field investigation activities, including the collection of environmental samples to determine the nature and extent of TCL SVOC, PAH, TAL metals, and PCB contamination within the study area of the site. Sediment samples were collected to determine contaminants in excess of the Region 4 Removal Management Levels (RML) for direct contact with residential soil, and the Ecological Sediment Screening Levels (EcoSSV). Surface waters were collected to determine contaminants in excess of the National Recommended Water Quality Criteria (Aquatic Life). Table 1 provided in Appendix B lists the samples collected as part of this field investigation. A Trimble™ GeoXT™ Global Positioning System (GPS) was used in the field to obtain geographic coordinates for each of the sampling locations. GPS coordinates, as well as the analysis performed, are also summarized for each sample in Table 1.

A QAPP/SSP was developed for the sampling event prior to fieldwork (Ref. 2). The QAPP/SSP describes the data quality objectives (DQO), sampling strategy, sampling methodology, and analytical procedures used during the field investigation.

3.1 APRIL 23-APRIL 26, 2012 SAMPLING

Field sampling activities were conducted from April 23 through April 26, 2012. Twenty-seven (27) streambed sediment samples and four surface water samples were collected along the study boundary of Five Mile Creek. Additional Quality Control (QC) samples were collected including three sediment field duplicates, two surface water field duplicates, one preservative blank, one equipment rinsate, and one field blank. Soil samples were not collected from the banks of the creek (overbank) as indicated in the QAPP/SSP.

Samples were collected from a total of 16 locations along Five Mile Creek and 11 locations along an Unnamed Tributary to Five Mile Creek (Appendix A, Figure 4). Nine locations were sampled on the ABC Coke property: three locations upstream (north and east) from the outfall, one location directly below the waste water outfall, and five locations downstream (west and south) from the outfall. Twelve locations were sampled on the Walter Coke property, starting where Five Mile Creek passes under Seaboard Road and the adjacent railroad tracks: one location below the waste water outfall at Boyles Gap Lake into an unnamed tributary into Five Mile Creek, four upstream (south and east) from the outfall, five downstream (north and west) from the out fall, one where the tributary flows into Five Mile Creek, one

downstream (north and west) on Five Mile Creek. Six locations were sampled on Warwick property from west of Walter Coke property to the base of the oxbow at approximate Latitude 33° 35' 18.29"North and Longitude 86° 48' 00.61" West. One upstream location was sampled from Chief William C "Billy" Hewitt Park at approximate Latitude 33° 36' 19.9972" North and Longitude 86° 44' 59.1714" West. Water quality readings were collected using a Horiba U-22XD multi-parameter water quality monitoring instrument at distinct points along Five Mile Creek prior to sediment and surface water sampling. Surface water quality monitoring results are presented in Table 2 provided in Appendix B.

Surface water samples were collected near the outfalls of the ABC Coke and Walter Coke facilities respectively. An additional surface water sample was collected at an upstream location from Chief William C Billy Hewitt Park.

Sediment samples were submitted to Spectrum Analytical Inc. in Tampa, Florida (Spectrum) for TCL SVOC, low-level PAHs, TAL metals, and Total Organic Carbon (TOC) analysis in accordance with Method SW-846-8270D, Method SW-846-8270D with Selective Ion Monitoring (SIM), SW846-6010C/7470, and SW846-9060 MOD, respectively. Approximately 20% of the sediment samples were also submitted for PCB analysis in accordance with SW846-8082.

Surface water samples were submitted to the laboratory for TCL SVOC, low-level PAHs, TAL metals, PCB, and Total Hardness analysis in accordance with Method SW-846-8270D, SW-846-8270D with SIM, SW846-6010C/7471/7841, SW846-8082, and ASTM-2340B, respectively.

In addition to laboratory analysis, 25 of the 30 sediment samples collected and 31 insitu screening locations, mostly rocks from a rock island in the middle of the creek, were field screened for metals concentrations using a Niton® XLt 700 Series XRF instrument to determine the extent of contamination. The XRF results, provided in Appendix B, Table 3, were only used for immediate evaluation; all of the sediment samples collected were submitted to the laboratory for TAL metals analysis.

3.2 JANUARY 28-FEBRUARY 1, 2013 SAMPLING

Field sampling activities were conducted from January 28 through February 1, 2013. Nine (9) streambed sediment samples and four overbank soil samples were collected along the study boundary of Five Mile Creek. Additional QC samples were collected including one sediment field duplicate, and one overbank field duplicate.

Samples were collected from a total of 13 locations along Five Mile Creek (Appendix A, Figure 4). Three locations were sampled on the ABC Coke property and were split with ABC representatives. Two locations were sampled on the addendum Walter Coke (WC) property. Two locations were sampled on Wright Brothers Construction (WB) property, one location was sampled on Warwick Development (WD) property, three locations were sampled on City of Birmingham (BHM) property, and two locations were sampled on Freshwater Land Trust (FLT) property.

Sediment samples were submitted to Spectrum for TCL SVOC, low-level PAHs, TAL metals, and TOC analysis in accordance with Method SW-846-8270D, Method SW-846-8270D with SIM, SW846-6010C/7470, and SW846-9060 MOD, respectively.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

QA/QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of sampling equipment, glassware, and reagents. This section describes the QA/QC measures taken and provides an evaluation of the usability of data presented in this report.

All samples were collected in accordance with the EPA Region 4 SESD FBQSTP dated November 2007, and the guidance presented in the approved site-specific QAPP/SSP (Refs. 1; 2). A START scientist performed field screening of soils for metals using a XRF in accordance with the manufacturer's instructions for the instrument. The sediment and surface water samples were analyzed by an EPA-approved laboratory for PCB, TAL Metals, TCL SVOC, and low-level PAHs. Additionally sediment samples were analyzed for TOC and surface waters were analyzed for Total Hardness. Specific QC requirements for laboratory analyses are incorporated in the SW846 or ASTM Methodology. These QC requirements were followed for analytical work on the project. The data provided by the laboratory was evaluated by START and the data validation memos are located in Appendix C.

4.1 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

4.1.1 April 23-April 26, 2012 Sampling

Three QA samples (one field blank, one rinsate blank, and one preservative blank) were collected during the sampling event. The preservative blank had calcium and manganese detected at low levels. All the

water samples submitted had calcium and manganese levels that were higher than 10 times the level detected in the preservative blank and therefore were not impacted. The field blank and rinse blank had pyrene detected at low levels. The rinse blank also had fluoranthene detected at low levels. Sample results were not impacted since the levels in the blank were very low compared to the results in the samples. This is not unexpected given the high levels of PAHs in the sediment samples. A summary of the results for the QA samples are in Appendix B Table 4.

QC samples included matrix spike (MS)/matrix spike duplicate (MSD) and field duplicate (DUP) samples at a rate of one MS/DUP per 20 samples per matrix per analysis. MS/MSD analysis was requested on samples EPAFMC-SD-01 and EPAFMC-SD-07. Field Duplicates were collected for samples EPAFMC-SW-01 (duplicate EPAFMC-SW-03), EPAFMC-SW-01R (duplicate EPAFMC-SW-03R), EPAFMC-SD-05 (duplicate EPAFMC-SD-06), EPAFMC-SD-12 (duplicate EPAFMC-SD-16), and EPAFMC-SD-26 (duplicate EPAFMC-SD-27). Field duplicate samples were within relative percent difference of each other as allowed by the Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for organic and inorganic analyses of soils with the following exceptions: antimony, copper, silver, and TOC results for sample EPAFMC-SD-12 (duplicate EPAFMC-SD-16), and TOC results for sample EPAFMC-SD-26 (duplicate EPAFMC-SD-27). Varying degrees of shells were reported by the laboratory in many of the samples; the amount of shells could have contributed to the variation in the TOC analysis.

4.1.2 January 28 – February 1, 2013 Sampling

QC samples included MS/MSD and DUP sample at a rate of one MS/DUP per 20 samples per matrix per analysis. MS/MSD analysis was requested on samples FMC-WB-SD01 and FMC-FLT-SD11. Field Duplicates were collected for FMC-ABC-0B9 (duplicate FMC-ABC-0B9D) and FMC-BHM-SD05 (duplicate FMC-BHM-SD05D). Field duplicate samples were within relative percent difference of each other as allowed by the CLP NFG for organic and inorganic analyses of soils with the following exceptions: metals including mercury, SVOC, and TOC results for samples FMC-BHM-SD05 and its duplicate FMC-BHM-SD05D.

4.2 FIELD ANALYSIS

START used an XRF instrument and a Horiba U22 water quality meter (pH, conductivity, turbidity, dissolved oxygen, temperature and total dissolved solids) in the field during the April 2012 sampling event. The water quality meter was calibrated using appropriate calibration fluids prior to use each day. START also performed standard checks of the XRF equipment using Standard Reference Materials

(SRM) for metals. Performance checks were performed at the beginning of each work day and after every 20 samples screened using the XRF. All performance check results indicated that the XRF instrument was working properly for metals detection. Calibration information for all field monitoring/screening equipment was maintained in the field logbook notes (Appendix E). No field analysis was conducted during the January 2013 sampling event.

4.3 LABORATORY ANALYSIS

A START chemist performed data validation of the laboratory data in accordance with the guidelines set forth in the U.S. EPA CLP NFG for Superfund Organic Methods Data Review (EPA-540-R-08-01, June 2008), NFG for Inorganic Superfund Data Review (EPA-540-R-10-011, January 2010), and applicable methodologies. Organic data validation consisted of a review of the following QC parameters: holding times, instrument performance checks, initial and continuing calibrations, blank results, surrogate recovery results, MS/MSD results, laboratory control sample (LCS) results, internal standard response, field duplicate agreement, and target compound identification and quantitation. Inorganic data validation consisted of a review of the following QC parameters: holding times, initial and continuing calibrations, blank results, inductively coupled plasma interference check sample results, LCS results, MS/MSD results, serial dilution results, field duplicate agreement and sample result quantitation.

4.3.1 April 23-April 26, 2012 Sampling

Data validation showed that there were low levels of metals detected in the preparation, initial calibration, and continuing calibration blanks for most of the metal analytical batches. Levels in the blanks were compared against the levels in the samples and the results were either adjusted to the reporting levels or flagged in accordance with the rules set forth in the NFG for Inorganic Superfund Data Review (EPA-540-R-10-011, January 2010). The results presented in Appendix B Tables 5, 6, and 8 reflect these adjustments. Several samples required dilution for various metals and this affected the MS/MSD samples as well. Some analytes exceeded four times the level of the spike value and could not be evaluated. Post-Spikes on these samples showed acceptable results and samples flags were added to the data as needed.

Most of the samples for low level PAH analysis required dilutions due to the high level of PAHs detected; some of them were not able to be evaluated for surrogate recovery due to these dilutions. See the attached data validation memo for specific samples (Appendix C). PAHs are also contained in the analyte list for 8270; however the results for PAHs listed in the tables are from the low level PAH analysis by SIM. The total PAH was calculated from the low-level PAH analysis. The MS/MSDs for the low-level PAH

analyses on the sediment samples were not able to be evaluated due to the high level of analytes in the native samples. LCS recoveries were within QC limits except for benzo(g,h,i)perylene for low-level PAH water analysis. The associated water samples were flagged J or UJ according to the criteria in the NFG for Organic Data Validation.

4.3.2 January 28-February 1, 2013 Sampling

Data validation showed that there were low levels of metals detected in the preparation, initial calibration, and continuing calibration blanks for most of the metal analytical batches. Levels in the blanks were compared against the levels in the samples and the results were either adjusted to the reporting levels or flagged in accordance with the rules set forth in the NFG for Inorganic Superfund Data Review (EPA-540-R-10-011, January 2010). The results presented in Appendix B Tables 5 and 7 reflect these adjustments. Most of the samples had analyte values that exceeded 10 times the levels in the blanks and were not affected with the exception of silver. Silver was raised to the reporting limit in several samples as outlined in the NFG. Several samples required dilution for various metals.

Most of the samples for low level PAH analysis required dilutions due to the high level of PAHs detected; see the attached data validation memo for specific samples (Appendix C). Samples FMC-WC-SD08 and FMC-WC-SD09 were not able to be evaluated for surrogate recovery due to these dilutions. PAHs are also contained in the analyte list for 8270; however the results for PAHs listed in the tables are from the low level PAH analysis by SIM. The total PAH was also calculated from the low-level PAH analysis. The MS/MSDs for the low-level PAH analyses on the sediment samples were not able to be evaluated due to the high level of analytes in the native samples. LCS recoveries were within QC limits and were used to validate the batch extractions.

Overall, the sample analytical data generated by Spectrum are acceptable for use as qualified. A copy of the START Data Validation Memo is included in Appendix C. The analytical reports are included in Appendix D.

5.0 SITE INVESTIGATION RESULTS

The following sections summarize field screening and analytical results for samples collected during the sampling investigations conducted at Five Mile Creek from April 23 – 26, 2012 and from January 28-February 1, 2013. For the purposes of evaluating sample results, analytical results for sediment samples were compared to RMLs and the EcoSSVs. Specifically, residential soil RMLs were used to evaluate all the samples from Five Mile Creek and industrial soil RMLs were used to evaluate the samples from the unnamed tributary. Surface water samples were compared to the National Recommended Water Quality Criteria (Aquatic Life) which include acute and chronic exposure values. For reference purposes, sediment sample results were also compared to National Oceanic Atmospheric Administration (NOAA) SQuiRTs which include Ecotox Threshold Values for Freshwater derived from multiple sources. However, the issue of whether detected concentrations constitute an unacceptable environmental risk is beyond the scope of this sampling event. Instead, this section details the analytical results so that it may be used by others for purposes of determining whether the concentrations detected pose and threat to human health and/or the environment or whether additional investigation of the stream is needed.

5.1 XRF RESULTS

Twenty-five (25) of the 30 sediment samples collected were field screened ex situ for metals concentrations using a Niton® XLt 700 Series XRF instrument to determine the extent of contamination. The XRF results were only used for immediate evaluation; all of the samples collected were submitted to the laboratory for TAL metals analysis. Samples EPAFMC-SD-02, -03, -04, -06, and -16 were not field screened. Samples were evaluated both wet and after drying in an oven. In addition, 31 additional locations, mostly rocks from a rock island in the middle of the creek, were evaluated in situ with the XRF. Results from the XRF readings for arsenic, cobalt, iron, manganese, and uranium are summarized in Table 3 provided in Appendix B.

5.1.1 Warwick Property

Thirty-one (31) locations were evaluated in situ with the XRF in and around a rock island located in the creek near the Warwick property. The samples from the rock island area were only evaluated on a wet basis and do not correspond to any samples collected for laboratory analysis. One location had an arsenic screening result of 58.45 parts per million (ppm), exceeding the RML of 39 ppm for arsenic. Two other locations had manganese screening results of 18,002 ppm and 11,043 ppm, exceeding the RML of 5,500 ppm for manganese.

Two sediment samples collected (EPAFMC-SD-01 and EPAFMC-SD-05) were evaluated with the XRF on a wet and dry basis and yielded no results over the limit of detection (LOD). Sample EPAFMC-SD-17 was also determined to be on Warwick property and no analyte results were detected above the associated RML.

5.1.2 ABC Coke

Nine samples from the Boyles Gap Lake corresponding to samples EPAFMC-SD-07 through EPAFMC-SD-15 were evaluated with the XRF on both a wet and dry basis. EPAFMC-SD-10 had cobalt detected at 211 ppm in the wet sample and sample EPAFMC-SD-15 had cobalt detected at 236 ppm in the dried sample, both exceeded the RML level of 70 ppm for cobalt .

5.1.3 Walter Coke

Thirteen samples corresponding to EPAFMC-18 through EPAFMC-SD-29 collected from Walter Coke property (one sample from within Five Mile Creek and 12 samples from the unnamed tributary) were evaluated with the XRF on both a wet and dry basis. EPAFMC-SD-18 was compared against residential soil RMLs and had no analytes detected in exceedance of the RMLs. Samples EPAFMC-19 through EPAFMC-SD-29 were evaluated using industrial soil RMLs and no analytes were detected in exceedance of the RMLs

5.1.4 Chief William C. "Billy" Hewitt Park

One sediment sample, EPAFMC-SD-30, was collected upstream at the Chief William C. "Billy" Hewitt Park, and showed no results above the LOD.

5.2 SEDIMENT AND SOIL LABORATORY RESULTS

Thirty-six (36) sediment samples and four surface soil samples were collected from the creek bed and bank of Five Mile Creek and the unnamed tributary to Five Mile Creek, and submitted to Spectrum for PCB, TAL metals, TCL SVOC, low-level PAH, and TOC analysis. Results for the sediment samples are presented in Appendix B, Tables 5 and 6. Results for the overburden soil samples are presented in Appendix B, Table 7. Total PAH was calculated by summing the concentration of all the PAH results in the sample.

5.2.1 Warwick Property

Six sediment samples, one duplicate sediment sample, and one overburden soil sample were collected from Five Mile Creek as it passes through property owned by Warwick (Appendix A, Figure 5). The following describes the exceedances identified for the samples collected from Warwick Property.

- Arsenic was detected in the samples at concentrations ranging from 6.59 milligrams per kilogram (mg/Kg) to 19.1 mg/Kg. All sample results were less than the residential soil RML of 39 mg/Kg. All but one sediment sample (EPAFMC-SD-05) exceeded the EcoSSV level of 7.24 mg/Kg.
- All PAH compounds were detected in sediment and soil samples collected from Warwick Property. Samples EPAFMC-SD-01, -02, -03, -05, and -06 had concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, and/or naphthalene in exceedance of the residential soil RMLs. With the exception of samples EPAFMC-SD-03, EPAFMC-SD-04, and EPAFMC-SD-17, 16 PAH compound results were in exceedance of the EcoSSV screening levels of 330 micrograms per kilogram (µg/Kg). Samples EPAFMC-SD-17, EPAFMC-SD-04, and EPAFMC-SD-03 did had one or more individual PAH compound result in exceedance of the EcoSSV screening level. Samples EPAFMC-SD-05 and its duplicate EPAFMC-SD-06 had the highest PAH concentrations of the samples collected from Warwick Property. Only benzo(a)pyrene was detected at a concentration above the RML of 1.5 mg/kg in overburden sample FMC-WD-OB3.
- The total PAH levels ranged from 4.54 to 53,766 mg/Kg in samples EPAFMC-SD-01 through -06 and EPAFMC-SD-17. There is no RML level for total PAH; however the EcoSSV is 0.330 mg/Kg, the EcoSSV Effects value is 1.684 mg/Kg, and the Ecotox Thresholds Freshwater value is of 22,800 mg/Kg. All samples exceeded the EcoSSV values for total PAH. Samples EPAFMC-SD-05 and -06 exceeded the Ecotox Threshold Freshwater value.
- SVOC compounds 1,1-biphenyl and dibenzofuran were detected at concentrations above the residential soil RMLs in samples EPAFMC-SD-05 and field duplicate -06.

5.2.2 ABC Coke Property

Nine sediment samples, one duplicate sediment sample, three overburden soil samples, and one duplicate soil sample were collected from Five Mile Creek as it passes through property owned by ABC Coke (Drummond) (Appendix A, Figure 6). The following describes the exceedances identified for the samples collected from ABC Coke Property.

- Arsenic was detected in the sediment and soil samples at concentrations ranging from 8.34 mg/Kg to 26.7 mg/Kg. All sample results were less than the residential soil RML of 39 mg/Kg; however all of the sediment samples exceeded the EcoSSV screening level of 7.24 mg/Kg for arsenic.
- None of the individual PAH compound results for sediment samples collected near the ABC Coke property exceeded the respective residential soil RMLs. However, samples EPAFMC-SD-10, -12, -13, and -16 had benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, naphthalene, phenanthrene, and/or pyrene detected at concentrations above the EcoSSV screening value of 330 µg/Kg.

- Benzo(a)pyrene was detected at concentrations 2 to 3 times greater than the residential soil RML in the overburden soil samples collected on ABC Coke property.

5.2.3 Walter Coke Property

One sediment sample (EPAFMC-SD-18) was collected from Five Mile Creek as it passes through property owned by Walter Coke (Appendix A, Figure 7). Nine sediment samples and one duplicate were collected from the unnamed tributary that empties into Five Mile Creek. Sample EPAFMC-SD-18 was evaluated using residential soil RMLs and the samples from the unnamed tributary were evaluated using industrial soil RMLs. The following describes the exceedances identified for the sediment samples collected from Walter Coke Property.

Five Mile Creek samples

- Arsenic was detected in sample EPAFMC-SD-18 at a concentration of 8.48 mg/Kg in exceedance of the EcoSSV screening level of 7.24 mg/Kg but below the residential soil RML
- The total PAH concentration for EPAFMC-SD-18 was 3.06 mg/Kg in exceedance of the EcoSSV level of 1.6 mg/Kg. Benzo(a)anthracene, benzo(b)fluoranthene, fluoranthene, and pyrene concentrations exceeded the EcoSSV level of 330 µg/Kg but not the respective PAH compound residential soil RML values.

Unnamed Tributary samples

- Arsenic was detected in the samples at concentrations ranging from 12.2 mg/Kg to 46.4 mg/Kg. Sediment samples EPAFMC-SD-19 through -29 had arsenic concentrations in exceedance of the EcoSSV screening level of 7.24 mg/Kg but below the industrial soil RML of 160 mg/Kg.
- All PAH compounds were detected in sediment samples collected from the unnamed tributary at Walter Coke Property. Samples EPAFMC-SD-22 and -23 had benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and/or indeno(1,2,3-cd)pyrene in exceedance of the respective industrial soil RML values.
- All samples exceeded the EcoSSV values for total PAH. The total PAH concentrations ranged from 26.1 mg/Kg to 8,208 mg/Kg.

5.2.4 Chief William C. "Billy" Hewitt Park

One sediment sample, EPAFMC-SD-30, was collected upstream at the Chief William C. "Billy" Hewitt Park (Appendix A, Figure 8). None of the results exceeded the residential RMLs but arsenic was detected at a concentration of 9.57 mg/Kg in exceedance of the EcoSSV of 7.24 mg/Kg.

5.2.5 City of Birmingham Property

Three sediment samples and one duplicate sample were collected from Five Mile Creek as it passes through property owned by the City of Birmingham (Appendix A, Figure 9). The following describes the exceedances identified for the sediment samples collected from the City of Birmingham.

- Arsenic was detected in the samples at concentrations ranging from 7.49 mg/Kg to 17.8 mg/Kg. All sample results were less than the residential soil RML of 39 mg/Kg; however all of the samples exceeded the EcoSSV screening level of 7.24 mg/Kg for arsenic.
- All of the PAH compounds were detected in the sediment samples collected from City of Birmingham property; however, only benzo(a)pyrene was detected at concentrations exceeding the RML for residential soil. Samples FMC-BHM-SD04, FMC-BHM-SD05 and FMC-BHM-SD05D had most of the individual PAHs detected at concentrations above the EcoSSV screening value of 330 µg/Kg. Sample FMC-BHM-SD03 had 7 of the individual PAHs detected at concentrations above the EcoSSV screening value of 330µg/Kg.
- Total PAH values ranged from 7.66 mg/Kg to 75.9 mg/Kg, exceeding the EcoSSV of 0.33 mg/Kg.

5.2.6 Freshwater Land Trust Property

Two sediment samples were collected from Five Mile Creek as it passes through property owned by the Freshwater Land Trust (Appendix A, Figure 10). The following describes the exceedances identified for the sediment samples collected from Freshwater Land Trust property.

- Arsenic was detected in the samples at concentrations of 5.52 mg/Kg and 10.2 mg/Kg. Both sample results were less than the residential soil RML of 39 mg/Kg; however FMC-FLT-SD11 exceeded the EcoSSV screening level of 7.24 mg/Kg for arsenic.
- All of the PAH compounds were detected in the sediment samples collected from Freshwater Land Trust property; however, only benzo(a)pyrene was detected at concentrations exceeding the RML for residential soil. Both samples had most of the individual PAHs detected at concentrations above the EcoSSV screening value of 330µg/Kg.

5.2.7 Wright Brothers Construction

Two sediment samples were collected from Five Mile Creek as it passes through property owned by Wright Brothers Construction (Appendix A, Figure 11). The following describes the exceedances identified for the sediment samples collected from Wright Brothers Construction Property.

- Arsenic was detected in the samples at concentrations of 7.71 mg/Kg and 9.32 mg/Kg. Both sample results were less than the residential soil RML of 39 mg/Kg; however both samples exceeded the EcoSSV screening level of 7.24 mg/Kg for arsenic.
- All of the PAH compounds were detected in the sediment samples collected from Wright Brothers Construction property; however, only sample FMC-WB-SD02 had a benzo(a)pyrene concentration exceeding the RML for residential soil. Sample FMC-WB-SD02 had most of the individual PAHs detected at concentrations above the EcoSSV screening value of 330µg/Kg. Sample FMC-WB-SD01 had 7 individual PAH results above the EcoSSV screening value of 330 µg/Kg.
- Total PAH level for the samples were 5.92 mg/Kg and 46.8 mg/Kg, in exceedance of the EcoSSV level of 0.33 mg/Kg in both samples.

5.3 SURFACE WATER LABORATORY RESULTS

Four surface water samples and one field duplicate were collected from Five Mile Creek. Surface water samples were submitted to the laboratory for TCL SVOC, PCB, TAL metals, low-level PAH, and Hardness analyses. Results for the surface water samples are presented in Appendix B, Table 8.

5.3.1 ABC Coke Property

Four surface waters samples were collected from Five Mile Creek from ABC Coke's property, EPAFMC-SW-01, EPAFMC-SW-01R, EPAFMC-SW-03, and EPAFMC-SW-03R. Samples EPAFMC-SW-01 and EPAFMC-SW-03 are duplicates and EPAFMC-SW-01R and EPAFMC-SW-03R were resampled from the same location. All four samples showed barium in exceedance of the Aquatic Life Freshwater Criteria Chronic level of 3.9 microgram per liter (µg/L).

5.3.2 Walter Coke Property

One surface water sample, EPAFMC-SW-02, was collected from Walter Coke property. The sample had aluminum, barium, and manganese in exceedance of their Aquatic Life Freshwater Criteria Chronic levels. The sample also had a benzo(a)pyrene concentration of 0.051 µg/L in exceedance of the Aquatic Life Freshwater Criteria Chronic level of 0.014 µg/L.

5.3.3 Chief William C. "Billy" Hewitt Park

One surface water sample, EPAFMC-SW-04, was collected upstream at the Chief William C. "Billy" Hewitt Park. None of the results exceeded the Aquatic Life Freshwater Criteria Acute levels.

6.0 SUMMARY AND CONCLUSIONS

From April 23 to April 26, 2012, and then again from January 28 to February 1, 2013, START conducted a field investigation at the site to identify the nature and extent of PCB, heavy metals, and PAH contamination along Five Mile Creek and the tributary to Five Mile Creek to determine the need for federal intervention under CERCLA. A total of 31 in situ screening locations and 27 ex situ sediment samples were screened for metals using a Niton® XLt 700 Series XRF. A total of 54 samples (36 sediment samples, four surface water samples, four surface soil, seven field duplicates, and three QA samples) were collected and submitted to Spectrum for analysis.

For the purpose of interpreting sampling results, results were compared to the residential and/or industrial soil RMLs, as appropriate, and EcoSSVs. Analytical results confirm that heavy metals and SVOCs, specifically PAH compounds, exist in concentrations above the residential and/or industrial RMLs within the sediment and overburden soil sampling area.

Based on the recreational use of the creek further downstream and surrounding residential areas the contaminated sediments pose a potential direct contact threat to the public and may warrant further invention under CERCLA. EPA will determine any further actions for this property.

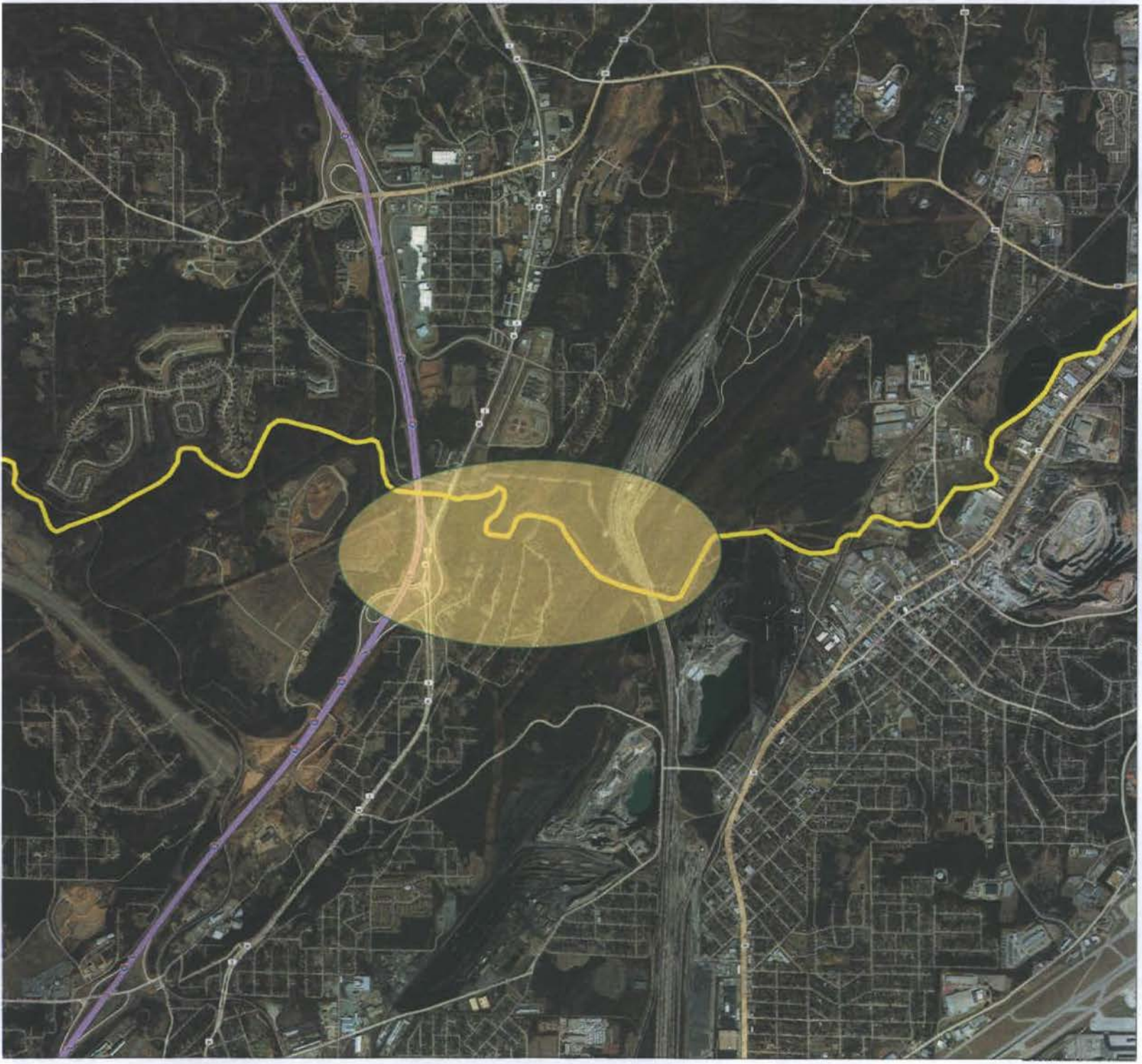
REFERENCES

1. EPA, Science and Ecosystem Support Division (SESD), Region 4. *Field Branches Quality System and Technical Procedures* (FBQSTP). November 2007.

2. Oneida Total Integrated Enterprises (OTIE). Site-Specific Quality Assurance Project Plan (QAPP)/Site Sampling Plan (SSP). April 2011.

APPENDIX A

FIGURES



Legend

Study Area

Five Mile Creek

Feet
0 2,500 5,000

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 2
AERIAL MAP

OTIE

Legend

- Parcels Boundary
- Five Mile Creek
- Unnamed Tributary

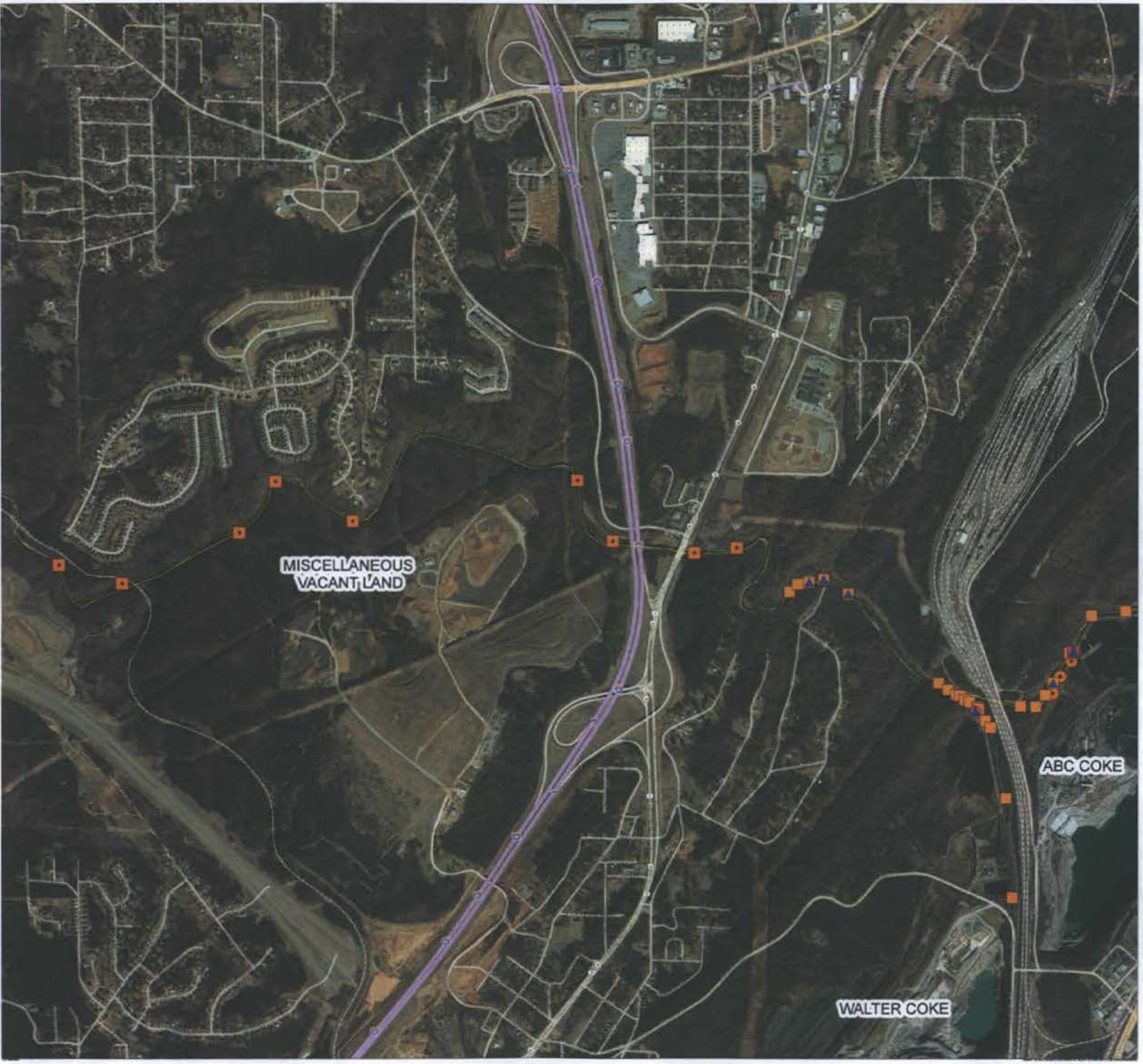
Feet
0 1,500 3,000

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 3
PARCEL IDENTIFICATION MAP

OTIE
Oneida Total Integrated Enterprises



Legend

- Water Quality Parameters
- Surface Water Sample
- Sediment Sample 2012
- Sediment Sample 2013
- Overburden Sample 2013
- Five Mile Creek
- Unnamed Tributary
- Parcels Boundary

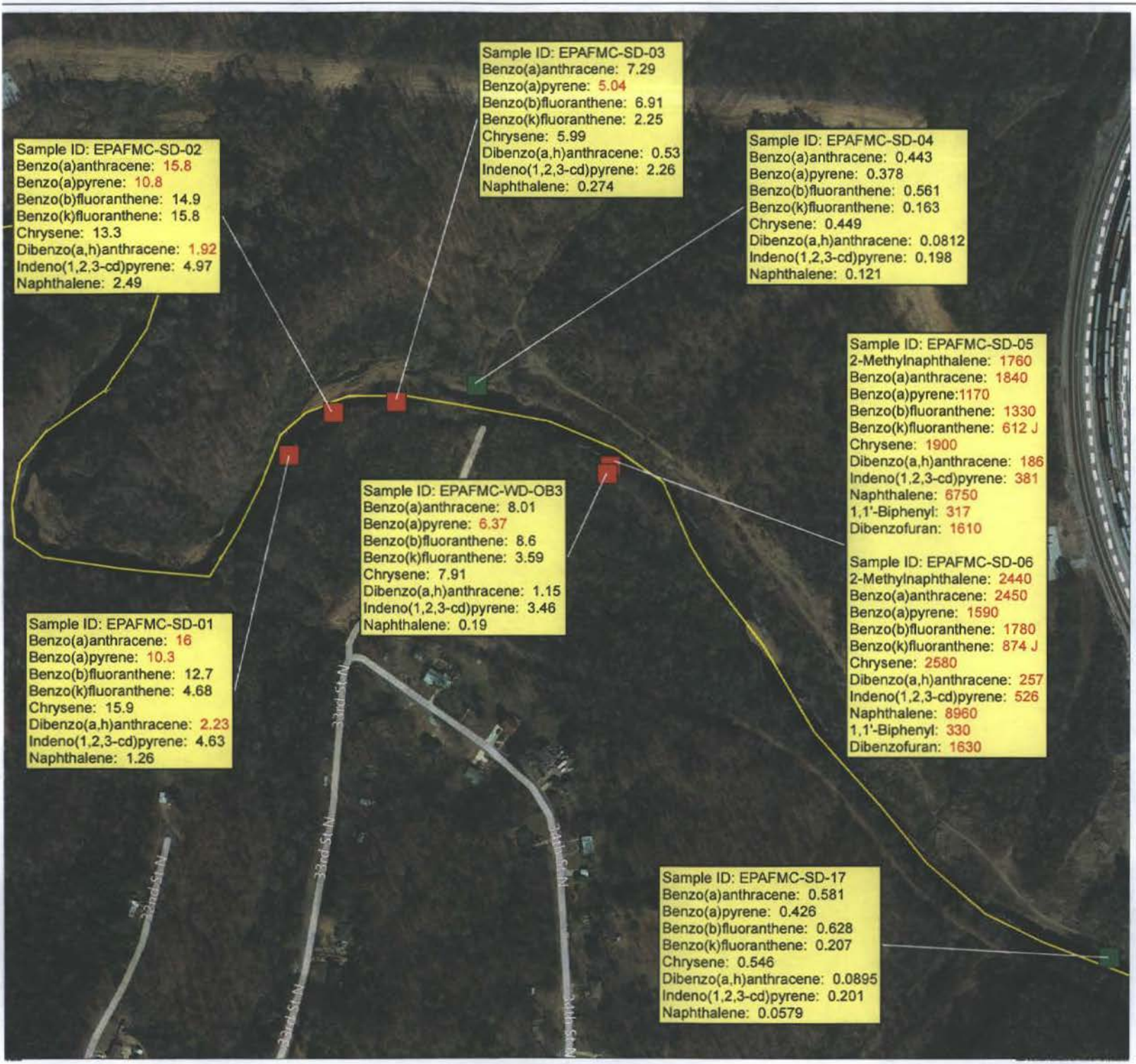
Feet
0 1,200 2,400

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 4
SAMPLE LOCATION MAP

OTIE
Oneida Total Integrated Enterprises



Legend

- Above Residential RML
- Below Residential RML
- Five Mile Creek

Notes:
SD = Sediment sample
OB = Overburden sample
WD = Warwick Development
EPAFMC = EPA Five Mile Creek
J = Value is estimated
RML= Removal Management Level

Results are in Milligrams per Kilogram

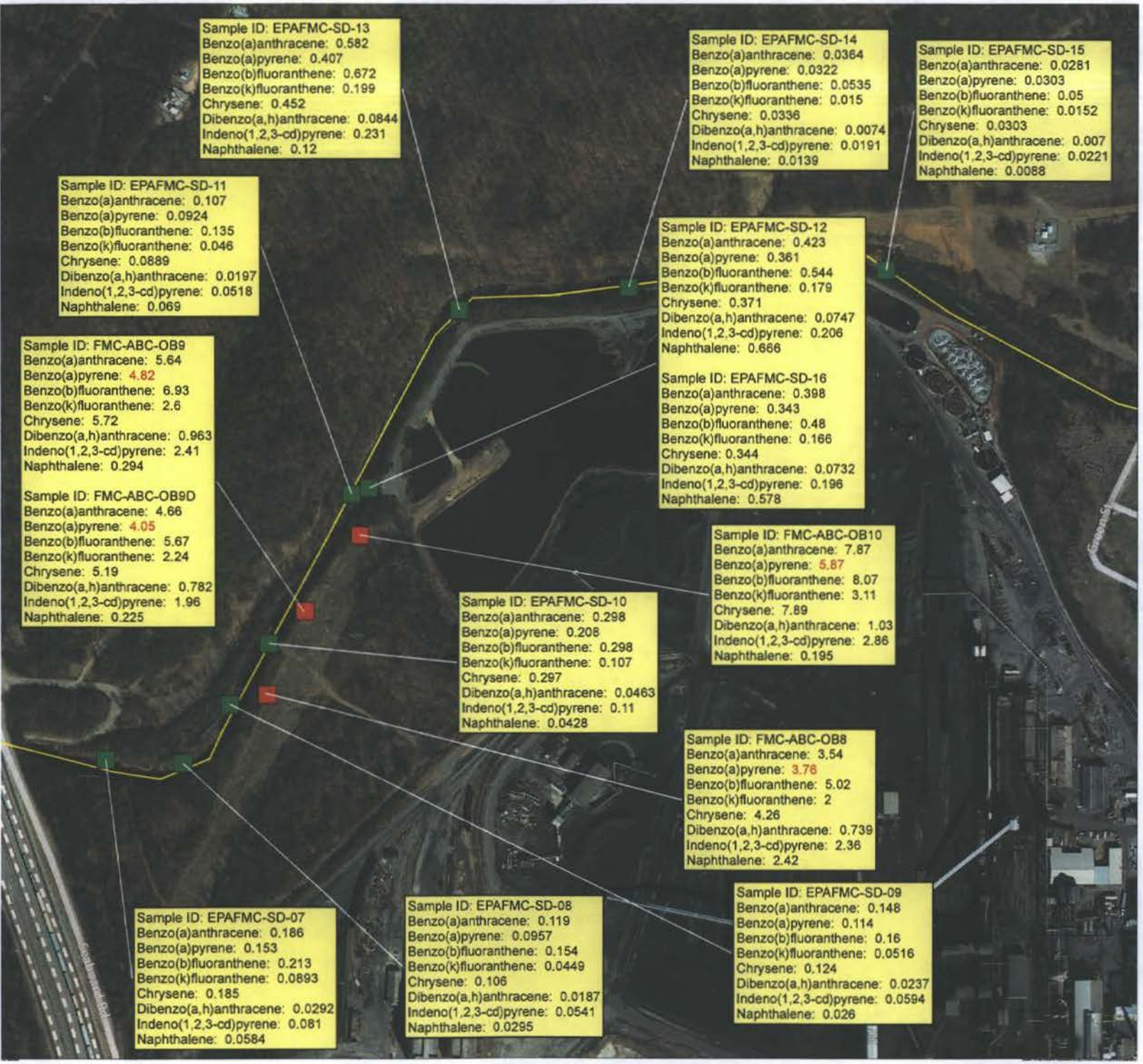
Feet
0 250 500

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 5
WARWICK PROPERTY
SEDIMENT AND OVERBURDEN
SAMPLE RESULTS

OTIE
Oneida Total Integrated Enterprises



Legend

- Above Residential RML
- Below Residential RML
- Five Mile Creek

Notes:
SD = Sediment sample
OB = Overburden sample
ABC = ABC Coke
EPAFMC = EPA Five Mile Creek
J = Value is estimated
RML= Removal Management Level

Results are in Milligrams per Kilogram

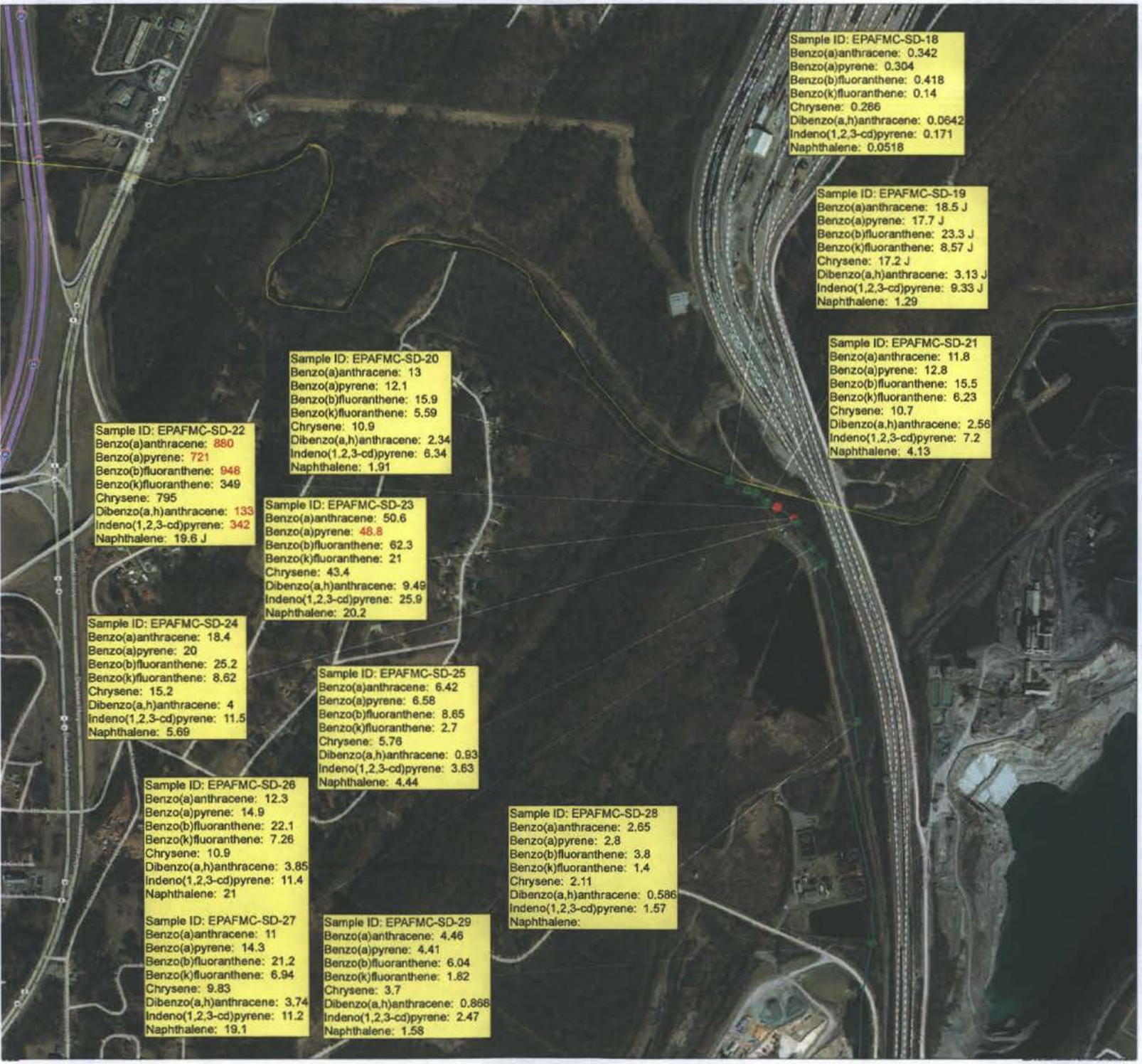
Feet
0 250 500

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 6
ABC COKE PROPERTY
SEDIMENT AND OVERBURDEN
SAMPLE RESULTS

OTIE
Oneida Total Integrated Enterprises



Legend

- Above Industrial RML
- Below Industrial RML
- Below Residential RML
- Unnamed Tributary
- Five Mile Creek

Notes:
SD = Sediment sample
FMC = Five Mile Creek
WC = Walter Coke
J = Value is estimated
RML= Removal Management Level

Results are in Milligrams per Kilogram

Red results are above the Industrial RML

Feet
0 500 1,000

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 7
WALTER COKE PROPERTY
SEDIMENT SAMPLE RESULTS

OTIE
Oneida Total Integrated Enterprises

Legend

- Above Residential RML
- Below Residential RML
- Five Mile Creek

Notes:
SD = Sediment sample
EPAFMC = EPA Five Mile Creek
J = Value is estimated
RML= Removal Management Level

Results are in Milligrams per Kilogram

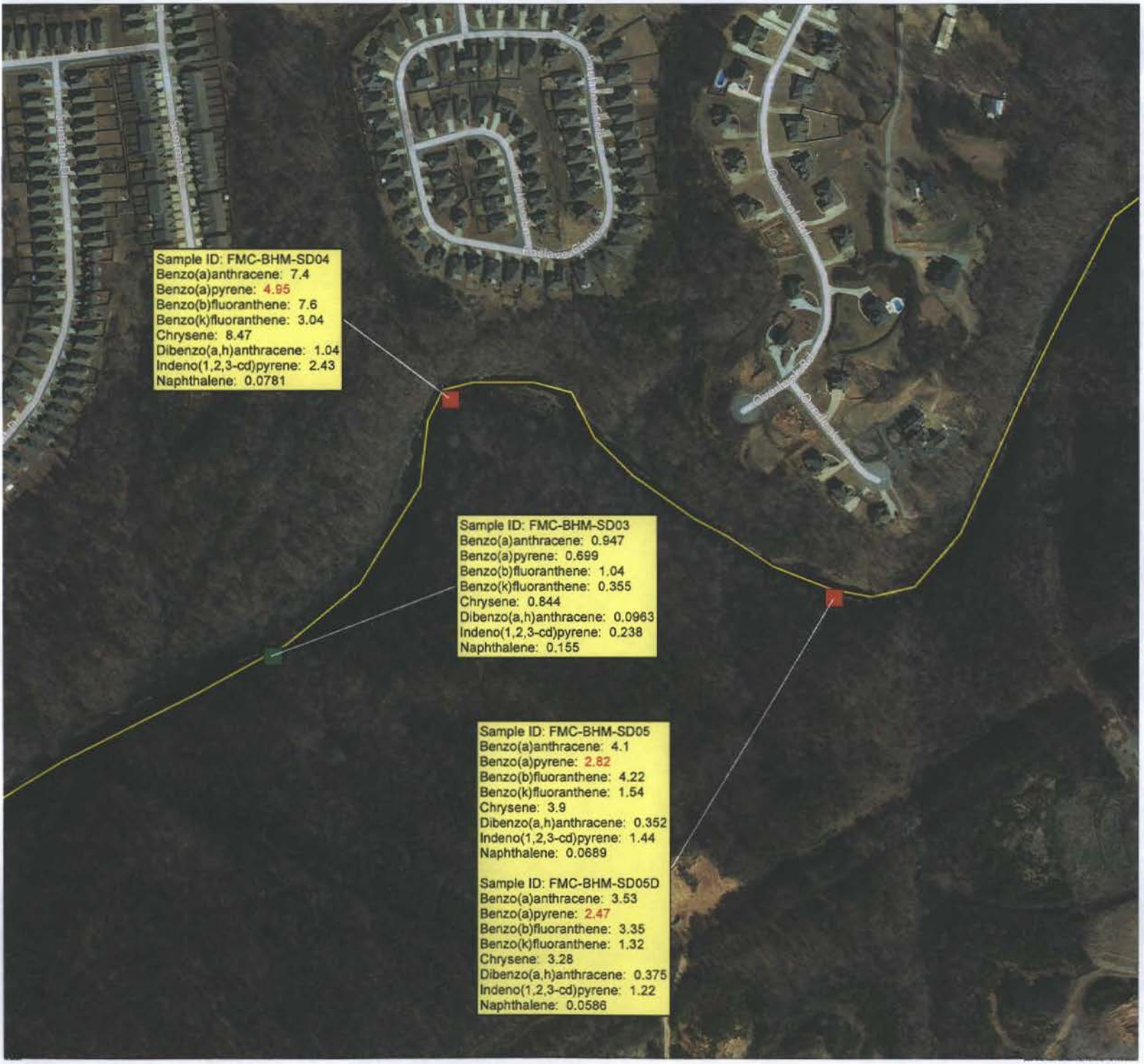
Feet
0 125 250

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 8
CHIEF WILLIAM C. "BILLY"
HEWITT PARK
SEDIMENT SAMPLE RESULTS

OTIE
Oneida Total Integrated Enterprises



Legend

- Above Residential RML
- Below Residential RML
- Five Mile Creek

Notes:
SD = Sediment sample
OB = Overburden sample
BHM = City of Birmingham
FMC = Five Mile Creek
RML= Removal Management Level

Results are in Milligrams per Kilogram

Feet
0 250 500

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 9
CITY OF BIRMINGHAM PROPERTY
SEDIMENT AND OVERBURDEN
SAMPLE RESULTS

OTIE
Oneida Total Integrated Enterprises

Legend

- Above Residential RML
- Below Residential RML
- Five Mile Creek

Notes:
SD = Sediment sample
FLT – Freshwater Land Trust
FMC = Five Mile Creek
J = Value is estimated
RML= Removal Management Level

Results are in Milligrams per Kilogram

Feet
0 250 500

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 10
FRESHWATER LAND TRUST
SEDIMENT SAMPLE RESULTS

OTIE
Oneida Total Integrated Enterprises

Legend

- Above Residential RML
- Below Residential RML
- Five Mile Creek

Notes:
SD = Sediment sample
FMC = Five Mile Creek
WB = Wright Brothers
RML= Removal Management Level

Results are in Milligrams per Kilogram

Feet
0 350 700

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 11
WRIGHT BROTHERS PROPERTY
SEDIMENT SAMPLE RESULTS

OTIE
Oneida Total Integrated Enterprises

Legend

- Above Residential RML
- Below Residential RML
- Five Mile Creek

Notes:
SD = Sediment sample
FMC = Five Mile Creek
WC = Walter Coke
U = Value is not detected above the SQL
SQL=Sample Quantitation Limit
RML= Removal Management Level

Results are in Milligrams per Kilogram

Feet
0 500 1,000

United States Environmental Protection Agency

FIVE MILE CREEK
BIRMINGHAM,
JEFFERSON COUNTY,
ALABAMA
TDD No. TNA-05-003-0169

FIGURE 12
WALTER COKE
ADDENDUM PROPERTY
SEDIMENT SAMPLE RESULTS

OTIE
Oneida Total Integrated Enterprises

APPENDIX B

TABLES

TABLE 1
FIVE MILE CREEK
SUMMARY OF SAMPLED COLLECTED

Sample Number	Latitude	Longitude	Location	Sample Date	Matrix	SampleType	TAL Metals (SW846-6010/ 7470 or 7471/ 7841)	PCB (SW846-8082)	TCL SVOC (SW846-8270D)	LL-PAH (SW846-8270 SIM)	TOC (SW846-9060 MOD)	Total Hardness (ASTM-2340B)
EPAFMC-SD-01	33.58921457	-86.79880038	EPAFMC01	4/23/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-02	33.58950403	-86.79843964	EPAFMC02	4/23/2012	Sediment	Field Sample	X	X	X	X	X	
EPAFMC-SD-03	33.58957406	-86.79792339	EPAFMC03	4/23/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-04	33.58968574	-86.79726186	EPAFMC04	4/23/2012	Sediment	Field Sample	X	X	X	X	X	
EPAFMC-SD-05	33.58912483	-86.79617396	EPAFMC05	4/23/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-06	33.58912483	-86.79617396	EPAFMC05	4/23/2012	Sediment	Field Duplicate	X		X	X	X	
EPAFMC-SD-07	33.58484465	-86.7884742	EPAFMC06	4/24/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-08	33.58481396	-86.78778329	EPAFMC07	4/24/2012	Sediment	Field Sample	X	X	X	X	X	
EPAFMC-SD-09	33.58525641	-86.78735975	EPAFMC08	4/24/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-10	33.58571781	-86.78701114	EPAFMC09	4/24/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-11	33.58685231	-86.78625886	EPAFMC10	4/24/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-12	33.58689586	-86.78609874	EPAFMC11	4/24/2012	Sediment	Field Sample	X	X	X	X	X	
EPAFMC-SD-13	33.58824938	-86.78526796	EPAFMC12	4/24/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-14	33.58841231	-86.78373316	EPAFMC13	4/24/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-15	33.58853128	-86.78141023	EPAFMC14	4/24/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-16	33.58689586	-86.78609874	EPAFMC11	4/24/2012	Sediment	Field Duplicate	X	X	X	X	X	
EPAFMC-SD-17	33.58573369	-86.79213368	EPAFMC15	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-18	33.58547834	-86.79171616	EPAFMC16	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-19	33.58530038	-86.79135507	EPAFMC17	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-20	33.58525589	-86.79119066	EPAFMC18	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-21	33.58509478	-86.79096629	EPAFMC19	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-22	33.58501357	-86.79075659	EPAFMC20	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-23	33.58481381	-86.79041203	EPAFMC21	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-24	33.58474898	-86.79035503	EPAFMC22	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-25	33.5843045	-86.79005588	EPAFMC23	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-26	33.58404764	-86.78982473	EPAFMC24	4/25/2012	Sediment	Field Sample	X	X	X	X	X	
EPAFMC-SD-27	33.58404764	-86.78982473	EPAFMC24	4/25/2012	Sediment	Field Duplicate	X	X	X	X	X	

TABLE 1
FIVE MILE CREEK
SUMMARY OF SAMPLED COLLECTED

Sample Number	Latitude	Longitude	Location	Sample Date	Matrix	SampleType	TAL Metals (SW846-6010/ 7470 or 7471/ 7841)	PCB (SW846-8082)	TCL SVOC (SW846-8270D)	LL-PAH (SW846-8270 SIM)	TOC (SW846-9060 MOD)	Total Hardness (ASTM-2340B)
EPAFMC-SD-28	33.58135901	-86.78915293	EPAFMC25	4/25/2012	Sediment	Field Sample	X		X	X	X	
EPAFMC-SD-29	33.57759363	-86.78888799	EPAFMC26	4/25/2012	Sediment	Field Sample	X	X	X	X	X	
EPAFMC-SD-30	33.60527748	-86.74977002	EPAFMC28	4/26/2012	Sediment	Field Sample	X	X	X	X	X	
EPAFMC-SW-01	33.58689586	-86.78609874	EPAFMC11	4/24/2012	Surface Water	Field Sample	X					X
EPAFMC-SW-01R	33.58689586	-86.78609874	EPAFMC11	4/26/2012	Surface Water	Field Sample	X	X	X	X		X
EPAFMC-SW-02	33.584671	-86.790526	EPAFMC27	4/25/2012	Surface Water	Field Sample	X	X	X	X		X
EPAFMC-SW-03	33.58689586	-86.78609874	EPAFMC11	4/24/2012	Surface Water	Field Duplicate	X					X
EPAFMC-SW-03R	33.58689586	-86.78609874	EPAFMC11	4/26/2012	Surface Water	Field Duplicate	X	X	X	X		X
EPAFMC-SW-04	33.60527748	-86.74977002	EPAFMC28	4/26/2012	Surface Water	Field Sample	X	X	X	X		X
FMC-ABC-OB10	33.58653631	-86.78618797	ABCOB10	1/28/2013	Surface Soil	Field Sample	X		X	X	X	
FMC-ABC-OB8	33.58532745	-86.78702878	ABCOB8	1/28/2013	Surface Soil	Field Sample	X		X	X	X	
FMC-ABC-OB9	33.5859618	-86.78669014	ABCOB9	1/28/2013	Surface Soil	Field Sample	X		X	X	X	
FMC-ABC-OB9D	33.5859618	-86.78669014	ABCOB9	1/28/2013	Surface Soil	Field Duplicate	X		X	X	X	
FMC-BHM-SD03	33.59158318	-86.8235194	WBSD03	1/29/2013	Sediment	Field Sample	X		X	X	X	
FMC-BHM-SD04	33.59351643	-86.82190767	WBSD04	1/29/2013	Sediment	Field Sample	X		X	X	X	
FMC-BHM-SD05	33.59199342	-86.81847471	WBSD05	1/29/2013	Sediment	Field Sample	X		X	X	X	
FMC-BHM-SD05D	33.59199342	-86.81847471	WBSD05	1/29/2013	Sediment	Field Duplicate	X		X	X	X	
FMC-FLT-SD10	33.59070916	-86.80309186	FLTSD10	2/1/2013	Sediment	Field Sample	X		X	X	X	
FMC-FLT-SD11	33.5908938	-86.80118776	FLTSD11	2/1/2013	Sediment	Field Sample	X		X	X	X	
FMC-WB-SD01	33.59040772	-86.83155865	WBSD01	1/29/2013	Sediment	Field Sample	X		X	X	X	
FMC-WB-SD02	33.58969505	-86.82873821	WBSD02	1/29/2013	Sediment	Field Sample	X		X	X	X	
FMC-WC-SD08	33.59347727	-86.80831027	WCSD08	1/31/2013	Sediment	Field Sample	X		X	X	X	
FMC-WC-SD09	33.59117048	-86.80674951	WCSD09	1/31/2013	Sediment	Field Sample	X		X	X	X	
FMC-WD-OB3	33.5890733	-86.79620078	WDOB3	1/29/2013	Surface Soil	Field Sample	X		X	X	X	

TABLE 1
FIVE MILE CREEK
SUMMARY OF SAMPLED COLLECTED

Sample Number	Latitude	Longitude	Location	Sample Date	Matrix	SampleType	TAL Metals (SW846-6010/ 7470 or 7471/ 7841)	PCB (SW846-8082)	TCL SVOC (SW846-8270D)	LL-PAH (SW846-8270 SIM)	TOC (SW846-9060 MOD)	Total Hardness (ASTM-2340B)
Quality Control												
EPAFMC-FB-01				4/25/2012	Field Blank	Lab QC			X	X		
EPAFMC-PB-01				4/26/2012	Preservative Bla	Lab QC	X					X
EPAFMC-RB-01				4/25/2012	Rinse Water Bla	Lab QC	X	X	X	X		X

Notes:

LL PAH - Low-Level Analysis for Polycyclic Aromatic Hydrocarbons
PCB - Polychlorinated Biphenyls
SVOC - Semivolatile Organic Compounds
TAL - Target Analyte List
TCL - Target Compound List
TOC - Total Organic Carbon

TABLE 8
FIVE MILE CREEK
SUMMARY OF SURFACE WATER ANALYTICAL RESULTS

Notes:

Gray Shading - Concentration exceeds the Chronic Aquatic Life Freshwater Criteria but not the Acute
Bold - Analyte was detected above the sample quantitation limit
2 - EPA Ambient Water Quality Criteria (AWQC): http://www.epa.gov/waterscience/criteria/aqlife.html
CaCO3 - Assumes a hardness of 100 mg/L
E - EcoUpdate: www.epa.gov/oswer/riskassessment/ecoup/
NA - Not analyzed
NL - Not listed
PAH - Polycyclic Aromatic Hydrocarbon compounds
pH - Assumes a pH 6.5 - 9.0
SVOC - Semivolatile Organic Compounds
T - Tier II Secondary Acute Value: http://www.esd.ornl.gov/progrmas/ecorisk/tools.html
V - EPA Region V Ecological Screening Levels: https://www.epa.gov/reg5rcra/ca/edgl.htm
U - Analyte was not detected above the associated value
ug/L - Micrograms per liter

TABLE 8
FIVE MILE CREEK
SUMMARY OF SURFACE WATER ANALYTICAL RESULTS

Sample ID	Aquatic Life Freshwater Criteria[2] Acute	Aquatic Life Freshwater Criteria[2] Chronic	EPAFMC-SW-01	EPAFMC-SW-03	EPAFMC-SW-01R	EPAFMC-SW-03R	EPAFMC-SW-02	EPAFMC-SW-04
Lat/Long			33.5868958616, -86.7860987383	33.5868958616, -86.7860987383	33.5868958616, -86.7860987383	33.5868958616, -86.7860987383	33.584671, -86.790526	33.6052774835, -86.7497700211
Location ID			EPAFMC11	EPAFMC11	EPAFMC11	EPAFMC11	EPAFMC27	EPAFMC28
Sample Date			4/24/2012	4/24/2012	4/26/2012	4/26/2012	4/25/2012	4/26/2012
Matrix			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Type			Field Sample	Field Duplicate	Field Sample	Field Duplicate	Field Sample	Field Sample
Wet Chemistry (mg/L)								
Hardness	NL	NL	**195**	**203**	**188**	**197**	**60.5**	**191**
PAH (ug/L)								
2-Methylnaphthalene	NL	330 [V]	NA	NA	0.02 U	0.02 U	**0.025 J**	0.02 U
Benzo(a)anthracene	0.49 [T]	0.27 [T]	NA	NA	0.02 U	**0.021 J**	**0.04 J**	0.02 U
Benzo(a)pyrene	0.24 [T]	0.014 [T]	NA	NA	0.02 U	0.02 U	**0.051**	0.02 U
Benzo(b)fluoranthene	NL	9.07 [V]	NA	NA	0.02 U	**0.023 J**	**0.047 J**	0.02 U
Benzo(g,h,i)perylene	NL	7.64 [V]	NA	NA	0.02 U	0.02 U	**0.041 J**	0.02 U
Chrysene	NL	NL	NA	NA	0.02 U	0.02 U	**0.036 J**	0.02 U
Fluoranthene	3980	NL	NA	NA	**0.031 J**	**0.032 J**	**0.069**	0.02 U
Indeno (1,2,3-cd) pyrene	NL	4.31 [V]	NA	NA	0.02 U	0.02 U	**0.022 J**	0.02 U
Naphthalene	190 [T]	NL	NA	NA	**0.038 J**	**0.043 J**	0.051 U	0.02 U
Phenanthrene	30	6.3	NA	NA	**0.03 J**	**0.029 J**	**0.056**	0.02 U
Pyrene	NL	NL	NA	NA	0.02 U	**0.021 J**	**0.065**	0.02 U
SVOC (ug/L)								
Bis(2-ethylhexyl)phthalate	400	0.3 [T]	NA	NA	4.5 U	4.5 U	**14.2**	**10.3**
Metals, Total (ug/L)								
Aluminum	750 [pH]	87 [pH]	100 U	100 U	100 U	100 U	**123 J**	100 U
Arsenic	340	150	**7.06 J**	3.31 U	**6.47 J**	3.31 U	**7.52 J**	3.31 UJ
Barium	110 [T]	3.9 [E]	**32**	**33.9**	**33.8**	**35.6**	**31.6**	**30.9**
Calcium	NL	NL	**44300**	**46200**	**41700**	**44000**	**16400**	**41400**
Iron	NL	1000	**102 J**	**94.8**	**126 J**	**125 J**	**237 J**	**64.3 J**
Magnesium	NL	NL	**20400**	**21400**	**20400**	**21200**	**4740**	**21300**
Manganese	2300 [T]	80 [E]	**33.9**	**37.7**	**60.8**	**75.8**	**85.8**	**17.2**
Nickel	470 [CaCO3]	52 [CaCO3]	0.93 U	0.93 U	0.93 U	0.93 U	**1.57 J**	0.93 U
Potassium	NL	NL	**1130**	**1220**	**1130**	**1160**	**3100**	**795**
Sodium	NL	NL	**26000**	**27200**	**24200**	**25300**	**38400**	**2830**
Thallium	280 [T]	19 [E]	**0.507 J**	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Vanadium	120 [CaCO3]	120 [CaCO3]	**0.565 J**	**0.546 J**	**0.712 J**	**0.615 J**	0.44 U	**0.66 J**
Zinc	110 [T]	NL	**4.23 J**	**4.44 J**	**5.83 J**	**7.05 J**	**34.8**	**4.09 J**

TABLE 7
FIVE MILE CREEK
SUMMARY OF OVERBURDEN SEDIMENT SAMPLE RESULTS

Sample ID	Residential Soil RML	FMC-ABC-OB10	FMC-ABC-OB8	FMC-ABC-OB9	FMC-ABC-OB9D	FMC-WD-OB3
Lat/Long		33.5865363077, -86.7861879695	33.5853274501, -86.7870287815	33.5859617952, -86.7866901387	33.5859617952, -86.7866901387	33.5890732965, -86.7962007835
Location ID		ABCOB10	ABCOB8	ABCOB9	ABCOB9	WDOB3
Sample Date		1/28/2013	1/28/2013	1/28/2013	1/28/2013	1/29/2013
Matrix		Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Sample Type		Field Sample	Field Sample	Field Sample	Field Duplicate	Field Sample
SVOC (ug/kg)						
1,1'-Biphenyl	150000	72.8 U	**111 J**	79 U	78.5 U	78.6 U
Bis(2-ethylhexyl)phthalate	3500	99.1 U	108 U	107 U	**188 J**	107 U
Butylbenzylphthalate	26000	**79.2 J**	81.7 U	81.6 U	81.1 U	81.2 U
Carbazole	NL	**434**	**466**	**181 J**	**198 J**	**232 J**
Dibenzofuran	230000	**168 J**	**305 J**	**109 J**	**154 J**	69.6 U
Di-n-butylphthalate	18000	**52.8 J**	57.1 U	57 U	56.6 U	56.7 U

Notes:

Red Shading - Concentration exceeds the RML for Residential Soil
Bold - Analyte was detected above the sample quantitation limit
J - Value is estimated
mg/kg - Milligrams per kilogram
NA - Not analyzed
NL - Not listed
PAH - Polycyclic Aromatic Hydrocarbon compounds
RML - EPA Residential Soil Regional Removal Management Level (July 2012)
SVOC - Semivolatile Organic Compounds
TOC - Total Organic Compounds
U - Analyte was not detected above the associated value
ug/kg - Micrograms per kilogram

TABLE 6
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - UNNAMED TRIBUTARY

Notes:

Red Shading - Concentration exceeds the RAL for Residential Soil
Gray Shading - Concentration exceeds the EcoSSV Screening Value but not the RAL
Bold - Analyte was detected above the sample quantitation limit
Italics - Concentration exceeds the EcoTox Thresholds for Freshwater. See note for specific threshold presented
1 - EPA Sediment Quality Criteria (SQC) derived using the equilibirum partitioning (EqP) method as described in Technical Basis for Deriving Sediment Quality Criteria for
2 - EPA Sediment quality benchmarks (SQB) derived using the EqP approach used to derive SQC except that a Tier II surface water Ecotox Threshold (Great lakes Water Quality
3 - EPA. 2001. Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment. Originally published November 1995
4 - EPA Ambient Water Quality Criteria (AWQC): http://www.epa.gov/waterscience/criteria/aqlife.html
a - Assumes 1% organic carbon.
EcoSSV - Region 4 Ecological Risk Assessment Bulletins Sediment Screening Values
g - Long, Edward R., Donald D. MacDonald, Sherri L. Smith, and Fred D. Calder. 1995. Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine
h - MacDonald, D.D. 1994. Approach to the Assessment of Sediment Quality in Florida Coastal Waters. Florida Department of Environmental Protection.
J - Value is estimated
i - Long, E.R. and L.G. Morgan. 1990. The potential for biological effects of sediment-sorbed contaminants tested in the national status and trends program. NOAA Technical
m - MacDonald , D.D. et al., 2000. Arch ET&C Vol. 39 pp. 20-31. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems
mg/kg - Milligrams per kilogram
NA - Not analyzed
NL - Not listed
PAH - Polycyclic Aromatic Hydrocarbon compounds
PCB - Polychlorinated Biphenyl
PEC - Probable Effect Concentration. Represents the concentration above which harmful effects are likely to be observed.
PEL - Probable Effect Level. Represents the concentration above which adverse effects are expected to occur frequently.
RML - EPA Residential Soil Regional Removal Management Level (July 2012)
SEL - Severe Effect Level. Sediments are considered to be heavily polluted. Adverse effects on the majority of sediment-dwelling organisms are expected when this concentration
SVOC - Semivolatile Organic Compounds
TOC - Total Organic Compounds
U - Analyte was not detected above the associated value
ug/kg - Micrograms per kilogram

TABLE 7
FIVE MILE CREEK
SUMMARY OF OVERBURDEN SEDIMENT SAMPLE RESULTS

Sample ID	Residential Soil RML	FMC-ABC-OB10	FMC-ABC-OB8	FMC-ABC-OB9	FMC-ABC-OB9D	FMC-WD-OB3
Lat/Long		33.5865363077, -86.7861879695	33.5853274501, -86.7870287815	33.5859617952, -86.7866901387	33.5859617952, -86.7866901387	33.5890732965, -86.7962007835
Location ID		ABCOB10	ABCOB8	ABCOB9	ABCOB9	WDOB3
Sample Date		1/28/2013	1/28/2013	1/28/2013	1/28/2013	1/29/2013
Matrix		Surface Soil	Surface Soil	Surface Soil	Surface Soil	Surface Soil
Sample Type		Field Sample	Field Sample	Field Sample	Field Duplicate	Field Sample
Wet Chemistry (mg/kg)						
TOC	NL	4730	103000	83400	92400	17400
Metals, Total (mg/kg)						
Aluminum	230000	5940	6240	8360	7860	13400
Arsenic	39	9.91	8.34	10.9	11.2	13.9
Barium	46000	50.4	66.4	78	76.5	131
Beryllium	470	0.747	0.727	0.848	0.772	1.24
Cadmium	210	0.166 J	0.119 J	0.738	0.757	0.754
Calcium	NL	20600	9790	15000	14100	14200
Chromium	NL	26.2	13.6	27.5	24.6	26.7
Cobalt	70	6.99	7.12	8.34	8.33	10.6
Copper	9400	19.6	19.2	26	25.7	54
Iron	160000	20200	13100	19500	18300	28300
Lead	400	48.6	42.2	64.9	64.2	129
Magnesium	NL	6140	3530	5820	5490	6140
Manganese	5500	728	635	810	758	1080
Mercury	30	0.0893	0.124	0.381	0.338	0.479
Nickel	4600	10.3	9.86	12.6	10.9	15.3
Potassium	NL	577	671	876	810	947
Selenium	1200	0.675 J	0.519 U	0.61 J	0.402 J	2.34
Sodium	NL	53.2	39.9	37.7	34.8	82
Vanadium	1200	25.7	20.3	27.7	27.4	33.3
Zinc	70000	242	119	337	294	838
PAH (ug/kg)						
1-Methylnaphthalene	1600000	35	323	55.2	53.4	40
2-Methylnaphthalene	690000	59.9	598	85	86.6	66.1
Acenaphthene	10000000	200	211	44.1	38.7	66
Acenaphthylene	NL	1360	1220	1020	807	1320
Anthracene	52000000	2050	1010	620	536	1750
Benzo(a)anthracene	15000	7870	3540	5640	4660	8010
Benzo(a)pyrene	1500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Benzo(b)fluoranthene	15000	8070	5020	6930	5670	8600
Benzo(g,h,i)perylene	NL	2930	2490	2420	1950	3420
Benzo(k)fluoranthene	150000	3110	2000	2600	2240	3590
Chrysene	1500000	7890	4260	5720	5190	7910
Dibenzo(a,h)anthracene	1500	1030	739	963	782	1150
Fluoranthene	6900000	14000	4620	6160	5520	12800
Fluorene	6900000	427	216	97.6	82	222
Indeno(1,2,3-cd)pyrene	15000	2860	2360	2410	1960	3460
Naphthalene	360000	195	2420	294	225	190
Phenanthrene	NL	3480	2380	897	730	2860
Pyrene	5200000	10200	3700	5260	4590	9490
Total PAH	NL	71636.9	40867	46035.9	39170.7	71314.1

TABLE 6
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - UNNAMED TRIBUTARY

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-25	EPAFMC-SD-26	EPAFMC-SD-27	EPAFMC-SD-28	EPAFMC-SD-29
Lat/Long					33.5843045042, -86.7900558786	33.584047638, -86.7898247278	33.584047638, -86.7898247278	33.5813590084, -86.7891529253	33.5775936257, -86.7888879892
Location ID					EPAFMC23	EPAFMC24	EPAFMC24	EPAFMC25	EPAFMC26
Sample Date					4/25/2012	4/25/2012	4/25/2012	4/25/2012	4/25/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Duplicate	Field Sample	Field Sample
PAH (ug/kg)									
1-Methylnaphthalene	5300000	NL	NL	NL	**365**	**1640**	**1630**	**83.7 J**	**212 J**
2-Methylnaphthalene	6600000	20.23	330	NL	**923**	**4130**	**3980**	**201**	**443**
Acenaphthene	99000000	6.71 [h]	330	620 [a] SQC[1]	**660**	**410**	**421**	**142**	**318**
Acenaphthylene	NL	5.87 [h]	330	128 PEL[m]	**1080**	**7240**	**7660**	**715**	**706**
Anthracene	500000000	46.9 [h]	330	245 PEL[m]	**2200**	**3010**	**2860**	**576**	**1120**
Benzo(a)anthracene	210000	74.8 [h]	330	385 PEL[m]	**6420**	**12300**	**11000**	**2650**	**4460**
Benzo(a)pyrene	21000	88.8 [h]	330	782	**6580**	**14900**	**14300**	**2800**	**4410**
Benzo(b)fluoranthene	210000	312 [h]	330	NL	**8650**	**22100**	**21200**	**3800**	**6040**
Benzo(g,h,i)perylene	NL	312 [h]	330	3200 SEL[m]	**3920**	**12100**	**11800**	**1680**	**2660**
Benzo(k)fluoranthene	2100000	312 [h]	330	13400 SEL[m]	**2700**	**7260**	**6940**	**1400**	**1820**
Chrysene	21000000	108 [h]	330	862 PEL[m]	**5760**	**10900**	**9830**	**2110**	**3700**
Dibenzo(a,h)anthracene	21000	6.22 [h]	330	135 PEL[m]	**930**	**3850**	**3740**	**586**	**868**
Fluoranthene	66000000	113 [h]	330	2900 SQC[1]	**8300**	**15200**	**13300**	**3320**	**6860**
Fluorene	66000000	21.2 [h]	330	540 SQB[2]	**810**	**733**	**707**	**199**	**359**
Indeno(1,2,3-cd)pyrene	210000	312 [h]	330	3200 SEL[m]	**3630**	**11400**	**11200**	**1570**	**2470**
Naphthalene	1800000	34.6 [h]	330	480 SQB[2]	**4440**	**21000**	**19100**	**956**	**1580**
Phenanthrene	NL	86.7	330	850 SQC[1]	**3550**	**6480**	**6050**	**800**	**2980**
Pyrene	50000000	153 [h]	330	875 PEL[m]	**5990**	**11700**	**10600**	**2520**	**4920**
Total PAH	NL	1.684 [h]	0.33	22800 PEC[m]	**66908**	**166353**	**156318**	**26108.7**	**45926**
SVOC (ug/kg)									
1,1'-Biphenyl	640000	NL	NL	1100 SQB[2]	158 U	**497**	**509**	83.1 U	**86.9 J**
2,4-Dimethylphenol	37000000	NL	NL	NL	148 U	51.7 U	51.6 U	77.6 U	75.8 U
2-Methylphenol	92000000	NL	NL	NL	248 U	87.1 U	87 U	131 U	128 U
4-Methylphenol	180000000	NL	NL	NL	153 U	**83.6 J**	**107 J**	80.4 U	78.4 U
Acetophenone	310000000	NL	NL	NL	259 U	**139 J**	**148 J**	136 U	133 U
Bis(2-ethylhexyl)phthalate	12000000	NL	NL	NL	215 U	75.3 U	75.2 U	113 U	**700**
Carbazole	NL	NL	NL	NL	**267 J**	**654**	**706**	73.5 U	**268 J**
Dibenzofuran	3100000	NL	NL	2000 SQB[2]	**209 J**	**1740**	**1790**	73.5 U	**239 J**

TABLE 6
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - UNNAMED TRIBUTARY

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-25	EPAFMC-SD-26	EPAFMC-SD-27	EPAFMC-SD-28	EPAFMC-SD-29
Lat/Long					33.5843045042 , -86.7900558786	33.584047638 , -86.7898247278	33.584047638 , -86.7898247278	33.5813590084 , -86.7891529253	33.5775936257 , -86.7888879892
Location ID					EPAFMC23	EPAFMC24	EPAFMC24	EPAFMC25	EPAFMC26
Sample Date					4/25/2012	4/25/2012	4/25/2012	4/25/2012	4/25/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Duplicate	Field Sample	Field Sample
PCB (ug/kg)									
Aroclor-1260	74000	NL	NL	NL	NA	88 J	160 J	NA	12 U
Wet Chemistry (mg/kg)									
TOC	NL	NL	NL	NL	**265000**	**269000 J**	**77.7 J**	66.2 U	66.7 U
Metals, Total (mg/kg)									
Aluminum	3000000	NL	NL	NL	**8590**	**4010**	**3950**	**10800**	**16000**
Antimony	1200	2 [i]	12	NL	2.7 U	1.03 U	0.978 U	1.11 U	1.39 U
Arsenic	160	7.24 [h]	7.24	NL	**14.6**	**21**	**23.3**	**15.3**	**19.4**
Barium	570000	NL	NL	NL	**127**	**154**	**118**	**107**	**178**
Beryllium	6000	NL	NL	NL	1.35 U	**0.73**	**0.629**	**0.828**	**1.63**
Cadmium	2400	0.676 [h]	1	NL	**0.389 J**	0.0515 U	0.0489 U	**1.13**	**0.35 J**
Calcium	NL	NL	NL	NL	**38900**	**7320**	**8720**	**51800**	**59300**
Chromium	NL	52.3 [h]	52.3	NL	**28**	**16.8**	**18**	**44.2**	**30.5**
Cobalt	910	NL	NL	NL	**18.6**	**7.83**	**6.12**	**22.7**	**11.5**
Copper	120000	18.7 [h]	18.7	NL	**340**	**56.8**	**56**	**268**	**103**
Iron	2100000	NL	NL	NL	**57200**	**22000**	**25700**	**71700**	**27400**
Lead	800	30.2 [h]	30.2	NL	**118**	**105**	**108**	**156**	**85**
Magnesium	NL	NL	NL	NL	**5130**	**1220**	**1400**	**4770**	**8890**
Manganese	68000	NL	NL	NL	**804**	**247**	**344**	**1510**	**1780**
Mercury	130	0.13 [h]	0.13	NL	**0.396**	**0.44**	**0.329**	**0.368**	**0.222**
Nickel	59000	15.9 [g]	15.9	NL	**22.7**	**17.2**	**14**	**21.3**	**25.7**
Potassium	NL	NL	NL	NL	**1360**	**616**	**629**	**1180**	**2090**
Selenium	15000	NL	NL	NL	1.08 U	0.412 U	0.391 U	0.445 U	2.79 U
Silver	15000	0.733 [h]	2	NL	1.35 U	0.165 U	0.156 U	**1.05 J**	0.223 U
Sodium	NL	NL	NL	NL	**203**	**95.4**	**91.6**	**130**	**253**
Thallium	31	NL	NL	NL	0.918 U	1.03 U	0.978 U	1.11 U	1.39 U
Vanadium	15000	NL	NL	NL	**30.7**	**17**	**16.2**	**37.4**	**30.1**
Zinc	920000	124 [h]	124	NL	**1050**	**111**	**123**	**1050**	**375**

TABLE 6
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - UNNAMED TRIBUTARY

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-19	EPAFMC-SD-20	EPAFMC-SD-21	EPAFMC-SD-22	EPAFMC-SD-23	EPAFMC-SD-24
Lat/Long					33.585300378, -86.791355071	33.5852558869, -86.7911906597	33.5850947766, -86.7909662899	33.5850135711, -86.7907565852	33.5848138081, -86.790412026	33.5847489807, -86.7903550294
Location ID					EPAFMC17	EPAFMC18	EPAFMC19	EPAFMC20	EPAFMC21	EPAFMC22
Sample Date					4/25/2012	4/25/2012	4/25/2012	4/25/2012	4/25/2012	4/25/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Sample	Field Sample	Field Sample
PCB (ug/kg)										
Aroclor-1260	74000	NL	NL	NL	NA	NA	NA	NA	NA	NA
Wet Chemistry (mg/kg)										
TOC	NL	NL	NL	NL	**34300**	**263000**	**168000**	**340000**	**161000**	**182000**
Metals, Total (mg/kg)										
Aluminum	3000000	NL	NL	NL	**5990**	**7320**	**9610**	**12100**	**10600**	**9800**
Antimony	1200	2 [i]	12	NL	1.14 UJ	1.88 U	1.38 U	1.39 U	0.344 U	**1.2 J**
Arsenic	160	7.24 [h]	7.24	NL	**17.1**	**14.4**	**34.4**	**12.2**	**16.9**	**46.4**
Barium	570000	NL	NL	NL	**66.1**	**136**	**232**	**166**	**168**	**210**
Beryllium	6000	NL	NL	NL	**0.683**	**0.843 J**	0.22 U	**1.75**	**1.02**	0.594 U
Cadmium	2400	0.676 [h]	1	NL	0.0572 U	**0.144 J**	**1.91**	**0.798**	**2.25**	**0.64**
Calcium	NL	NL	NL	NL	**17800**	**21400**	**21600**	**40200**	**27400**	**22500**
Chromium	NL	52.3 [h]	52.3	NL	**39.2**	**31.7**	**32.7**	**26.8**	**36.2**	**32.9**
Cobalt	910	NL	NL	NL	**10.7**	**13.9**	**20.4**	**10.5**	**18.3**	**25.3**
Copper	120000	18.7 [h]	18.7	NL	**21**	**114**	**145**	**106**	**142**	**392**
Iron	2100000	NL	NL	NL	**40500**	**37400**	**161000**	**67600**	**92600**	**98700**
Lead	800	30.2 [h]	30.2	NL	**26.3**	**86.3**	**128**	**127**	**202**	**111**
Magnesium	NL	NL	NL	NL	**3810**	**6090**	**5120**	**8410**	**6960**	**4120**
Manganese	68000	NL	NL	NL	**778**	**453**	**3390**	**1440**	**1740**	**1360**
Mercury	130	0.13 [h]	0.13	NL	**0.0475 J**	**0.285**	**0.174**	**0.492**	**0.544**	**0.318**
Nickel	59000	15.9 [g]	15.9	NL	**13.4**	**16.6**	**21.5**	**9.85**	**17.2**	**18.9**
Potassium	NL	NL	NL	NL	**512**	**799**	**854**	**1220**	**839**	**1060**
Selenium	15000	NL	NL	NL	0.458 U	**6.26**	0.551 U	2.79 U	0.574 U	0.475 U
Silver	15000	0.733 [h]	2	NL	0.183 U	0.301 U	0.689 U	**0.886 J**	**1.4 J**	0.19 U
Sodium	NL	NL	NL	NL	**114**	**192**	**252**	**483**	**211**	**197**
Thallium	31	NL	NL	NL	0.389 U	0.64 U	1.38 U	**2.49 J**	**3.17 J**	**1.2 J**
Vanadium	15000	NL	NL	NL	**39.7**	**27.1**	**37.7**	**39.3**	**35.7**	**35.6**
Zinc	920000	124 [h]	124	NL	**265**	**630**	**2040**	**1590**	**2430**	**1240**

TABLE 6
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - UNNAMED TRIBUTARY

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-19	EPAFMC-SD-20	EPAFMC-SD-21	EPAFMC-SD-22	EPAFMC-SD-23	EPAFMC-SD-24
Lat/Long					33.585300378, -86.791355071	33.5852558869, -86.7911906597	33.5850947766, -86.7909662899	33.5850135711, -86.7907565852	33.5848138081, -86.790412026	33.5847489807, -86.7903550294
Location ID					EPAFMC17	EPAFMC18	EPAFMC19	EPAFMC20	EPAFMC21	EPAFMC22
Sample Date					4/25/2012	4/25/2012	4/25/2012	4/25/2012	4/25/2012	4/25/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Sample	Field Sample	Field Sample
PAH (ug/kg)										
1-Methylnaphthalene	5300000	NL	NL	NL	**70.4**	**203 J**	**403**	**9090 J**	**1100**	**470**
2-Methylnaphthalene	6600000	20.23	330	NL	**222**	**411**	**1020**	8550 U	**3380**	**1180**
Acenaphthene	99000000	6.71 [h]	330	620 [a] SQC[1]	**1820**	**425**	**705**	**54400**	**6080**	**1160**
Acenaphthylene	NL	5.87 [h]	330	128 PEL[m]	**3260**	**2430**	**2380**	**142000**	**10300**	**3460**
Anthracene	500000000	46.9 [h]	330	245 PEL[m]	**5380**	**3160**	**2880**	**297000**	**8630**	**3790**
Benzo(a)anthracene	210000	74.8 [h]	330	385 PEL[m]	**18500 J**	**13000**	**11800**	[illegible]	**50600**	**18400**
Benzo(a)pyrene	21000	88.8 [h]	330	782	**17700 J**	**12100**	**12800**	[illegible]	[illegible]	**20000**
Benzo(b)fluoranthene	210000	312 [h]	330	NL	**23300 J**	**15900**	**15500**	[illegible]	**62300**	**25200**
Benzo(g,h,i)perylene	NL	312 [h]	330	3200 SEL[m]	**9810 J**	**6500**	**7850**	**341000**	**27100**	**12300**
Benzo(k)fluoranthene	2100000	312 [h]	330	13400 SEL[m]	**8570 J**	**5590**	**6230**	**349000**	**21000**	**8620**
Chrysene	21000000	108 [h]	330	862 PEL[m]	**17200 J**	**10900**	**10700**	**795000**	**43400**	**15200**
Dibenzo(a,h)anthracene	21000	6.22 [h]	330	135 PEL[m]	**3130 J**	**2340**	**2560**	[illegible]	**9490**	**4000**
Fluoranthene	66000000	113 [h]	330	2900 SQC[1]	**38000**	**16500**	**15000**	**1640000**	**80500**	**23700**
Fluorene	66000000	21.2 [h]	330	540 SQB[2]	**3480**	**766**	**1180**	**137000**	**3910**	**1300**
Indeno(1,2,3-cd)pyrene	210000	312 [h]	330	3200 SEL[m]	**9330 J**	**6340**	**7200**	[illegible]	**25900**	**11500**
Naphthalene	1800000	34.6 [h]	330	480 SQB[2]	**1290**	**1910**	**4130**	**19600 J**	**20200**	**5690**
Phenanthrene	NL	86.7	330	850 SQC[1]	**4320**	**2920**	**4300**	**351000**	**8650**	**4720**
Pyrene	50000000	153 [h]	330	875 PEL[m]	**24900**	**11800**	**10900**	**1040000**	**53200**	**16700**
Total PAH	NL	1.684 [h]	0.33	22800 PEC[m]	**190282.4**	**113195**	**117538**	**8207640**	**484540**	**177390**
SVOC (ug/kg)										
1,1'-Biphenyl	640000	NL	NL	1100 SQB[2]	**113 J**	**148 J**	**235 J**	3920 U	**1010**	**467**
2,4-Dimethylphenol	37000000	NL	NL	NL	58.2 U	94.5 U	80.1 U	3660 U	**131 J**	72.2 U
2-Methylphenol	92000000	NL	NL	NL	98 U	159 U	135 U	6160 U	**145 J**	122 U
4-Methylphenol	180000000	NL	NL	NL	60.2 U	**137 J**	**221 J**	3790 U	**280 J**	**164 J**
Acetophenone	310000000	NL	NL	NL	102 U	166 U	140 U	6420 U	121 U	127 U
Bis(2-ethylhexyl)phthalate	12000000	NL	NL	NL	84.7 U	138 U	117 U	5330 U	101 U	105 U
Carbazole	NL	NL	NL	NL	**1530**	**484**	**429**	**7230 J**	**1740**	**892**
Dibenzofuran	3100000	NL	NL	2000 SQB[2]	**1940**	**726**	**711**	***17800***	***3880***	***2200***

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Notes:

Red Shading - Concentration exceeds the RAL for Residential Soil
Gray Shading - Concentration exceeds the EcoSSV Screening Value but not the RAL
Bold - Analyte was detected above the sample quantitation limit
Italics - Concentration exceeds the EcoTox Thresholds for Freshwater. See note for specific threshold presented
1 - EPA Sediment Quality Criteria (SQC) derived using the equilibirum partitioning (EqP) method as described in Technical Basis for Deriving Sediment Quality Criteria for
2 - EPA Sediment quality benchmarks (SQB) derived using the EqP approach used to derive SQC except that a Tier II surface water Ecotox Threshold (Great lakes Water Quality
3 - EPA. 2001. Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment. Originally published November 1995
4 - EPA Ambient Water Quality Criteria (AWQC): http://www.epa.gov/waterscience/criteria/aqlife.html
a - Assumes 1% organic carbon.
EcoSSV - Region 4 Ecological Risk Assessment Bulletins Sediment Screening Values
g - Long, Edward R., Donald D. MacDonald, Sherri L. Smith, and Fred D. Calder. 1995. Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in
h - MacDonald, D.D. 1994. Approach to the Assessment of Sediment Quality in Florida Coastal Waters. Florida Department of Environmental Protection.
J - Value is estimated
i - Long, E.R. and L.G. Morgan. 1990. The potential for biological effects of sediment-sorbed contaminants tested in the national status and trends program. NOAA Technical
m - MacDonald , D.D. et al., 2000. Arch ET&C Vol. 39 pp. 20-31. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems
mg/kg - Milligrams per kilogram
NA - Not analyzed
NL - Not listed
PAH - Polycyclic Aromatic Hydrocarbon compounds
PCB - Polychlorinated Biphenyl
PEC - Probable Effect Concentration. Represents the concentration above which harmful effects are likely to be observed.
PEL - Probable Effect Level. Represents the concentration above which adverse effects are expected to occur frequently.
RML - EPA Residential Soil Regional Removal Management Level (July 2012)
SEL - Severe Effect Level. Sediments are considered to be heavily polluted. Adverse effects on the majority of sediment-dwelling organisms are expected when this concentration
SVOC - Semivolatile Organic Compounds
TOC - Total Organic Compounds
U - Analyte was not detected above the associated value
ug/kg - Micrograms per kilogram

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	FMC-FLT-SD11	FMC-WB-SD01	FMC-WB-SD02	FMC-WC-SD08	FMC-WC-SD09
Lat/Long					33.590893804 , -86.8011877577	33.5904077161 , -86.8315586531	33.5896950452 , -86.82873821	33.5934772746 , -86.8083102734	33.5911704829 , -86.8067495058
Property					Freshwater	Wright Bros	Wright Bros	Walter Coke	Walter Coke
Location ID					FLTSD11	WBSD01	WBSD02	WCSD08	WCSD09
Sample Date					2/1/2013	1/29/2013	1/29/2013	1/31/2013	1/31/2013
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Duplicate	Field Sample
PAH (ug/kg)									
1-Methylnaphthalene	1600000	NL	NL	NL	32.9 U	**12.1**	**23.9**	65.7 U	74.2 U
2-Methylnaphthalene	690000	20.23	330	NL	**51.3 J**	**22.8**	**93.5**	65.7 U	74.2 U
Acenaphthene	10000000	6.71 [h]	330	620 [a] SQC[1]	**50.4 J**	**24.7**	**112**	**128 J**	74.2 U
Acenaphthylene	NL	5.87 [h]	330	128 PEL[m]	**437**	**87.2**	**672**	***264***	**393**
Anthracene	52000000	46.9 [h]	330	245 PEL[m]	**377**	**170**	**4960**	**548**	**492**
Benzo(a)anthracene	15000	74.8 [h]	330	385 PEL[m]	**2360**	**585**	**4880**	**2110**	**2430**
Benzo(a)pyrene	1500	88.8 [h]	330	782	[illegible]	**463**	[illegible]	[illegible]	[illegible]
Benzo(b)fluoranthene	15000	312 [h]	330	NL	**2960**	**685**	**4540**	**2190**	**2700**
Benzo(g,h,i)perylene	NL	312 [h]	330	3200 SEL[m]	**1250**	**225**	**1620**	**838**	**1060**
Benzo(k)fluoranthene	150000	312 [h]	330	13400 SEL[m]	**1130**	**244**	**1920**	**887**	**1240**
Chrysene	1500000	108 [h]	330	862 PEL[m]	**2560**	**691**	**4680**	**2240**	**2660**
Dibenzo(a,h)anthracene	1500	6.22 [h]	330	135 PEL[m]	**436**	**76**	**420**	***288***	**369**
Fluoranthene	6900000	113 [h]	330	2900 SQC[1]	**3360**	**1100**	**8570**	**3890**	**3880**
Fluorene	6900000	21.2 [h]	330	540 SQB[2]	**75.1 J**	**44.5**	**472**	**189**	**101 J**
Indeno(1,2,3-cd)pyrene	15000	312 [h]	330	3200 SEL[m]	**1150**	**215**	**1600**	**802**	**1030**
Naphthalene	360000	34.6 [h]	330	480 SQB[2]	**151**	**66.5**	**145**	69.2 U	78.1 U
Phenanthrene	NL	86.7	330	850 SQC[1]	**696**	**355**	**2670**	**1400**	**786**
Pyrene	5200000	153 [h]	330	875 PEL[m]	**2800**	**857**	**6070**	**2830**	**3100**
Total PAH	NL	1.684 [h]	0.33	22800 PEC[m]	**21986.7**	**5923.8**	**46828.4**	**20404.6**	**22541.7**
SVOC (ug/kg)									
1,1'-Biphenyl	150000	NL	NL	1100 SQB[2]	91.8 U	96.9 U	100 U	75.7 U	85.5 U
4-Methylphenol	18000000	NL	NL	NL	88.8 U	93.7 U	96.9 U	73.2 U	82.7 U
Bis(2-ethylhexyl)phthalate	3500	NL	NL	NL	125 U	**179 J**	**285 J**	103 U	116 U
Carbazole	NL	NL	NL	NL	**194 J**	85.7 U	**430 J**	**82.6 J**	**87.8 J**
Dibenzofuran	230000	NL	NL	2000 SQB[2]	81.2 U	85.7 U	**739**	67 U	75.7 U

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-30	FMC-BHM-SD03	FMC-BHM-SD04	FMC-BHM-SD05	FMC-BHM-SD05D	FMC-FLT-SD10
Lat/Long					33.6052774835 , -86.7497700211	33.5915831766 , -86.8235194033	33.593516432 , -86.821907667	33.5919934155 , -86.8184747109	33.5919934155 , -86.8184747109	33.590709164 , -86.8030918625
Property					Hewlett Park	City of BHM	City of BHM	City of BHM	City of BHM	Freshwater
Location ID					EPAFMC28	WBSD03	WBSD04	WBSD05	WBSD05	FLTSD10
Sample Date					4/26/2012	1/29/2013	1/29/2013	1/29/2013	1/29/2013	2/1/2013
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Sample	Field Duplicate	Field Sample
PAH (ug/kg)										
1-Methylnaphthalene	1600000	NL	NL	NL	1.2 U	**4.4**	**72.5**	**11.3**	**10.5**	184 U
2-Methylnaphthalene	690000	20.23	330	NL	**2.4 J**	**5.5**	**60.1**	**28**	**23.8**	184 U
Acenaphthene	10000000	6.71 [h]	330	620 [a] SQC[1]	1.2 U	**28**	**168**	**104**	**102**	**1310**
Acenaphthylene	NL	5.87 [h]	330	128 PEL[m]	1.2 U	***146***	**1320**	**569**	**655**	**1350**
Anthracene	52000000	46.9 [h]	330	245 PEL[m]	**4.9**	**184**	**2630**	**1340**	**1130**	**7010**
Benzo(a)anthracene	15000	74.8 [h]	330	385 PEL[m]	**56**	**947**	**7400**	**4100**	**3530**	**9830**
Benzo(a)pyrene	1500	88.8 [h]	330	782	**62.4**	**699**	[illegible]	[illegible]	[illegible]	[illegible]
Benzo(b)fluoranthene	15000	312 [h]	330	NL	**94.9**	**1040**	**7600**	**4220**	**3350**	**9190**
Benzo(g,h,i)perylene	NL	312 [h]	330	3200 SEL[m]	**35.7**	**231**	**2410**	**1430**	**1210**	**3000**
Benzo(k)fluoranthene	150000	312 [h]	330	13400 SEL[m]	**24.4**	**355**	**3040**	**1540**	**1320**	**3900**
Chrysene	1500000	108 [h]	330	862 PEL[m]	**44.2**	**844**	**8470**	**3900**	**3280**	**9580**
Dibenzo(a,h)anthracene	1500	6.22 [h]	330	135 PEL[m]	**10.5**	**96.3**	**1040**	**352**	**375**	**1140**
Fluoranthene	6900000	113 [h]	330	2900 SQC[1]	**96.7**	**1430**	**15200**	**7140**	**6450**	**17600**
Fluorene	6900000	21.2 [h]	330	540 SQB[2]	1.2 U	**53.1**	**1190**	**205**	**209**	**1660**
Indeno(1,2,3-cd)pyrene	15000	312 [h]	330	3200 SEL[m]	**32.8**	**238**	**2430**	**1440**	**1220**	**3130**
Naphthalene	360000	34.6 [h]	330	480 SQB[2]	**2 J**	**15.5**	**78.1**	**68.9**	**58.6**	**201 J**
Phenanthrene	NL	86.7	330	850 SQC[1]	**24.6**	**328**	**7460**	**1640**	**1760**	**9730**
Pyrene	5200000	153 [h]	330	875 PEL[m]	**66**		**10400**	**5080**	**4460**	**13800**
Total PAH	NL	1.684 [h]	0.33	22800 PEC[m]	**562.3**	**6644.8**	**75918.7**	**35988.2**	**31613.9**	**99659**
SVOC (ug/kg)										
1,1'-Biphenyl	150000	NL	NL	1100 SQB[2]	57.5 U	74.4 U	86 U	80.5 U	77.9 U	83.3 U
4-Methylphenol	18000000	NL	NL	NL	55.6 U	72 U	83.2 U	77.9 U	75.3 U	80.5 U
Bis(2-ethylhexyl)phthalate	3500	NL	NL	NL	78.2 U	101 U	117 U	110 U	106 U	113 U
Carbazole	NL	NL	NL	NL	50.9 U	65.9 U	**127 J**	71.3 U	**126 J**	**336 J**
Dibenzofuran	230000	NL	NL	2000 SQB[2]	50.9 U	65.9 U	**96.8 J**	71.3 U	**76.9 J**	**151 J**

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	FMC-FLT-SD11	FMC-WB-SD01	FMC-WB-SD02	FMC-WC-SD08	FMC-WC-SD09
Lat/Long					33.590893804 , -86.8011877577	33.5904077161 , -86.8315586531	33.5896950452 , -86.82873821	33.5934772746 , -86.8083102734	33.5911704829 , -86.8067495058
Property					Freshwater	Wright Bros	Wright Bros	Walter Coke	Walter Coke
Location ID					FLTSD11	WBSD01	WBSD02	WCSD08	WCSD09
Sample Date					2/1/2013	1/29/2013	1/29/2013	1/31/2013	1/31/2013
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Duplicate	Field Sample
PCB (ug/kg)									
Aroclor-1260	22000	NL	NL	NL	NA	NA	NA	NA	NA
Wet Chemistry (mg/kg)									
TOC	NL	NL	NL	NL	**17400**	**6690**	**25200**	**2940**	**30400**
Metals, Total (mg/kg)									
Aluminum	230000	NL	NL	NL	**7740 J**	**8540**	**8920**	**5900**	**6440**
Antimony	94	2 [i]	12	NL	0.24 U	0.327 UJ	0.362 U	0.21 U	0.335 U
Arsenic	39	7.24 [h]	7.24	NL	**10.2 J**	**7.71**	**9.32**	**7.42**	**11.3**
Barium	46000	NL	NL	NL	**89.2**	**80**	**71.2**	**66**	**71**
Beryllium	470	NL	NL	NL	**0.882**	**0.71**	**0.562 J**	**0.546**	**0.637 J**
Cadmium	210	0.676 [h]	1	NL	**0.174 J**	0.0682 U	0.0755 U	0.0438 U	**0.278 J**
Calcium	NL	NL	NL	NL	**21700**	**14100**	**10600**	**7710**	**11200**
Chromium	NL	52.3 [h]	52.3	NL	**29.1**	**14.4**	**20.9**	**20.4**	**23**
Cobalt	70	NL	NL	NL	**7.54**	**10.5**	**9.03**	**8**	**9.67**
Copper	9400	18.7 [h]	18.7	NL	**22.6**	**20.8**	**18.9**	**23.8**	**20.6**
Iron	160000	NL	NL	NL	**22700**	**18900**	**18800**	**20800**	**19300**
Lead	400	30.2 [h]	30.2	NL	**37.8**	**28.2**	**24.6**	**15**	**35.9**
Magnesium	NL	NL	NL	NL	**7940 J**	**3730**	**3410**	**3410**	**4270**
Manganese	5500	NL	NL	NL	**859**	**399**	**748**	**1040**	**809**
Mercury	30	0.13 [h]	0.13	NL	**0.102 J**	**0.0596**	**0.0516**	**0.0311**	**0.108**
Nickel	4600	15.9 [g]	15.9	NL	**12.2**	**14**	**12.4**	**12.2**	**13.4**
Potassium	NL	NL	NL	NL	**609 J**	**1080**	**883**	**581**	**675**
Selenium	1200	NL	NL	NL	**3.87**	0.546 U	0.604 U	**1.33 J**	0.559 U
Silver	1200	0.733 [h]	2	NL	**0.507**	0.218 U	0.242 U	0.14 U	0.224 U
Sodium	NL	NL	NL	NL	**222 J**	**61.9**	**67.5**	**66.3**	**50.6**
Thallium	2.3	NL	NL	NL	0.34 U	0.464 U	0.514 U	0.298 U	0.475 U
Vanadium	1200	NL	NL	NL	**24.9**	**20**	**18.8**	**21.7**	**25.8**
Zinc	70000	124 [h]	124	NL	**197**	**125**	**128**	**89.9**	**188**

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-30	FMC-BHM-SD03	FMC-BHM-SD04	FMC-BHM-SD05	FMC-BHM-SD05D	FMC-FLT-SD10
Lat/Long					33.6052774835 , -86.7497700211	33.5915831766 , -86.8235194033	33.593516432 , -86.821907667	33.5919934155 , -86.8184747109	33.5919934155 , -86.8184747109	33.590709164 , -86.8030918625
Property					Hewlett Park	City of BHM	City of BHM	City of BHM	City of BHM	Freshwater
Location ID					EPAFMC28	WBSD03	WBSD04	WBSD05	WBSD05	FLTSD10
Sample Date					4/26/2012	1/29/2013	1/29/2013	1/29/2013	1/29/2013	2/1/2013
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Sample	Field Duplicate	Field Sample
PCB (ug/kg)										
Aroclor-1260	22000	NL	NL	NL	8.1 U	NA	NA	NA	NA	NA
Wet Chemistry (mg/kg)										
TOC	NL	NL	NL	NL	**1820**	**95.6 J**	**31700**	**1610**	**14000**	**12900**
Metals, Total (mg/kg)										
Aluminum	230000	NL	NL	NL	**5300**	**4190**	**4040**	**8190**	**6140**	**3760**
Antimony	94	2 [i]	12	NL	0.15 U	0.207 U	0.189 U	0.26 U	0.283 U	0.219 U
Arsenic	39	7.24 [h]	7.24	NL	**9.57**	**17.8**	**7.49**	**12.1**	**8.95**	**5.52**
Barium	46000	NL	NL	NL	**39.9**	**59.6**	**45.5**	**77**	**56.2**	**42.4**
Beryllium	470	NL	NL	NL	**0.818**	**0.524**	**0.449**	**0.731**	**0.476 J**	**0.492**
Cadmium	210	0.676 [h]	1	NL	0.0312 U	0.0431 U	0.0394 U	0.0541 U	0.0589 U	**0.047 J**
Calcium	NL	NL	NL	NL		**6060**	**6010**	**7380 J**	**4200 J**	**8450**
Chromium	NL	52.3 [h]	52.3	NL	**32.7**	**22.9**	**23.5**	**24.4**	**18.6 J**	**15.6**
Cobalt	70	NL	NL	NL	**4.17**	**5.72**	**5.8**	**11.3 J**	**6.68**	**4.22**
Copper	9400	18.7 [h]	18.7	NL	**6.2**	**7.72**	**10.7**	**24.7 J**	**10.8 J**	**15**
Iron	160000	NL	NL	NL	**21800**	**18400**	**14200**	**24300**	**18600**	**12900**
Lead	400	30.2 [h]	30.2	NL	**6.01**	**11.1**	**14.7**	**46.2 J**	**12.4 J**	**18.7**
Magnesium	NL	NL	NL	NL	**1630**	**2230**	**2220**	**3600**	**2560 J**	**3270**
Manganese	5500	NL	NL	NL		**430**	**382**	**583 J**	**315**	**375**
Mercury	30	0.13 [h]	0.13	NL	**0.0152 J**	**0.0142 J**	**0.0326**	**0.0678 J**	**0.0171 J**	**0.0442 J**
Nickel	4600	15.9 [g]	15.9	NL	**4.52**	**7.6**	**13.2**	**15.4**	**10.1**	**6.9**
Potassium	NL	NL	NL	NL	**605**	**491**	**643**	**786**	**812**	**421**
Selenium	1200	NL	NL	NL	0.25 U	**1.36 J**	**0.719 J**	**2.36 J**	**0.479 J**	**0.679 J**
Silver	1200	0.733 [h]	2	NL	0.0999 U	0.138 U	0.126 U	0.173 U	0.188 U	0.146 U
Sodium	NL	NL	NL	NL	**80.4**	**80.7**	**58.4**	**67.3**	**94.5**	**99.8**
Thallium	2.3	NL	NL	NL	0.624 U	0.293 U	0.268 U	0.368 U	0.4 U	0.31 U
Vanadium	1200	NL	NL	NL	**33**	**18.3**	**13.6**	**22.5**	**17.8**	**14.3**
Zinc	70000	124 [h]	124	NL	**21.5**	**68.7**	**89.8**	**160 J**	**76.6 J**	**118**

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-13	EPAFMC-SD-14	EPAFMC-SD-15	EPAFMC-SD-16	EPAFMC-SD-17	EPAFMC-SD-18
Lat/Long					33.5882493838 , -86.7852679586	33.5884123134 , -86.7837331575	33.588531284 , -86.781410225	33.5868958616 , -86.7860987383	33.5857336891 , -86.792133675	33.5854783372 , -86.7917161552
Property					ABC Coke	ABC Coke	ABC Coke	ABC Coke	Warwick	Walter Coke
Location ID					EPAFMC12	EPAFMC13	EPAFMC14	EPAFMC11	EPAFMC15	EPAFMC16
Sample Date					4/24/2012	4/24/2012	4/24/2012	4/24/2012	4/25/2012	4/25/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Duplicate	Field Sample	Field Sample
PAH (ug/kg)										
1-Methylnaphthalene	1600000	NL	NL	NL	**16.2**	**2.1 J**	**1.9 J**	**48.9**	**5.6**	**6**
2-Methylnaphthalene	690000	20.23	330	NL	**35**	**4.1**	**4.2**	**116**	**13.3**	**13.1**
Acenaphthene	10000000	6.71 [h]	330	620 [a] SQC[1]	**22.8**	**2.3 J**	**1.4 J**	**40.1**	**14.5**	**7.6**
Acenaphthylene	NL	5.87 [h]	330	128 PEL[m]	**68.7**	**5.4**	**4**	**94.4**	**86.3**	**53.4**
Anthracene	52000000	46.9 [h]	330	245 PEL[m]	**143**	**7.6**	**4.8**	**200**	**201**	**76.8**
Benzo(a)anthracene	15000	74.8 [h]	330	385 PEL[m]	**582**	**36.4**	**28.1**	**398**	**581**	**342**
Benzo(a)pyrene	1500	88.8 [h]	330	782	**407**	**32.2**	**30.3**	**343**	**426**	**304**
Benzo(b)fluoranthene	15000	312 [h]	330	NL	**672**	**53.5**	**50**	**480**	**628**	**418**
Benzo(g,h,i)perylene	NL	312 [h]	330	3200 SEL[m]	**249**	**21.5**	**25.9**	**204**	**199**	**181**
Benzo(k)fluoranthene	150000	312 [h]	330	13400 SEL[m]	**199**	**15**	**15.2**	**166**	**207**	**140**
Chrysene	1500000	108 [h]	330	862 PEL[m]	**452**	**33.6**	**30.3**	**344**	**546**	**286**
Dibenzo(a,h)anthracene	1500	6.22 [h]	330	135 PEL[m]	**84.4**	**7.4**	**7**	**73.2**	**89.5**	**64.2**
Fluoranthene	6900000	113 [h]	330	2900 SQC[1]	**962**	**54.1**	**51.6**	**758**	**816**	**456**
Fluorene	6900000	21.2 [h]	330	540 SQB[2]	**35**	**4.1**	**2.1 J**	**98.7**	**32.2**	**15.3**
Indeno(1,2,3-cd)pyrene	15000	312 [h]	330	3200 SEL[m]	**231**	**19.1**	**22.1**	**196**	**201**	**171**
Naphthalene	360000	34.6 [h]	330	480 SQB[2]	**120**	**13.9**	**8.8**	**578**	**57.9**	**51.8**
Phenanthrene	NL	86.7	330	850 SQC[1]	**276**	**20.7**	**19.1**	**359**	**228**	**132**
Pyrene	5200000	153 [h]	330	875 PEL[m]	**698**	**45.8**	**43.7**	**565**	**551**	**341**
Total PAH	NL	1.684 [h]	0.33	22800 PEC[m]	**5253.1**	**378.8**	**350.5**	**5062.3**	**4883.3**	**3059.2**
SVOC (ug/kg)										
1,1'-Biphenyl	150000	NL	NL	1100 SQB[2]	62 U	59 U	58.3 U	60 U	57.9 U	63.1 U
4-Methylphenol	18000000	NL	NL	NL	60 U	57 U	56.4 U	58 U	56 U	61 U
Bis(2-ethylhexyl)phthalate	3500	NL	NL	NL	84.4 U	80.2 U	79.3 U	81.6 U	78.8 U	85.8 U
Carbazole	NL	NL	NL	NL	**61.3 J**	**142 J**	51.6 U	**79.3 J**	**521**	55.8 U
Dibenzofuran	230000	NL	NL	2000 SQB[2]	54.9 U	52.2 U	51.6 U	**77.6 J**	**190 J**	55.8 U

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-13	EPAFMC-SD-14	EPAFMC-SD-15	EPAFMC-SD-16	EPAFMC-SD-17	EPAFMC-SD-18
Lat/Long					33.5882493838 , -86.7852679586	33.5884123134 , -86.7837331575	33.588531284 , -86.781410225	33.5868958616 , -86.7860987383	33.5857336891 , -86.792133675	33.5854783372 , -86.7917161552
Property					ABC Coke	ABC Coke	ABC Coke	ABC Coke	Warwick	Walter Coke
Location ID					EPAFMC12	EPAFMC13	EPAFMC14	EPAFMC11	EPAFMC15	EPAFMC16
Sample Date					4/24/2012	4/24/2012	4/24/2012	4/24/2012	4/25/2012	4/25/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Duplicate	Field Sample	Field Sample
PCB (ug/kg)										
Aroclor-1260	22000	NL	NL	NL	NA	NA	NA	8.7 U	NA	NA
Wet Chemistry (mg/kg)										
TOC	NL	NL	NL	NL	26200	1640	14300	6240	1860	12100
Metals, Total (mg/kg)										
Aluminum	230000	NL	NL	NL	5520	3570	5890	4120	5190 J	5420
Antimony	94	2 [i]	12	NL	0.735 J	0.562 J	0.55 J	4.95 J	1.04 U	1.17 U
Arsenic	39	7.24 [h]	7.24	NL	15.2	13.9	14.4	12.4	19.1	8.48
Barium	46000	NL	NL	NL	49.1	26.8	67.7	56	62.7 J	60.1
Beryllium	470	NL	NL	NL	0.52 U	0.437	0.587	0.404 U	0.561	0.958
Cadmium	210	0.676 [h]	1	NL	0.052 U	0.0352 U	1.46	0.0404 U	0.0522 U	0.0586 U
Calcium	NL	NL	NL	NL	19200	12400	24200	20000	20400	9500
Chromium	NL	52.3 [h]	52.3	NL	50.2	45	63.2	54.4	63.8 J	29.6
Cobalt	70	NL	NL	NL	10.3	6.51	7.69	10.4	9.38	5.99
Copper	9400	18.7 [h]	18.7	NL	43.1	14.3	11.9	12.3 J	14.1 J	9.03
Iron	160000	NL	NL	NL	35700	32500	35000	24300	38600	18600
Lead	400	30.2 [h]	30.2	NL	36.1	15.2	18.4	42.7	20.7	15.5
Magnesium	NL	NL	NL	NL	7370	4680	9660	8940	7170	2790
Manganese	5500	NL	NL	NL	915	787	851	703	869 J	375
Mercury	30	0.13 [h]	0.13	NL	0.167	0.0186	0.0165	0.0193	0.0263 J	0.0322 J
Nickel	4600	15.9 [g]	15.9	NL	10.7	5.7	16.6	14.1	11.5	8.2
Potassium	NL	NL	NL	NL	312	126	283	238	370	374
Selenium	1200	NL	NL	NL	0.416 U	0.282 U	0.31 U	0.323 U	0.418 U	0.469 U
Silver	1200	0.733 [h]	2	NL	0.166 U	0.113 U	0.124 U	0.129 UJ	0.167 U	0.188 U
Sodium	NL	NL	NL	NL	73.6	45.8	227	93.4	105	249
Thallium	2.3	NL	NL	NL	0.656 J	0.326 J	0.271 J	0.5 J	1.05 J	1.17 U
Vanadium	1200	NL	NL	NL	52	44	50.5	34.9	55.1	28.2
Zinc	70000	124 [h]	124	NL	168	110	146	121	135 J	95.9

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-07	EPAFMC-SD-08	EPAFMC-SD-09	EPAFMC-SD-10	EPAFMC-SD-11	EPAFMC-SD-12
Lat/Long					33.5848446533, -86.7884741968	33.584813957, -86.7877832913	33.5852564051, -86.7873597517	33.5857178053, -86.7870111407	33.5868523067, -86.7862588565	33.5868958616, -86.7860987383
Property					ABC Coke	ABC Coke	ABC Coke	ABC Coke	ABC Coke	ABC Coke
Location ID					EPAFMC06	EPAFMC07	EPAFMC08	EPAFMC09	EPAFMC10	EPAFMC11
Sample Date					4/24/2012	4/24/2012	4/24/2012	4/24/2012	4/24/2012	4/24/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Sample	Field Sample	Field Sample
PAH (ug/kg)										
1-Methylnaphthalene	1600000	NL	NL	NL	**8**	**4.5**	**2.8 J**	**4.6**	**5.3**	**65.8**
2-Methylnaphthalene	690000	20.23	330	NL	**21**	**9.6**	**6.4**	**11.3**	**9.9**	**162**
Acenaphthene	10000000	6.71 [h]	330	620 [a]SQC[1]	**9**	**25.2**	**3.4**	**4.2**	**7.7**	**36.1**
Acenaphthylene	NL	5.87 [h]	330	128 PEL[m]	**26**	**52.8**	**17.6**	**39.9**	**20.8**	**120**
Anthracene	52000000	46.9 [h]	330	245 PEL[m]	**53.2**	**43.1**	**29.8**	**104**	**35.5**	***270***
Benzo(a)anthracene	15000	74.8 [h]	330	385 PEL[m]	**186**	**119**	**148**	**298**	**107**	**423**
Benzo(a)pyrene	1500	88.8 [h]	330	782	**153**	**95.7**	**114**	**208**	**92.4**	**361**
Benzo(b)fluoranthene	15000	312 [h]	330	NL	**213**	**154**	**160**	**298**	**135**	**544**
Benzo(g,h,i)perylene	NL	312 [h]	330	3200 SEL[m]	**90.9**	**61.4**	**62.3**	**111**	**55.8**	**215**
Benzo(k)fluoranthene	150000	312 [h]	330	13400 SEL[m]	**89.3**	**44.9**	**51.6**	**107**	**46**	**179**
Chrysene	1500000	108 [h]	330	862 PEL[m]	**185**	**106**	**124**	**297**	**88.9**	**371**
Dibenzo(a,h)anthracene	1500	6.22 [h]	330	135 PEL[m]	**29.2**	**18.7**	**23.7**	**46.3**	**19.7**	**74.7**
Fluoranthene	6900000	113 [h]	330	2900 SQC[1]	**318**	**202**	**199**	**423**	**185**	**764**
Fluorene	6900000	21.2 [h]	330	540 SQB[2]	**23.6**	**14.4**	**7.5**	**16.6**	**15.3**	**116**
Indeno(1,2,3-cd)pyrene	15000	312 [h]	330	3200 SEL[m]	**81**	**54.1**	**59.4**	**110**	**51.8**	**206**
Naphthalene	360000	34.6 [h]	330	480 SQB[2]	**58.4**	**29.5**	**26**	**42.8**	**69**	**666**
Phenanthrene	NL	86.7	330	850 SQC[1]	**124**	**81**	**50.1**	**106**	**60.8**	**422**
Pyrene	5200000	153 [h]	330	875 PEL[m]	**236**	**148**	**230**	**313**	**133**	**532**
Total PAH	NL	1.684 [h]	0.33	22800 PEC[m]	**1904.6**	**1263.9**	**1315.6**	**2540.7**	**1138.9**	**5527.6**
SVOC (ug/kg)										
1,1'-Biphenyl	150000	NL	NL	1100 SQB[2]	64.4 U	49.5 U	62.6 U	59.3 U	61.9 U	56.6 U
4-Methylphenol	18000000	NL	NL	NL	**88.1 J**	47.9 U	60.6 U	57.4 U	59.8 U	54.8 U
Bis(2-ethylhexyl)phthalate	3500	NL	NL	NL	87.7 U	67.3 U	85.2 U	80.7 U	84.2 U	77.1 U
Carbazole	NL	NL	NL	NL	57 U	43.8 U	55.5 U	**76.6 J**	54.8 U	**69.8 J**
Dibenzofuran	230000	NL	NL	2000 SQB[2]	57 U	43.8 U	55.5 U	**61.7 J**	54.8 U	**57.3 J**

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-07	EPAFMC-SD-08	EPAFMC-SD-09	EPAFMC-SD-10	EPAFMC-SD-11	EPAFMC-SD-12
Lat/Long					33.5848446533 , -86.7884741968	33.584813957 , -86.7877832913	33.5852564051 , -86.7873597517	33.5857178053 , -86.7870111407	33.5868523067 , -86.7862588565	33.5868958616 , -86.7860987383
Property					ABC Coke	ABC Coke	ABC Coke	ABC Coke	ABC Coke	ABC Coke
Location ID					EPAFMC06	EPAFMC07	EPAFMC08	EPAFMC09	EPAFMC10	EPAFMC11
Sample Date					4/24/2012	4/24/2012	4/24/2012	4/24/2012	4/24/2012	4/24/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Sample	Field Sample	Field Sample
PCB (ug/kg)										
Aroclor-1260	22000	NL	NL	NL	NA	21 J	NA	NA	NA	8.2 U
Wet Chemistry (mg/kg)										
TOC	NL	NL	NL	NL	9740	1220	2430	6000	7320	13200
Metals, Total (mg/kg)										
Aluminum	230000	NL	NL	NL	5010	5600	5060	8300	4910	4670
Antimony	94	2 [i]	12	NL	0.66 J	0.204 J	0.636 J	1.24	0.345 J	1.26 J
Arsenic	39	7.24 [h]	7.24	NL	18.1	16.1	23.8	26.7	13.2	18
Barium	46000	NL	NL	NL	37.2	57.1	50.3	102	45.5	54.6
Beryllium	470	NL	NL	NL	0.441 U	0.577	0.437	1.25	0.577	0.486
Cadmium	210	0.676 [h]	1	NL	8.64 J	0.041 U	0.0412 U	0.0398 U	0.049 U	0.0467 U
Calcium	NL	NL	NL	NL	15600	17400	17400	25200	21400	18600
Chromium	NL	52.3 [h]	52.3	NL	63.3 J	68.2	58.8	106	47.6	61.3
Cobalt	70	NL	NL	NL	6.5	8.45	8.27	10.8	6.73	13
Copper	9400	18.7 [h]	18.7	NL	9.28	19.3	29	11.1	6.49	636 J
Iron	160000	NL	NL	NL	34600	42400	43700	56200	28000	31500
Lead	400	30.2 [h]	30.2	NL	21.7	20.3	22.2	22.3	14.2	30.4
Magnesium	NL	NL	NL	NL	5340 J	7250	5090	6610	6810	6980
Manganese	5500	NL	NL	NL	422	659	512	1750	591	892
Mercury	30	0.13 [h]	0.13	NL	0.0156 J	0.0182 J	0.0457	0.00858 J	0.021	0.0256
Nickel	4600	15.9 [g]	15.9	NL	9.53	10.1	8.52	9.96	7.28	18.3
Potassium	NL	NL	NL	NL	298	334	262	658	343	272
Selenium	1200	NL	NL	NL	0.353 UJ	0.328 U	0.33 U	0.318 U	0.392 U	0.374 U
Silver	1200	0.733 [h]	2	NL	0.141 U	0.131 U	0.132 U	0.127 U	0.157 U	0.467 U
Sodium	NL	NL	NL	NL	67.4	74.2	140	186	95.8	80.1
Thallium	2.3	NL	NL	NL	0.531 J	0.707 J	0.525 J	0.686 J	0.334 U	0.318 U
Vanadium	1200	NL	NL	NL	58.8 J	44.6	55.3	86.3	44.1	45
Zinc	70000	124 [h]	124	NL	142 J	140	117	231	100	144

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-01	EPAFMC-SD-02	EPAFMC-SD-03	EPAFMC-SD-04	EPAFMC-SD-05	EPAFMC-SD-06
Lat/Long					33.5892145708 , -86.7988003786	33.5895040282 , -86.7984396375	33.5895740632 , -86.797923394	33.5896857361 , -86.7972618619	33.5891248333 , -86.7961739611	33.5891248333 , -86.7961739611
Property					Warwick	Warwick	Warwick	Warwick	Warwick	Warwick
Location ID					EPAFMC01	EPAFMC02	EPAFMC03	EPAFMC04	EPAFMC05	EPAFMC05
Sample Date					4/23/2012	4/23/2012	4/23/2012	4/23/2012	4/23/2012	4/23/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Sample	Field Sample	Field Duplicate
PAH (ug/kg)										
1-Methylnaphthalene	1600000	NL	NL	NL	**124**	**129**	**43.2**	**22.8**	**880000**	**1310000**
2-Methylnaphthalene	690000	20.23	330	NL	**422**	**378**	**111**	**45**	[redacted]	[redacted]
Acenaphthene	10000000	6.71 [h]	330	620 [a] SQC[1]	**9140**	**1370**	**999**	**33.9**	**2010000**	**2760000**
Acenaphthylene	NL	5.87 [h]	330	128 PEL[m]	**13200**	**2030**	**1020**	**53.6**	**352000**	**1020000**
Anthracene	52000000	46.9 [h]	330	245 PEL[m]	**21200**	**6510**	**4550**	**150**	**4930000**	**5790000**
Benzo(a)anthracene	15000	74.8 [h]	330	385 PEL[m]	[redacted]	[redacted]	**7290**	**443**	[redacted]	[redacted]
Benzo(a)pyrene	1500	88.8 [h]	330	782	[redacted]	[redacted]	[redacted]	**378**	[redacted]	[redacted]
Benzo(b)fluoranthene	15000	312 [h]	330	NL	**12700**	**14900**	**6910**	**561**	[redacted]	[redacted]
Benzo(g,h,i)perylene	NL	312 [h]	330	3200 SEL[m]	**6920**	**4970**	**2250**	**218**	**366000**	**519000**
Benzo(k)fluoranthene	150000	312 [h]	330	13400 SEL[m]	**4680**	**15800**	**2250**	**163**	[redacted]	[redacted]
Chrysene	1500000	108 [h]	330	862 PEL[m]	**15900**	**13300**	**5990**	**449**	[redacted]	[redacted]
Dibenzo(a,h)anthracene	1500	6.22 [h]	330	135 PEL[m]	[redacted]	[redacted]	**530**	**81.2**	[redacted]	[redacted]
Fluoranthene	6900000	113 [h]	330	2900 SQC[1]	**26800**	**28300**	**12200**	**827**	**3970000**	**5590000**
Fluorene	6900000	21.2 [h]	330	540 SQB[2]	**5600**	**2060**	**1390**	**40.6**	**2450000**	**3240000**
Indeno(1,2,3-cd)pyrene	15000	312 [h]	330	3200 SEL[m]	**4630**	**4970**	**2260**	**198**	[redacted]	[redacted]
Naphthalene	360000	34.6 [h]	330	480 SQB[2]	**1260**	**2490**	**274**	**121**	[redacted]	[redacted]
Phenanthrene	NL	86.7	330	850 SQC[1]	**20400**	**11900**	**6320**	**256**	**6190000**	**8820000**
Pyrene	5200000	153 [h]	330	875 PEL[m]	**17600**	**18700**	**7850**	**504**	**2330000**	**3260000**
Total PAH	NL	1.684 [h]	0.33	22800 PEC[m]	**189106**	**156327**	**67277.2**	**4545.1**	**39407000**	**53766000**
SVOC (ug/kg)										
1,1'-Biphenyl	150000	NL	NL	1100 SQB[2]	764 UJ	**645 J**	131 U	78 U	[redacted]	[redacted]
4-Methylphenol	18000000	NL	NL	NL	739 U	289 U	127 U	75.4 U	41500 U	47600 U
Bis(2-ethylhexyl)phthalate	3500	NL	NL	NL	1040 UJ	406 U	179 U	106 U	58300 U	67000 U
Carbazole	NL	NL	NL	NL	676 UJ	**6390**	**239 J**	69 U	**1640000**	**1370000**
Dibenzofuran	230000	NL	NL	2000 SQB[2]	676 UJ	***4920***	**128 J**	69 U	[redacted]	[redacted]

TABLE 4
FIVE MILE CREEK
QA SAMPLE SUMMARY OF ANALYTICAL RESULTS

Sample ID	EPAFMC-FB-01	EPAFMC-PB-01	EPAFMC-RB-01
Location ID	#R4DART#	#R4DART#	#R4DART#
Sample Date	4/25/2012	4/25/2012	4/26/2012
Matrix	Field Blank	Preservative Blank	Rinse Water Blank
Sample Type	Lab QC	Lab QC	Lab QC
Metals, Total (ug/L)			
Barium	NA	0.22 U	0.289 J
Beryllium	NA	0.129 J	0.12 U
Calcium	NA	120	128 J
Iron	NA	5.5 U	17.1 J
Magnesium	NA	9.8 U	16.2 J
Manganese	NA	2.79 J	4.22 J
PAH (ug/L)			
Fluoranthene	0.02 U	NA	0.026 J
Pyrene	0.022 J	NA	0.029 J
Wet Chemistry (mg/L)			
Hardness	NA	0.34 J	0.386 J

Notes:

J - Value is estimated
mg/L - Milligrams per liter
NA - Not analyzed
PAH - Polycyclic Aromatic Hydrocarbon compounds
U - Analyte was not detected above the associated value
ug/L - Micrograms per liter

TABLE 5
FIVE MILE CREEK
SUMMARY OF SEDIMENT SAMPLE RESULTS - CREEKBED

Sample ID	Residential Soil RML	EcoSSV[3] Effects Value	EcoSSV[3] Screening Value	Ecotox Thresholds Freshwater	EPAFMC-SD-01	EPAFMC-SD-02	EPAFMC-SD-03	EPAFMC-SD-04	EPAFMC-SD-05	EPAFMC-SD-06
Lat/Long					33.5892145708 , -86.7988003786	33.5895040282 , -86.7984396375	33.5895740632 , -86.797923394	33.5896857361 , -86.7972618619	33.5891248333 , -86.7961739611	33.5891248333 , -86.7961739611
Property					Warwick	Warwick	Warwick	Warwick	Warwick	Warwick
Location ID					EPAFMC01	EPAFMC02	EPAFMC03	EPAFMC04	EPAFMC05	EPAFMC05
Sample Date					4/23/2012	4/23/2012	4/23/2012	4/23/2012	4/23/2012	4/23/2012
Matrix					Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sample Type					Field Sample	Field Sample	Field Sample	Field Sample	Field Sample	Field Duplicate
PCB (ug/kg)										
Aroclor-1260	22000	NL	NL	NL	NA	8.7 U	NA	11 U	NA	NA
Wet Chemistry (mg/kg)										
TOC	NL	NL	NL	NL	**267000**	**26300**	**45400**	**184000**	**409000**	**509000**
Metals, Total (mg/kg)										
Aluminum	230000	NL	NL	NL	**5740 J**	**5920**	**4400**	**9290**	**3770**	**2700**
Antimony	94	2 [i]	12	NL	1.23 U	1.19 U	1.14 U	1.35 U	**1 J**	**1.21 J**
Arsenic	39	7.24 [h]	7.24	NL	**10.1**	**14.1**	**8.44**	**11.9**	**6.59**	**10.5**
Barium	46000	NL	NL	NL	**48.2**	**86.8**	**48.8**	**80.1**	**107**	**73.2**
Beryllium	470	NL	NL	NL	**0.503 J**	**0.711**	**0.455 J**	**0.642 J**	**0.296 J**	**0.256 J**
Cadmium	210	0.676 [h]	1	NL	0.0613 U	0.0593 U	0.0572 U	0.0674 U	**1.67**	**2.16**
Calcium	NL	NL	NL	NL	**14300**	**18800**	**14000**	**14500**	**9780**	**9890**
Chromium	NL	52.3 [h]	52.3	NL	**32.6 J**	**37.7**	**28.8**	**26.9**	**17.6**	**19.7**
Cobalt	70	NL	NL	NL	**7.08**	**8.12**	**5.27**	**14.4**	**4.03 J**	**4.18 J**
Copper	9400	18.7 [h]	18.7	NL	**14**	**18.1**	**7.72**	**26.2**	**52.3**	**62.5**
Iron	160000	NL	NL	NL	**21900 J**	**22600**	**17600**	**33100**	**13300**	**14800**
Lead	400	30.2 [h]	30.2	NL	**18.8**	**32.4**	**18.7**	**29.1**	**129**	**135**
Magnesium	NL	NL	NL	NL	**3590**	**5130**	**4150**	**6040**	**2130**	**2240**
Manganese	5500	NL	NL	NL	**633**	**1580**	**605**	**838**	**225**	**350**
Mercury	30	0.13 [h]	0.13	NL	**0.067**	**0.0564**	**0.042**	**0.0747**	**0.442**	**0.327**
Nickel	4600	15.9 [g]	15.9	NL	**9.16**	**14.3**	**7.81**	**18.4**	**11.3**	**9.35**
Potassium	NL	NL	NL	NL	**466**	**562**	**352**	**868**	**315**	**271**
Selenium	1200	NL	NL	NL	0.491 U	0.475 U	0.458 U	0.539 U	0.361 U	0.45 U
Silver	1200	0.733 [h]	2	NL	0.196 U	0.19 U	0.183 U	0.216 U	**0.258 J**	0.18 U
Sodium	NL	NL	NL	NL	**98**	**104**	**98.7**	**59**	**61.3**	**61.5**
Thallium	2.3	NL	NL	NL	0.417 U	0.404 U	**0.521 J**	**0.588 J**	0.307 U	**0.486 J**
Vanadium	1200	NL	NL	NL	**28.5**	**27.3**	**24.6**	**40.7**	**9.2**	**10.7**
Zinc	70000	124 [h]	124	NL	**147 J**	**180**	**148**	**162**	**392**	**427**

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Zinc	
						Result (ppm)	Error (+/-)
Walter Coke	EPAFMC-SD-25	4/30/2012 10:30	sediment	Ex Situ	Dry	831.38	63.09
Walter Coke	EPAFMC-SD-26	4/25/2012 15:34	sediment	Ex Situ	Wet	142.1	26.2
Walter Coke	EPAFMC-SD-26	4/30/2012 10:31	sediment	Ex Situ	Dry	116.81	20.18
Walter Coke	EPAFMC-SD-27	4/25/2012 15:31	sediment	Ex Situ	Wet	149.95	26.43
Walter Coke	EPAFMC-SD-27	4/30/2012 10:32	sediment	Ex Situ	Dry	322.82	37.44
Walter Coke	EPAFMC-SD-28	4/25/2012 15:28	sediment	Ex Situ	Wet	697.72	59.42
Walter Coke	EPAFMC-SD-28	4/30/2012 10:32	sediment	Ex Situ	Dry	185.06	24.94
Walter Coke	EPAFMC-SD-29	4/25/2012 15:26	sediment	Ex Situ	Wet	186.66	27.64
Walter Coke	EPAFMC-SD-29	4/30/2012 10:33	sediment	Ex Situ	Dry	1350.9	98.99
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:10	sediment	Ex Situ	Wet	28.7	13.15
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:39	sediment	Ex Situ	Dry	530.06	52.73

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Zinc	
						Result (ppm)	Error (+/-)
Boyles Gap Lake	EPAFMC-SD-07	4/30/2012 9:49	sediment	Ex Situ	Dry	72.87	22.91
Boyles Gap Lake	EPAFMC-SD-08	4/24/2012 13:40	sediment	Ex Situ	Wet	45.9	21.8
Boyles Gap Lake	EPAFMC-SD-08	4/30/2012 9:51	sediment	Ex Situ	Dry	111.06	24
Boyles Gap Lake	EPAFMC-SD-09	4/24/2012 13:41	sediment	Ex Situ	Wet	62.27	18.45
Boyles Gap Lake	EPAFMC-SD-09	4/30/2012 9:52	sediment	Ex Situ	Dry	139.51	27.26
Boyles Gap Lake	EPAFMC-SD-10	4/24/2012 15:08	sediment	Ex Situ	Wet	101.49	27.03
Boyles Gap Lake	EPAFMC-SD-10	4/30/2012 9:53	sediment	Ex Situ	Dry	79.04	24.09
Boyles Gap Lake	EPAFMC-SD-11	4/30/2012 9:54	sediment	Ex Situ	Wet	100.46	25.14
Boyles Gap Lake	EPAFMC-SD-11	4/24/2012 19:02	sediment	Ex Situ	Dry	68.87	20.94
Boyles Gap Lake	EPAFMC-SD-12	4/24/2012 19:03	sediment	Ex Situ	Wet	62.75	20.62
Boyles Gap Lake	EPAFMC-SD-12	4/30/2012 9:55	sediment	Ex Situ	Dry	88.3	22.79
Boyles Gap Lake	EPAFMC-SD-13	4/24/2012 19:04	sediment	Ex Situ	Wet	143.9	35.39
Boyles Gap Lake	EPAFMC-SD-13	4/30/2012 9:56	sediment	Ex Situ	Dry	176.17	29.84
Boyles Gap Lake	EPAFMC-SD-14	4/24/2012 19:05	sediment	Ex Situ	Wet	50.91	23.1
Boyles Gap Lake	EPAFMC-SD-14	4/30/2012 9:57	sediment	Ex Situ	Dry	155.01	32.68
Boyles Gap Lake	EPAFMC-SD-15	4/24/2012 19:06	sediment	Ex Situ	Wet	104.11	23.97
Boyles Gap Lake	EPAFMC-SD-15	4/30/2012 10:01	sediment	Ex Situ	Dry	61.39	18.31
Warwick Creek	EPAFMC-SD-17	4/25/2012 13:24	sediment	Ex Situ	Wet	95.04	25.71
Warwick Creek	EPAFMC-SD-17	4/30/2012 10:02	sediment	Ex Situ	Dry	91.99	23.19
Walter Coke	EPAFMC-SD-18	4/25/2012 13:25	sediment	Ex Situ	Wet	43.13	16.5
Walter Coke	EPAFMC-SD-18	4/30/2012 10:03	sediment	Ex Situ	Dry	96.78	22.62
Walter Coke	EPAFMC-SD-19	4/25/2012 13:27	sediment	Ex Situ	Wet	258.32	40.62
Walter Coke	EPAFMC-SD-19	4/30/2012 10:04	sediment	Ex Situ	Dry	364.62	48.43
Walter Coke	EPAFMC-SD-20	4/25/2012 13:28	sediment	Ex Situ	Wet	151.48	23.65
Walter Coke	EPAFMC-SD-20	4/30/2012 10:26	sediment	Ex Situ	Dry	626.48	53.21
Walter Coke	EPAFMC-SD-21	4/25/2012 15:58	sediment	Ex Situ	Wet	614.37	52.22
Walter Coke	EPAFMC-SD-21	4/30/2012 10:26	sediment	Ex Situ	Dry	2248.9	140.6
Walter Coke	EPAFMC-SD-22	4/25/2012 15:54	sediment	Ex Situ	Wet	595.42	58.83
Walter Coke	EPAFMC-SD-22	4/30/2012 10:27	sediment	Ex Situ	Dry	1098.9	82.16
Walter Coke	EPAFMC-SD-23	4/25/2012 15:47	sediment	Ex Situ	Wet	1293.7	95.03
Walter Coke	EPAFMC-SD-23	4/30/2012 10:28	sediment	Ex Situ	Dry	2465.1	131.11
Walter Coke	EPAFMC-SD-24	4/25/2012 15:42	sediment	Ex Situ	Wet	655.08	68.36
Walter Coke	EPAFMC-SD-24	4/30/2012 10:29	sediment	Ex Situ	Dry	998.71	79.76
Walter Coke	EPAFMC-SD-25	4/25/2012 15:38	sediment	Ex Situ	Wet	226.84	29.37

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Selenium		Titanium		Thallium		Vanadium	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Walter Coke	EPAFMC-SD-25	4/30/2012 10:30	sediment	Ex Situ	Dry	< LOD	9.41	< LOD	2493.14	< LOD	11.51	< LOD	1170.79
Walter Coke	EPAFMC-SD-26	4/25/2012 15:34	sediment	Ex Situ	Wet	< LOD	7.37	1487.5	810.07	< LOD	12.31	< LOD	571.7
Walter Coke	EPAFMC-SD-26	4/30/2012 10:31	sediment	Ex Situ	Dry	< LOD	5.85	< LOD	3579.57	< LOD	8.92	< LOD	1860.15
Walter Coke	EPAFMC-SD-27	4/25/2012 15:31	sediment	Ex Situ	Wet	< LOD	7.72	1692.1	737.96	14.61	8.8	< LOD	577.26
Walter Coke	EPAFMC-SD-27	4/30/2012 10:32	sediment	Ex Situ	Dry	< LOD	7.05	< LOD	3242.02	< LOD	12.54	< LOD	1685.8
Walter Coke	EPAFMC-SD-28	4/25/2012 15:28	sediment	Ex Situ	Wet	< LOD	8.62	< LOD	1224.19	< LOD	11.15	< LOD	575.91
Walter Coke	EPAFMC-SD-28	4/30/2012 10:32	sediment	Ex Situ	Dry	< LOD	6.13	< LOD	5992.47	< LOD	9.34	< LOD	2510.97
Walter Coke	EPAFMC-SD-29	4/25/2012 15:26	sediment	Ex Situ	Wet	< LOD	7.72	< LOD	1424.29	< LOD	9.31	< LOD	762.17
Walter Coke	EPAFMC-SD-29	4/30/2012 10:33	sediment	Ex Situ	Dry	< LOD	12.61	< LOD	3653.34	< LOD	16.89	< LOD	1561.15
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:10	sediment	Ex Situ	Wet	< LOD	4.32	< LOD	1256.81	< LOD	7.72	< LOD	126.45
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:39	sediment	Ex Situ	Dry	< LOD	8.98	18745	4731.57	< LOD	8.7	< LOD	2852.05

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Zinc	
						Result (ppm)	Error (+/-)
Warwick Creek	Warwick Creek Test Location #1	4/23/2012 13:50	sediment	In Situ	Wet	120.42	23.34
Warwick Creek	Warwick Creek Test Location #2	4/23/2012 13:56	sediment	In Situ	Wet	188.41	32.39
Warwick Creek	Warwick Creek Test Location #3	4/23/2012 14:03	sediment	In Situ	Wet	141.92	26.88
Warwick Creek	Warwick Creek Test Location #4	4/23/2012 14:13	sediment	In Situ	Wet	148.26	22.44
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	41.65	25.17
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	140.92	49.15
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet	150.91	75.32
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet	< LOD	142.32
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:10	rocks	In Situ	Wet	35.81	11.07
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:12	rocks	In Situ	Wet	245.27	51.87
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:13	rocks	In Situ	Wet	171.85	34.36
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:14	rocks	In Situ	Wet	144.51	31.5
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:15	rocks	In Situ	Wet	142.63	26.82
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:16	rocks	In Situ	Wet	80.91	24.65
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:17	rocks	In Situ	Wet	359.87	57.21
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:19	rocks	In Situ	Wet	142.79	44.99
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:20	rocks	In Situ	Wet	200.41	47.12
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:21	rocks	In Situ	Wet	147.22	83.99
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:22	rocks	In Situ	Wet	125.75	28.5
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet	199.48	56.16
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet	58.17	22.6
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:24	rocks	In Situ	Wet	142.83	26.45
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:26	rocks	In Situ	Wet	240.99	50
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet	142.82	34.09
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet	151.55	39.33
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet	105.1	37.34
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet	79.2	41.88
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet	89.13	40.99
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet	215.16	45.38
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet	82.19	47.88
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet	86.94	33.39
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:08	sediment	Ex Situ	Wet	99.59	17.17
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:40	sediment	Ex Situ	Dry	383.43	39.91
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:09	sediment	Ex Situ	Wet	241.91	25.96
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:41	sediment	Ex Situ	Dry	292.9	33.71
Boyles Gap Lake	EPAFMC-SD-07	4/24/2012 13:38	sediment	Ex Situ	Wet	71.47	26.28

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Selenium		Titanium		Thallium		Vanadium	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Boyles Gap Lake	EPAFMC-SD-07	4/30/2012 9:49	sediment	Ex Situ	Dry	< LOD	8.36	< LOD	3422.83	< LOD	10.88	< LOD	1922.3
Boyles Gap Lake	EPAFMC-SD-08	4/24/2012 13:40	sediment	Ex Situ	Wet	< LOD	9.28	< LOD	818.75	< LOD	10.36	< LOD	416.61
Boyles Gap Lake	EPAFMC-SD-08	4/30/2012 9:51	sediment	Ex Situ	Dry	< LOD	6.99	< LOD	1410.27	< LOD	9	< LOD	141.43
Boyles Gap Lake	EPAFMC-SD-09	4/24/2012 13:41	sediment	Ex Situ	Wet	< LOD	5.97	< LOD	713.48	< LOD	7.78	< LOD	493.73
Boyles Gap Lake	EPAFMC-SD-09	4/30/2012 9:52	sediment	Ex Situ	Dry	< LOD	6.79			< LOD	8.93		
Boyles Gap Lake	EPAFMC-SD-10	4/24/2012 15:08	sediment	Ex Situ	Wet	< LOD	8.07	225.16	129.03	< LOD	10.07	< LOD	123.34
Boyles Gap Lake	EPAFMC-SD-10	4/30/2012 9:53	sediment	Ex Situ	Dry	< LOD	7.99	< LOD	1318.14	< LOD	10.55	< LOD	761.8
Boyles Gap Lake	EPAFMC-SD-11	4/30/2012 9:54	sediment	Ex Situ	Wet	< LOD	7.29	< LOD	6291.16	< LOD	12.11	< LOD	2892.64
Boyles Gap Lake	EPAFMC-SD-11	4/24/2012 19:02	sediment	Ex Situ	Dry	< LOD	7.71	< LOD	1292.65	< LOD	8.52	< LOD	130.07
Boyles Gap Lake	EPAFMC-SD-12	4/24/2012 19:03	sediment	Ex Situ	Wet	< LOD	6.92	< LOD	620.36	< LOD	9.05	< LOD	296.34
Boyles Gap Lake	EPAFMC-SD-12	4/30/2012 9:55	sediment	Ex Situ	Dry	< LOD	7.11	< LOD	1286.64	< LOD	9.57	< LOD	705.94
Boyles Gap Lake	EPAFMC-SD-13	4/24/2012 19:04	sediment	Ex Situ	Wet	< LOD	9.97	< LOD	1296.66	< LOD	12.18	< LOD	708.9
Boyles Gap Lake	EPAFMC-SD-13	4/30/2012 9:56	sediment	Ex Situ	Dry	< LOD	8.51	< LOD	982.83	< LOD	9.7	< LOD	855.05
Boyles Gap Lake	EPAFMC-SD-14	4/24/2012 19:05	sediment	Ex Situ	Wet	< LOD	8.65	< LOD	1215.76	< LOD	10.36	< LOD	789.37
Boyles Gap Lake	EPAFMC-SD-14	4/30/2012 9:57	sediment	Ex Situ	Dry	< LOD	7.52	< LOD	2105.05	< LOD	11.25	< LOD	1439.04
Boyles Gap Lake	EPAFMC-SD-15	4/24/2012 19:06	sediment	Ex Situ	Wet	< LOD	6.72	< LOD	791.12	< LOD	8.49	< LOD	411.77
Boyles Gap Lake	EPAFMC-SD-15	4/30/2012 10:01	sediment	Ex Situ	Dry	< LOD	5.64	< LOD	2810.33	< LOD	7.37	< LOD	1532.25
Warwick Creek	EPAFMC-SD-17	4/25/2012 13:24	sediment	Ex Situ	Wet	< LOD	8.53	< LOD	746.58	< LOD	10	< LOD	320.28
Warwick Creek	EPAFMC-SD-17	4/30/2012 10:02	sediment	Ex Situ	Dry	< LOD	6.25	< LOD	5206.09	< LOD	9.47	< LOD	2937.69
Walter Coke	EPAFMC-SD-18	4/25/2012 13:25	sediment	Ex Situ	Wet	< LOD	5.16	< LOD	1119.73	< LOD	8.59	< LOD	444.75
Walter Coke	EPAFMC-SD-18	4/30/2012 10:03	sediment	Ex Situ	Dry	< LOD	6.59	< LOD	5034.85	< LOD	7.93	< LOD	503.76
Walter Coke	EPAFMC-SD-19	4/25/2012 13:27	sediment	Ex Situ	Wet	< LOD	7.48	< LOD	988.38	< LOD	9.49	< LOD	516.02
Walter Coke	EPAFMC-SD-19	4/30/2012 10:04	sediment	Ex Situ	Dry	< LOD	9.2	< LOD	1355.26	< LOD	12.32	< LOD	410.77
Walter Coke	EPAFMC-SD-20	4/25/2012 13:28	sediment	Ex Situ	Wet	< LOD	7.24	911.45	236.09	< LOD	8.52	< LOD	165.29
Walter Coke	EPAFMC-SD-20	4/30/2012 10:26	sediment	Ex Situ	Dry	< LOD	9.11	4434.4	2135.51	< LOD	11.17	< LOD	1477.68
Walter Coke	EPAFMC-SD-21	4/25/2012 15:58	sediment	Ex Situ	Wet	< LOD	9.06	< LOD	1182.95	< LOD	9.86	< LOD	730.91
Walter Coke	EPAFMC-SD-21	4/30/2012 10:26	sediment	Ex Situ	Dry	< LOD	14.72	2459.9	962.86	< LOD	20.01	< LOD	757.03
Walter Coke	EPAFMC-SD-22	4/25/2012 15:54	sediment	Ex Situ	Wet	< LOD	8.38	289.28	69.78	< LOD	12.97	< LOD	55.84
Walter Coke	EPAFMC-SD-22	4/30/2012 10:27	sediment	Ex Situ	Dry	< LOD	9.73	< LOD	2843.68	< LOD	12.93	< LOD	2084.75
Walter Coke	EPAFMC-SD-23	4/25/2012 15:47	sediment	Ex Situ	Wet	< LOD	9.94	1360.9	877.24	< LOD	15.85	< LOD	621.07
Walter Coke	EPAFMC-SD-23	4/30/2012 10:28	sediment	Ex Situ	Dry	< LOD	10.62	2323.9	1529.22	< LOD	17.75	< LOD	1252.51
Walter Coke	EPAFMC-SD-24	4/25/2012 15:42	sediment	Ex Situ	Wet	< LOD	9.17	805.93	308.74	< LOD	14.9	< LOD	250.78
Walter Coke	EPAFMC-SD-24	4/30/2012 10:29	sediment	Ex Situ	Dry	< LOD	9.69	< LOD	4773.64	< LOD	13.02	< LOD	1940.15
Walter Coke	EPAFMC-SD-25	4/25/2012 15:38	sediment	Ex Situ	Wet	< LOD	5.63	< LOD	985.54	< LOD	7.29	< LOD	612.98

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Selenium		Titanium		Thallium		Vanadium	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Warwick Creek	Warwick Creek Test Location #1	4/23/2012 13:50	sediment	In Situ	Wet	< LOD	6.24	1116.5	105.96	< LOD	8.35	< LOD	80.75
Warwick Creek	Warwick Creek Test Location #2	4/23/2012 13:56	sediment	In Situ	Wet	< LOD	7.57	< LOD	2531.45	< LOD	11.07	< LOD	253.28
Warwick Creek	Warwick Creek Test Location #3	4/23/2012 14:03	sediment	In Situ	Wet	< LOD	7.53	1933.3	811.73	< LOD	11.77	< LOD	532.92
Warwick Creek	Warwick Creek Test Location #4	4/23/2012 14:13	sediment	In Situ	Wet	< LOD	4.93	< LOD	1964.55	< LOD	7.45	< LOD	914.19
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	< LOD	9.97	< LOD	5942.91	17.72	10.82	< LOD	1752.3
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	< LOD	17.12	< LOD	5043.04	< LOD	23.11	< LOD	2406.51
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet	< LOD	30.66			< LOD	30.87		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet	< LOD	36.15			< LOD	88.91		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:10	rocks	In Situ	Wet	< LOD	4.58	2382.5	1005.88	< LOD	6.38	< LOD	751.68
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:12	rocks	In Situ	Wet	< LOD	15.56	< LOD	3680.71	< LOD	16.52	< LOD	1719.23
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:13	rocks	In Situ	Wet	< LOD	8.87	< LOD	3596.88	< LOD	10.74	< LOD	1645.5
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:14	rocks	In Situ	Wet	< LOD	10.98	< LOD	1629.29	< LOD	10.84	< LOD	1374.95
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:15	rocks	In Situ	Wet	< LOD	6.8	< LOD	2308.38	< LOD	9.3	< LOD	1319.78
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:16	rocks	In Situ	Wet	< LOD	5.03	< LOD	1823.67	< LOD	10.7	< LOD	182.71
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:17	rocks	In Situ	Wet	< LOD	10.41			< LOD	12.92		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:19	rocks	In Situ	Wet	< LOD	15.85			< LOD	15.53		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:20	rocks	In Situ	Wet	< LOD	10.52			< LOD	15.25		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:21	rocks	In Situ	Wet	< LOD	17.13			< LOD	33.59		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:22	rocks	In Situ	Wet	< LOD	7.18	< LOD	1511.3	< LOD	10.58	< LOD	778.42
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet	< LOD	17.19			< LOD	14.74		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet	< LOD	7.42			< LOD	9.07		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:24	rocks	In Situ	Wet	< LOD	5.6	< LOD	5822.83	< LOD	8.44	< LOD	2725.38
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:26	rocks	In Situ	Wet	< LOD	10.23			< LOD	15.27		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet	< LOD	10.08			< LOD	12.36		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet	< LOD	9.94			< LOD	15.94		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet	< LOD	11.68			< LOD	15.7		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet	< LOD	17.34			< LOD	25.21		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet	< LOD	11.37			< LOD	16.68		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet	< LOD	9.68			< LOD	12.79		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet	< LOD	17.2			< LOD	22.96		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet	< LOD	9.9			< LOD	17.65		
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:08	sediment	Ex Situ	Wet	< LOD	4.09	< LOD	2058.39	< LOD	7.2	< LOD	1029.47
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:40	sediment	Ex Situ	Dry	< LOD	7.01	1785.1	991.87	< LOD	8.99	< LOD	744.13
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:09	sediment	Ex Situ	Wet	< LOD	5.34	< LOD	2807.97	< LOD	7.83	< LOD	757.27
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:41	sediment	Ex Situ	Dry	< LOD	5.59	< LOD	1582.05	< LOD	9.7	< LOD	833.1
Boyles Gap Lake	EPAFMC-SD-07	4/24/2012 13:38	sediment	Ex Situ	Wet	< LOD	8.76	< LOD	1080.75	< LOD	12	< LOD	596.88

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Mercury		Molybdenum		Nickel		Potassium	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Walter Coke	EPAFMC-SD-25	4/30/2012 10:30	sediment	Ex Situ	Dry	< LOD	14.7	< LOD	8.19	< LOD	89.79	7287.7	4828.41
Walter Coke	EPAFMC-SD-26	4/25/2012 15:34	sediment	Ex Situ	Wet	< LOD	12.51	13.78	5.52	< LOD	66.2	< LOD	2762.64
Walter Coke	EPAFMC-SD-26	4/30/2012 10:31	sediment	Ex Situ	Dry	< LOD	10.77	16.89	4.63	< LOD	54.37	< LOD	7507.84
Walter Coke	EPAFMC-SD-27	4/25/2012 15:31	sediment	Ex Situ	Wet	12.93	8.12	10.97	5.41	< LOD	68.52	3640.6	2186.29
Walter Coke	EPAFMC-SD-27	4/30/2012 10:32	sediment	Ex Situ	Dry	< LOD	11.92	< LOD	8.24	< LOD	78.66	< LOD	11879.7
Walter Coke	EPAFMC-SD-28	4/25/2012 15:28	sediment	Ex Situ	Wet	< LOD	14.08	< LOD	8.75	< LOD	86.44	< LOD	3683.25
Walter Coke	EPAFMC-SD-28	4/30/2012 10:32	sediment	Ex Situ	Dry	< LOD	8.8	7.86	4.54	< LOD	57.51	< LOD	14504.7
Walter Coke	EPAFMC-SD-29	4/25/2012 15:26	sediment	Ex Situ	Wet	< LOD	10.4	< LOD	7.49	< LOD	60.64	7310.1	3775.21
Walter Coke	EPAFMC-SD-29	4/30/2012 10:33	sediment	Ex Situ	Dry	< LOD	22.64	< LOD	11.56	< LOD	131.5	< LOD	12565.3
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:10	sediment	Ex Situ	Wet	< LOD	10.45	< LOD	6.53	< LOD	53.16	< LOD	4785.31
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:39	sediment	Ex Situ	Dry	< LOD	16.2	16.61	6.34	< LOD	81.81	< LOD	2772.96

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Mercury		Molybdenum		Nickel		Potassium	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Boyles Gap Lake	EPAFMC-SD-07	4/30/2012 9:49	sediment	Ex Situ	Dry	< LOD	13.42	< LOD	8.48	< LOD	79.81	< LOD	11329.6
Boyles Gap Lake	EPAFMC-SD-08	4/24/2012 13:40	sediment	Ex Situ	Wet	< LOD	16.43	< LOD	9.11	< LOD	89.35	< LOD	1980.89
Boyles Gap Lake	EPAFMC-SD-08	4/30/2012 9:51	sediment	Ex Situ	Dry	< LOD	13.18	< LOD	7.63	< LOD	73	< LOD	10743.9
Boyles Gap Lake	EPAFMC-SD-09	4/24/2012 13:41	sediment	Ex Situ	Wet	< LOD	10.98	< LOD	7.2	< LOD	65.69	< LOD	2523.19
Boyles Gap Lake	EPAFMC-SD-09	4/30/2012 9:52	sediment	Ex Situ	Dry	< LOD	12.89	< LOD	8.07	< LOD	80.76		
Boyles Gap Lake	EPAFMC-SD-10	4/24/2012 15:08	sediment	Ex Situ	Wet	< LOD	13.65	< LOD	9.69	< LOD	85.76	771.32	436.42
Boyles Gap Lake	EPAFMC-SD-10	4/30/2012 9:53	sediment	Ex Situ	Dry	< LOD	15.96	< LOD	7.92	< LOD	89.53	< LOD	2857.86
Boyles Gap Lake	EPAFMC-SD-11	4/30/2012 9:54	sediment	Ex Situ	Wet	< LOD	14.4	< LOD	8.52	< LOD	88.96	< LOD	6956.81
Boyles Gap Lake	EPAFMC-SD-11	4/24/2012 19:02	sediment	Ex Situ	Dry	< LOD	13.75	< LOD	8.25	< LOD	77.76	< LOD	174.39
Boyles Gap Lake	EPAFMC-SD-12	4/24/2012 19:03	sediment	Ex Situ	Wet	< LOD	13.38	< LOD	8.17	< LOD	69.3	< LOD	3096.32
Boyles Gap Lake	EPAFMC-SD-12	4/30/2012 9:55	sediment	Ex Situ	Dry	< LOD	13.39	< LOD	7.64	< LOD	81.8	< LOD	7289.83
Boyles Gap Lake	EPAFMC-SD-13	4/24/2012 19:04	sediment	Ex Situ	Wet	< LOD	19.03	< LOD	10.74	< LOD	105.4	< LOD	1821.04
Boyles Gap Lake	EPAFMC-SD-13	4/30/2012 9:56	sediment	Ex Situ	Dry	< LOD	12.86	< LOD	7.98	< LOD	80.11	< LOD	7824.98
Boyles Gap Lake	EPAFMC-SD-14	4/24/2012 19:05	sediment	Ex Situ	Wet	< LOD	16.71	< LOD	9.49	< LOD	84.28	< LOD	3051.81
Boyles Gap Lake	EPAFMC-SD-14	4/30/2012 9:57	sediment	Ex Situ	Dry	< LOD	15.77	< LOD	8.83	< LOD	98.46	< LOD	8020.33
Boyles Gap Lake	EPAFMC-SD-15	4/24/2012 19:06	sediment	Ex Situ	Wet	< LOD	12.7	8.21	5.41	< LOD	73.12	< LOD	2591.7
Boyles Gap Lake	EPAFMC-SD-15	4/30/2012 10:01	sediment	Ex Situ	Dry	< LOD	12.05	< LOD	6.9	< LOD	63.05	< LOD	4876.92
Warwick Creek	EPAFMC-SD-17	4/25/2012 13:24	sediment	Ex Situ	Wet	< LOD	13.88	< LOD	8.72	< LOD	82.12	< LOD	1654.47
Warwick Creek	EPAFMC-SD-17	4/30/2012 10:02	sediment	Ex Situ	Dry	< LOD	13.28	< LOD	7.84	< LOD	70.2	< LOD	9646.61
Walter Coke	EPAFMC-SD-18	4/25/2012 13:25	sediment	Ex Situ	Wet	< LOD	11.48	< LOD	7.77	< LOD	66.58	< LOD	1500.76
Walter Coke	EPAFMC-SD-18	4/30/2012 10:03	sediment	Ex Situ	Dry	< LOD	13.12	< LOD	7.75	< LOD	67.75	< LOD	560.62
Walter Coke	EPAFMC-SD-19	4/25/2012 13:27	sediment	Ex Situ	Wet	< LOD	16.77	10.26	6.34	< LOD	95.05	< LOD	2474.97
Walter Coke	EPAFMC-SD-19	4/30/2012 10:04	sediment	Ex Situ	Dry	< LOD	17.67	< LOD	9.29	< LOD	103.05	< LOD	4405.98
Walter Coke	EPAFMC-SD-20	4/25/2012 13:28	sediment	Ex Situ	Wet	< LOD	10.09	9.14	4.71	< LOD	53.24	2292.2	848.92
Walter Coke	EPAFMC-SD-20	4/30/2012 10:26	sediment	Ex Situ	Dry	< LOD	13.91	< LOD	8.56	< LOD	80.01	< LOD	8277.39
Walter Coke	EPAFMC-SD-21	4/25/2012 15:58	sediment	Ex Situ	Wet	< LOD	14.68	11.93	5.51	< LOD	67.37	< LOD	2889.29
Walter Coke	EPAFMC-SD-21	4/30/2012 10:26	sediment	Ex Situ	Dry	< LOD	28.44	< LOD	12.02	< LOD	185.78	5025.4	2604.93
Walter Coke	EPAFMC-SD-22	4/25/2012 15:54	sediment	Ex Situ	Wet	< LOD	15.03	< LOD	9.19	< LOD	85.28	713.62	192.94
Walter Coke	EPAFMC-SD-22	4/30/2012 10:27	sediment	Ex Situ	Dry	< LOD	18.8	< LOD	9.73	< LOD	112.73	< LOD	399.66
Walter Coke	EPAFMC-SD-23	4/25/2012 15:47	sediment	Ex Situ	Wet	< LOD	20.91	< LOD	10.58	< LOD	107.75	< LOD	3745.29
Walter Coke	EPAFMC-SD-23	4/30/2012 10:28	sediment	Ex Situ	Dry	< LOD	23.46	< LOD	10.63	< LOD	128.69	< LOD	7219.16
Walter Coke	EPAFMC-SD-24	4/25/2012 15:42	sediment	Ex Situ	Wet	< LOD	20.5	< LOD	10.31	< LOD	106	2554.1	845.93
Walter Coke	EPAFMC-SD-24	4/30/2012 10:29	sediment	Ex Situ	Dry	< LOD	19.2	< LOD	9.93	< LOD	118.45	< LOD	14841.8
Walter Coke	EPAFMC-SD-25	4/25/2012 15:38	sediment	Ex Situ	Wet	< LOD	10.1	< LOD	7.23	< LOD	61.62	< LOD	1689.71

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Chromium		Iron		Lead		Manganese	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Walter Coke	EPAFMC-SD-25	4/30/2012 10:30	sediment	Ex Situ	Dry	< LOD	456.09	63868	955.47	81.37	18.89	859.07	176.27
Walter Coke	EPAFMC-SD-26	4/25/2012 15:34	sediment	Ex Situ	Wet	< LOD	326.91	26554	573.88	120.31	20.17	268.75	104.34
Walter Coke	EPAFMC-SD-26	4/30/2012 10:31	sediment	Ex Situ	Dry	< LOD	1051.08	15600	367.48	84.82	14.76	141.46	69.22
Walter Coke	EPAFMC-SD-27	4/25/2012 15:31	sediment	Ex Situ	Wet	< LOD	304.28	22448	526.95	120.55	20.24	358.91	109.55
Walter Coke	EPAFMC-SD-27	4/30/2012 10:32	sediment	Ex Situ	Dry	< LOD	954.2	23905	546.53	93.39	18.46	1468.7	186.07
Walter Coke	EPAFMC-SD-28	4/25/2012 15:28	sediment	Ex Situ	Wet	< LOD	348.7	43286	806.2	88.03	19.74	692.73	160.19
Walter Coke	EPAFMC-SD-28	4/30/2012 10:32	sediment	Ex Situ	Dry	< LOD	1438.11	28322	507.33	118.62	17.09	363.56	97.03
Walter Coke	EPAFMC-SD-29	4/25/2012 15:26	sediment	Ex Situ	Wet	< LOD	348.34	11982	366.16	26.11	12.23	598.91	118.99
Walter Coke	EPAFMC-SD-29	4/30/2012 10:33	sediment	Ex Situ	Dry	< LOD	912.44	93771	1430.39	180.46	31.62	1499.6	277.06
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:10	sediment	Ex Situ	Wet	< LOD	664.15	4549.2	207.13	< LOD	10.05	222.97	73.08
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:39	sediment	Ex Situ	Dry	< LOD	529.75	2480.5	200.71	< LOD	15.36	253.09	99.19

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Mercury		Molybdenum		Nickel		Potassium	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Warwick Creek	Warwick Creek Test Location #1	4/23/2012 13:50	sediment	In Situ	Wet	< LOD	11.75	< LOD	7.06	< LOD	63.91	2667.9	290.95
Warwick Creek	Warwick Creek Test Location #2	4/23/2012 13:56	sediment	In Situ	Wet	< LOD	14.03	< LOD	8.7	< LOD	82.13	< LOD	9648.39
Warwick Creek	Warwick Creek Test Location #3	4/23/2012 14:03	sediment	In Situ	Wet	< LOD	12.12	< LOD	8.62	< LOD	75.45	< LOD	3318.21
Warwick Creek	Warwick Creek Test Location #4	4/23/2012 14:13	sediment	In Situ	Wet	< LOD	9.71	7.75	4.68	< LOD	50.25	< LOD	6192.57
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	< LOD	19.91	< LOD	11.29	< LOD	104.73	< LOD	16396.5
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	< LOD	32.92	< LOD	15.14	< LOD	185.21	< LOD	539.66
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet	< LOD	44.43	< LOD	23.84	< LOD	249.19		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet	< LOD	85.79	< LOD	1129.02	< LOD	4274.13		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:10	rocks	In Situ	Wet	< LOD	6.57	8.16	3.81	< LOD	39.7	< LOD	3212.89
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:12	rocks	In Situ	Wet	< LOD	24.68	< LOD	12.49	< LOD	176.04	< LOD	10633.3
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:13	rocks	In Situ	Wet	< LOD	16.21	< LOD	8.6	< LOD	99.82	< LOD	145.35
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:14	rocks	In Situ	Wet	< LOD	15.53	< LOD	9.46	< LOD	93.65	< LOD	318.11
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:15	rocks	In Situ	Wet	< LOD	12.98	< LOD	7.86	< LOD	73.25	< LOD	6089.76
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:16	rocks	In Situ	Wet	< LOD	15.87	< LOD	9.47	< LOD	92.63	< LOD	294.61
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:17	rocks	In Situ	Wet	< LOD	17.53	< LOD	11.6	< LOD	107.35		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:19	rocks	In Situ	Wet	< LOD	21.17	< LOD	13.41	< LOD	121.82		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:20	rocks	In Situ	Wet	< LOD	24.13	< LOD	11.94	< LOD	132.67		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:21	rocks	In Situ	Wet	< LOD	45.69	< LOD	23.57	< LOD	204.85		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:22	rocks	In Situ	Wet	< LOD	14.57	< LOD	8.91	< LOD	87.02	< LOD	3680.73
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet	< LOD	29.11	< LOD	15.02	< LOD	181.91		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet	< LOD	14.6	< LOD	8.92	< LOD	67.73		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:24	rocks	In Situ	Wet	< LOD	12.51	< LOD	7.45	< LOD	73.05	< LOD	10025.2
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:26	rocks	In Situ	Wet	< LOD	21.45	< LOD	13.32	< LOD	93.56		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet	< LOD	16.71	< LOD	11.24	< LOD	97.02		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet	< LOD	18.94	< LOD	12.97	< LOD	95.88		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet	< LOD	18.05	< LOD	13.65	< LOD	103.45		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet	< LOD	29.38	< LOD	16.37	< LOD	170.04		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet	< LOD	25.78	20.3	11.12	< LOD	168.89		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet	< LOD	17.45	< LOD	12.17	< LOD	100.16		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet	< LOD	32.51	< LOD	18.89	< LOD	179.22		
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet	< LOD	18.28	< LOD	13.24	< LOD	107.34		
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:08	sediment	Ex Situ	Wet	< LOD	7.7	< LOD	5.8	< LOD	42.8	< LOD	4097.82
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:40	sediment	Ex Situ	Dry	< LOD	12.62	< LOD	7.27	< LOD	67.4	< LOD	6196.25
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:09	sediment	Ex Situ	Wet	< LOD	9.68	< LOD	6.02	< LOD	49.1	< LOD	7014.21
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:41	sediment	Ex Situ	Dry	< LOD	10.86	< LOD	7.21	< LOD	59.84	< LOD	4904.19
Boyles Gap Lake	EPAFMC-SD-07	4/24/2012 13:38	sediment	Ex Situ	Wet	< LOD	16	< LOD	9.95	< LOD	97.85	< LOD	3487.42

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Chromium		Iron		Lead		Manganese	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Boyles Gap Lake	EPAFMC-SD-07	4/30/2012 9:49	sediment	Ex Situ	Dry	< LOD	800.35	9949.5	394.07	< LOD	13.58	210.69	98.22
Boyles Gap Lake	EPAFMC-SD-08	4/24/2012 13:40	sediment	Ex Situ	Wet	< LOD	237.15	11951	476.14	< LOD	16.64	335.47	125.69
Boyles Gap Lake	EPAFMC-SD-08	4/30/2012 9:51	sediment	Ex Situ	Dry	< LOD	606.56	27976	591.55	< LOD	15.83	498.1	125.63
Boyles Gap Lake	EPAFMC-SD-09	4/24/2012 13:41	sediment	Ex Situ	Wet	< LOD	327.09	17425	452.49	< LOD	14.92	< LOD	117.23
Boyles Gap Lake	EPAFMC-SD-09	4/30/2012 9:52	sediment	Ex Situ	Dry			33579	677.73	22.36	12.81	668.55	146.86
Boyles Gap Lake	EPAFMC-SD-10	4/24/2012 15:08	sediment	Ex Situ	Wet	< LOD	77.14	8687.6	389.38	< LOD	17.17	176.3	101.66
Boyles Gap Lake	EPAFMC-SD-10	4/30/2012 9:53	sediment	Ex Situ	Dry	< LOD	568.24	26910	643.58	< LOD	15.52	246.3	113.41
Boyles Gap Lake	EPAFMC-SD-11	4/30/2012 9:54	sediment	Ex Situ	Wet	< LOD	634.27	37884	739.06	< LOD	18.91	643.72	150.91
Boyles Gap Lake	EPAFMC-SD-11	4/24/2012 19:02	sediment	Ex Situ	Dry	< LOD	946.63	6544.6	302.43	< LOD	14.54	< LOD	112.73
Boyles Gap Lake	EPAFMC-SD-12	4/24/2012 19:03	sediment	Ex Situ	Wet	< LOD	173.89	6978.4	313.38	< LOD	14.48	440.9	115.03
Boyles Gap Lake	EPAFMC-SD-12	4/30/2012 9:55	sediment	Ex Situ	Dry	< LOD	598.73	24529	579.2	< LOD	15.81	1011.3	167.22
Boyles Gap Lake	EPAFMC-SD-13	4/24/2012 19:04	sediment	Ex Situ	Wet	< LOD	271.26	19868	654.47	< LOD	23.33	604.49	171.44
Boyles Gap Lake	EPAFMC-SD-13	4/30/2012 9:56	sediment	Ex Situ	Dry	< LOD	398.13	21189	532.83	21.87	12.96	579.55	133.29
Boyles Gap Lake	EPAFMC-SD-14	4/24/2012 19:05	sediment	Ex Situ	Wet	< LOD	496.3	10429	448.78	< LOD	17.12	586.79	154.41
Boyles Gap Lake	EPAFMC-SD-14	4/30/2012 9:57	sediment	Ex Situ	Dry	< LOD	951.01	44789	878.69	< LOD	17.8	1881.8	250.46
Boyles Gap Lake	EPAFMC-SD-15	4/24/2012 19:06	sediment	Ex Situ	Wet	< LOD	280.01	5441.4	274.46	< LOD	13.35	317.3	99.91
Boyles Gap Lake	EPAFMC-SD-15	4/30/2012 10:01	sediment	Ex Situ	Dry	< LOD	860.17	14554	407.8	< LOD	11.01	567.42	118.54
Warwick Creek	EPAFMC-SD-17	4/25/2012 13:24	sediment	Ex Situ	Wet	< LOD	306.32	13555	467.18	< LOD	17.38	337.72	118.38
Warwick Creek	EPAFMC-SD-17	4/30/2012 10:02	sediment	Ex Situ	Dry	< LOD	251.67	24833	575.32	< LOD	13.18	579.83	134.1
Walter Coke	EPAFMC-SD-18	4/25/2012 13:25	sediment	Ex Situ	Wet	< LOD	267.67	9685	344.05	< LOD	12.78	< LOD	105.53
Walter Coke	EPAFMC-SD-18	4/30/2012 10:03	sediment	Ex Situ	Dry	< LOD	163.61	17448	460.36	< LOD	14.02	144.49	84.35
Walter Coke	EPAFMC-SD-19	4/25/2012 13:27	sediment	Ex Situ	Wet	< LOD	308.63	19295	581.75	< LOD	19.22	1268.1	206.41
Walter Coke	EPAFMC-SD-19	4/30/2012 10:04	sediment	Ex Situ	Dry	< LOD	428.58	42098	879.49	< LOD	22.37	1505.3	235.27
Walter Coke	EPAFMC-SD-20	4/25/2012 13:28	sediment	Ex Situ	Wet	< LOD	119.86	10653	323.32	< LOD	14.59	197.48	75.83
Walter Coke	EPAFMC-SD-20	4/30/2012 10:26	sediment	Ex Situ	Dry	< LOD	590.36	38030	715.16	64.17	17.01	479.58	134.31
Walter Coke	EPAFMC-SD-21	4/25/2012 15:58	sediment	Ex Situ	Wet	< LOD	451.94	37801	705.99	25.53	13.3	953.47	165.71
Walter Coke	EPAFMC-SD-21	4/30/2012 10:26	sediment	Ex Situ	Dry	< LOD	437.68	290725	2791.6	123.47	29.95	6029.1	577.95
Walter Coke	EPAFMC-SD-22	4/25/2012 15:54	sediment	Ex Situ	Wet	< LOD	37.46	27096	683.99	56.41	18.23	366.88	132.69
Walter Coke	EPAFMC-SD-22	4/30/2012 10:27	sediment	Ex Situ	Dry	< LOD	844.32	64565	1094.31	61.15	19.47	1532.2	246.24
Walter Coke	EPAFMC-SD-23	4/25/2012 15:47	sediment	Ex Situ	Wet	< LOD	518.91	81452	1313.74	130.21	27.08	1167.3	244.37
Walter Coke	EPAFMC-SD-23	4/30/2012 10:28	sediment	Ex Situ	Dry	< LOD	820.94	135436	1702.04	210.78	33.12	2382.5	333.72
Walter Coke	EPAFMC-SD-24	4/25/2012 15:42	sediment	Ex Situ	Wet	< LOD	124.4	76674	1259.96	52.34	19.52	788.87	211.37
Walter Coke	EPAFMC-SD-24	4/30/2012 10:29	sediment	Ex Situ	Dry	< LOD	1190.95	126431	1546.72	98.26	22.89	1667.7	274.81
Walter Coke	EPAFMC-SD-25	4/25/2012 15:38	sediment	Ex Situ	Wet	< LOD	275.62	16884	424.84	19.61	11.01	193.44	83.17

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Chromium		Iron		Lead		Manganese	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Warwick Creek	Warwick Creek Test Location #1	4/23/2012 13:50	sediment	In Situ	Wet	57.32	29.78	14951	411.93	< LOD	14.37	414.61	106.97
Warwick Creek	Warwick Creek Test Location #2	4/23/2012 13:56	sediment	In Situ	Wet	< LOD	82.3	28437	649.62	< LOD	18.58	889.67	168.32
Warwick Creek	Warwick Creek Test Location #3	4/23/2012 14:03	sediment	In Situ	Wet	< LOD	299.74	11576	394.6	21.05	12.95	496.74	120.8
Warwick Creek	Warwick Creek Test Location #4	4/23/2012 14:13	sediment	In Situ	Wet	< LOD	397.51	5390.2	221.75	< LOD	13.21	358.17	85.74
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	< LOD	943.64	17456	628.9	< LOD	16.36	11044	620.33
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	< LOD	802.83	52994	1448.98	< LOD	25.97	18002	1068.64
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet			36118	1740.97	< LOD	37.66	< LOD	410.09
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet			< LOD	398190	< LOD	198.31	< LOD	1790.65
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:10	rocks	In Situ	Wet	< LOD	448.69	4203.3	166.72	< LOD	9.21	228.74	61.15
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:12	rocks	In Situ	Wet	< LOD	1271.19	237885	2617.19	< LOD	28.47	2199.4	417.58
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:13	rocks	In Situ	Wet	< LOD	952.8	24262	662.6	< LOD	16.87	1093	198.64
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:14	rocks	In Situ	Wet	< LOD	1092.76	31474	744.27	< LOD	17.99	779.95	175.75
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:15	rocks	In Situ	Wet	< LOD	606.79	21687	529.9	< LOD	16.69	915.91	154.95
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:16	rocks	In Situ	Wet	< LOD	77.44	15187	502.16	< LOD	17.6	437.33	133.49
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:17	rocks	In Situ	Wet			17821	687.73	< LOD	24.08	1008	228.73
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:19	rocks	In Situ	Wet			17190	798.22	< LOD	25.11	736.72	241.46
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:20	rocks	In Situ	Wet			29674	923.33	< LOD	29.34	1243.8	268.68
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:21	rocks	In Situ	Wet			28401	1806.73	< LOD	46.8	1499.1	570.96
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:22	rocks	In Situ	Wet	< LOD	413.51	14956	495.53	< LOD	17.38	1136.7	187.15
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet			48627	1394.6	< LOD	29.19	984.26	301.52
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet			4773	298.7	< LOD	15.54	647.94	151.76
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:24	rocks	In Situ	Wet	< LOD	733.4	20288	506.84	< LOD	14.74	892.44	151.91
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:26	rocks	In Situ	Wet			12558	598.59	31.55	20.16	789.03	211.9
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet			10312	462.39	< LOD	18.88	326.21	130
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet			20019	721.05	< LOD	24.64	529.69	179.46
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet			6283.6	451.97	< LOD	22.14	345.75	160.99
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet			34827	1239.68	< LOD	35.23	355.59	222.17
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet			19764	906.59	< LOD	31.84	< LOD	258.79
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet			13656	602.35	< LOD	24.06	634.37	188.6
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet			10849	802.81	< LOD	33.89	380.11	233.07
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet			14104	650.7	< LOD	25.61	460.09	179.29
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:08	sediment	Ex Situ	Wet	< LOD	417.64	6434.4	219.98	< LOD	12.42	412.66	81.43
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:40	sediment	Ex Situ	Dry	< LOD	501.95	18528	473.31	< LOD	17.43	627.28	128.75
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:09	sediment	Ex Situ	Wet	< LOD	971.99	12457	312.77	44.32	11.44	123.23	62.16
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:41	sediment	Ex Situ	Dry	< LOD	712.61	14201	396.86	93.22	17.07	739.26	129.47
Boyles Gap Lake	EPAFMC-SD-07	4/24/2012 13:38	sediment	Ex Situ	Wet	< LOD	283.77	7756.5	398.93	< LOD	20	< LOD	146.49

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Arsenic		Calcium		Cobalt		Copper	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Walter Coke	EPAFMC-SD-25	4/30/2012 10:30	sediment	Ex Situ	Dry	< LOD	23.91	40349	7337.97	< LOD	388.38	250.61	46.34
Walter Coke	EPAFMC-SD-26	4/25/2012 15:34	sediment	Ex Situ	Wet	34.62	17.48	6012.1	1912.4	< LOD	235.02	44.83	27.82
Walter Coke	EPAFMC-SD-26	4/30/2012 10:31	sediment	Ex Situ	Dry	24.5	12.65	< LOD	8299.59	< LOD	150.97	51.99	22.36
Walter Coke	EPAFMC-SD-27	4/25/2012 15:31	sediment	Ex Situ	Wet	< LOD	25.34	9225.2	2353.61	< LOD	210.82	53.55	28.55
Walter Coke	EPAFMC-SD-27	4/30/2012 10:32	sediment	Ex Situ	Dry	< LOD	21.76	40995	11894.2	< LOD	223.41	98.32	32.62
Walter Coke	EPAFMC-SD-28	4/25/2012 15:28	sediment	Ex Situ	Wet	< LOD	24.81	47091	5837.33	547.9	227.99	144.21	40.4
Walter Coke	EPAFMC-SD-28	4/30/2012 10:32	sediment	Ex Situ	Dry	41.74	15.14	< LOD	12128.4	< LOD	207.66	66.67	24.14
Walter Coke	EPAFMC-SD-29	4/25/2012 15:26	sediment	Ex Situ	Wet	< LOD	15	20192	4303.38	< LOD	152.88	< LOD	37.41
Walter Coke	EPAFMC-SD-29	4/30/2012 10:33	sediment	Ex Situ	Dry	< LOD	39.24	78913	15204	695.54	395.22	293.17	63.57
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:10	sediment	Ex Situ	Wet	< LOD	8.39	< LOD	579.42	< LOD	87.9	< LOD	27.99
City of Tarrant Park	EPAFMC-SD-30	4/30/2012 10:39	sediment	Ex Situ	Dry	< LOD	12.12	< LOD	2852.37	< LOD	81.5	< LOD	44.31

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Arsenic		Calcium		Cobalt		Copper	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Boyles Gap Lake	EPAFMC-SD-07	4/30/2012 9:49	sediment	Ex Situ	Dry	14.68	8.53	13935	9046.9	< LOD	162.79	< LOD	41.45
Boyles Gap Lake	EPAFMC-SD-08	4/24/2012 13:40	sediment	Ex Situ	Wet	< LOD	14.3	6280	2077.51	< LOD	195.33	< LOD	46.8
Boyles Gap Lake	EPAFMC-SD-08	4/30/2012 9:51	sediment	Ex Situ	Dry	< LOD	12.33	< LOD	8106.89	< LOD	238.32	< LOD	38.11
Boyles Gap Lake	EPAFMC-SD-09	4/24/2012 13:41	sediment	Ex Situ	Wet	< LOD	12.4	3297.6	1973.03	< LOD	189.9	< LOD	38.7
Boyles Gap Lake	EPAFMC-SD-09	4/30/2012 9:52	sediment	Ex Situ	Dry	34.26	12.68			< LOD	275.83	< LOD	39.52
Boyles Gap Lake	EPAFMC-SD-10	4/24/2012 15:08	sediment	Ex Situ	Wet	< LOD	13.55	1978.6	406.9	210.71	116.47	< LOD	44.56
Boyles Gap Lake	EPAFMC-SD-10	4/30/2012 9:53	sediment	Ex Situ	Dry	22.69	10.35	< LOD	2937.29	< LOD	268.22	< LOD	47.86
Boyles Gap Lake	EPAFMC-SD-11	4/30/2012 9:54	sediment	Ex Situ	Wet	< LOD	16.3	12696	8197.96	< LOD	298.2	119.32	37.69
Boyles Gap Lake	EPAFMC-SD-11	4/24/2012 19:02	sediment	Ex Situ	Dry	< LOD	11.86	< LOD	6043.04	< LOD	130.24	< LOD	37.36
Boyles Gap Lake	EPAFMC-SD-12	4/24/2012 19:03	sediment	Ex Situ	Wet	13.88	8.85	17586	3139.36	< LOD	129.14	< LOD	38.48
Boyles Gap Lake	EPAFMC-SD-12	4/30/2012 9:55	sediment	Ex Situ	Dry	< LOD	13.4	106691	13022.3	< LOD	228.92	< LOD	33.87
Boyles Gap Lake	EPAFMC-SD-13	4/24/2012 19:04	sediment	Ex Situ	Wet	< LOD	20.14	< LOD	3090.83	< LOD	260.52	< LOD	62.16
Boyles Gap Lake	EPAFMC-SD-13	4/30/2012 9:56	sediment	Ex Situ	Dry	< LOD	16.92	24911	7100.17	< LOD	213.76	< LOD	38.81
Boyles Gap Lake	EPAFMC-SD-14	4/24/2012 19:05	sediment	Ex Situ	Wet	< LOD	15.05	< LOD	3250.88	< LOD	191.69	< LOD	48.71
Boyles Gap Lake	EPAFMC-SD-14	4/30/2012 9:57	sediment	Ex Situ	Dry	< LOD	16.34	12912	6804.72	< LOD	364.55	164.26	45.71
Boyles Gap Lake	EPAFMC-SD-15	4/24/2012 19:06	sediment	Ex Situ	Wet	< LOD	11.97	12606	3298.96	< LOD	119.08	< LOD	40.8
Boyles Gap Lake	EPAFMC-SD-15	4/30/2012 10:01	sediment	Ex Situ	Dry	12.44	6.92	11774	5939.5	235.83	117.51	< LOD	32.12
Warwick Creek	EPAFMC-SD-17	4/25/2012 13:24	sediment	Ex Situ	Wet	15.87	10.48	8715.5	2222.81	< LOD	193.11	< LOD	44.88
Warwick Creek	EPAFMC-SD-17	4/30/2012 10:02	sediment	Ex Situ	Dry	13.8	8.22	< LOD	9871.35	< LOD	233.26	< LOD	35.48
Walter Coke	EPAFMC-SD-18	4/25/2012 13:25	sediment	Ex Situ	Wet	< LOD	10.66	2626.3	1483.63	< LOD	145.09	< LOD	34.95
Walter Coke	EPAFMC-SD-18	4/30/2012 10:03	sediment	Ex Situ	Dry	< LOD	12.16	< LOD	23251.8	< LOD	179.41	< LOD	38.18
Walter Coke	EPAFMC-SD-19	4/25/2012 13:27	sediment	Ex Situ	Wet	< LOD	17.15	15566	3372.65	< LOD	229.93	< LOD	49.43
Walter Coke	EPAFMC-SD-19	4/30/2012 10:04	sediment	Ex Situ	Dry	22.83	13.7	36340	6754.91	< LOD	355.44	< LOD	55.45
Walter Coke	EPAFMC-SD-20	4/25/2012 13:28	sediment	Ex Situ	Wet	< LOD	12.27	10397	1144.1	< LOD	136.2	< LOD	30.84
Walter Coke	EPAFMC-SD-20	4/30/2012 10:26	sediment	Ex Situ	Dry	< LOD	21.4	30006	9448.24	< LOD	286.57	72.36	32.34
Walter Coke	EPAFMC-SD-21	4/25/2012 15:58	sediment	Ex Situ	Wet	18.06	11.61	4989.6	2495.77	321.32	196.29	87.85	32.58
Walter Coke	EPAFMC-SD-21	4/30/2012 10:26	sediment	Ex Situ	Dry	64.08	28.19	19360	3261.58	< LOD	1118.1	140.04	60.12
Walter Coke	EPAFMC-SD-22	4/25/2012 15:54	sediment	Ex Situ	Wet	< LOD	22.02	3943	234.92	< LOD	272.26	< LOD	46.76
Walter Coke	EPAFMC-SD-22	4/30/2012 10:27	sediment	Ex Situ	Dry	< LOD	23.75	23209	11736.6	< LOD	435.64	< LOD	59.74
Walter Coke	EPAFMC-SD-23	4/25/2012 15:47	sediment	Ex Situ	Wet	< LOD	32.32	11552	3374.67	< LOD	526.01	< LOD	63.44
Walter Coke	EPAFMC-SD-23	4/30/2012 10:28	sediment	Ex Situ	Dry	< LOD	41.92	39189	9048.37	< LOD	686.13	107.59	48.55
Walter Coke	EPAFMC-SD-24	4/25/2012 15:42	sediment	Ex Situ	Wet	< LOD	24.44	5594.4	816.48	535.59	347.69	168.42	51.88
Walter Coke	EPAFMC-SD-24	4/30/2012 10:29	sediment	Ex Situ	Dry	< LOD	28.84	24185	12377.3	< LOD	623.58	270.5	56.47
Walter Coke	EPAFMC-SD-25	4/25/2012 15:38	sediment	Ex Situ	Wet	< LOD	12.68	8471.9	2371.68	< LOD	168.62	< LOD	35.9

TABLE 2

FIVE MILE CREEK

SUMMARY OF SURFACE WATER QUALITY PARAMETERS

Sample ID	Sample Date	pH	ORP (mV)	Temp (ºC)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	TDS (g/L)
EPAFMC-SD-03	4/23/2012	8.25	104	18.01	0.459	6.9	145.60	0.298
EPAFMC-SD-04	4/23/2012	8.17	149	17.75	0.460	6.2	11.68	0.299
EPAFMC-SD-05	4/23/2012	8.11	161	17.55	0.463	3.4	13.88	0.301
EPAFMC-SD-10	4/24/2012	8.20	133	16.47	0.493	2.5	12.99	0.320
EPAFMC-SD-12	4/24/2012	8.28	124	17.47	0.485	1.9	11.66	0.315
EPAFMC-SD-15	4/24/2012	8.28	121	19.01	0.417	0.4	13.89	0.270
EPAFMC-SD-30	4/25/2012	8.20	181	18.10	0.377	7.4	10.53	0.245
EPAFMC-SW-01R	4/25/2012	7.38	NR	18.29	0.506	7.9	8.55	NR
EPAFMC-SW-02	4/25/2012	7.13	247	22.75	0.341	25.6	10.71	0.221

Notes:

DO - Dissolved Oxygen
g/L - Grams per liter
mg/L - Milligrams per liter
mS/cm - MilliSiemens per centimeter
mV - Millivolts
NR - No Reading
NTU - Nephelometric Turbity Unit
ORP - Oxidation Reduction Potential
TDS - Total Dissolved Solids

TABLE 3
FIVE MILE CREEK
SUMMARY OF XRF FIELD SCREENING RESULTS

Screening Location	Location	Time	Screened Matrix	Screening Type	Matrix Wet/Dry	Arsenic		Calcium		Cobalt		Copper	
						Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)	Result (ppm)	Error (+/-)
Warwick Creek	Warwick Creek Test Location #1	4/23/2012 13:50	sediment	In Situ	Wet	18.71	8.95	6643.3	308.59	< LOD	170.37	< LOD	34.93
Warwick Creek	Warwick Creek Test Location #2	4/23/2012 13:56	sediment	In Situ	Wet	< LOD	13.76	< LOD	3573.85	< LOD	269.33	< LOD	45.81
Warwick Creek	Warwick Creek Test Location #3	4/23/2012 14:03	sediment	In Situ	Wet	< LOD	15.58	37189	4738.29	< LOD	161.13	< LOD	40.46
Warwick Creek	Warwick Creek Test Location #4	4/23/2012 14:13	sediment	In Situ	Wet	< LOD	10.53	26938	5966.32	< LOD	96.92	< LOD	29.57
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	< LOD	14.32	163667	32620.8	< LOD	249.13	< LOD	56.51
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:08	rocks	In Situ	Wet	< LOD	22.7	46916	16104.8	< LOD	570.26	< LOD	101.71
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet	< LOD	32.01			< LOD	692.69	< LOD	152.4
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:09	rocks	In Situ	Wet	< LOD	22.8			< LOD	38484	< LOD	312.36
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:10	rocks	In Situ	Wet	< LOD	7.24	< LOD	2929.79	< LOD	69.37	< LOD	21.96
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:12	rocks	In Situ	Wet	58.45	21.22	< LOD	6682.86	< LOD	1041.98	< LOD	73.33
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:13	rocks	In Situ	Wet	19.07	10.84	< LOD	4929.73	< LOD	272.57	< LOD	52.36
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:14	rocks	In Situ	Wet	16.87	10.88	15228	9229.27	< LOD	306.94	< LOD	45.7
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:15	rocks	In Situ	Wet	< LOD	14.79	20768	6770.05	< LOD	212.65	< LOD	35.68
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:16	rocks	In Situ	Wet	< LOD	14.66	14528	8522.71	< LOD	209.86	< LOD	45.54
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:17	rocks	In Situ	Wet	< LOD	21.75			< LOD	291.42	< LOD	60.4
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:19	rocks	In Situ	Wet	< LOD	23.66			< LOD	320.3	< LOD	67.95
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:20	rocks	In Situ	Wet	< LOD	23.05			< LOD	369.32	< LOD	72.14
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:21	rocks	In Situ	Wet	< LOD	39.35			< LOD	750.09	< LOD	127.27
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:22	rocks	In Situ	Wet	< LOD	15.62	4191.7	2512.9	< LOD	202.68	< LOD	43.74
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet	< LOD	26.15			< LOD	553.91	< LOD	98.85
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:23	rocks	In Situ	Wet	< LOD	12.13			< LOD	113.16	< LOD	37.27
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:24	rocks	In Situ	Wet	15.16	9.01	21101	10427.2	< LOD	205.54	< LOD	35.42
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:26	rocks	In Situ	Wet	< LOD	24.42			< LOD	247.24	< LOD	56.99
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet	< LOD	16.65			< LOD	200.21	< LOD	53.26
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:30	rocks	In Situ	Wet	< LOD	19.61			< LOD	283.51	< LOD	64.41
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet	< LOD	20.81			< LOD	202.53	< LOD	73.09
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:31	rocks	In Situ	Wet	< LOD	29.39			< LOD	512.28	< LOD	90.04
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet	< LOD	25.89			< LOD	363.21	< LOD	95.48
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:32	rocks	In Situ	Wet	< LOD	20.06			< LOD	242.91	< LOD	57
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet	< LOD	31.99			< LOD	330.36	< LOD	105
Warwick Creek	Warwick Creek Test - Rocks	4/23/2012 15:33	rocks	In Situ	Wet	< LOD	20.78			< LOD	268.35	< LOD	60.73
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:08	sediment	Ex Situ	Wet	< LOD	9.82	< LOD	7542.31	< LOD	93.41	< LOD	23.54
Warwick Creek	EPAFMC-SD-01	4/30/2012 10:40	sediment	Ex Situ	Dry	< LOD	14.96	13793	4837.42	< LOD	194.23	< LOD	33.27
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:09	sediment	Ex Situ	Wet	< LOD	14.15	< LOD	7182.67	< LOD	127.4	30.46	19.2
Warwick Creek	EPAFMC-SD-05	4/30/2012 10:41	sediment	Ex Situ	Dry	< LOD	21.71	12460	4541.52	< LOD	165.93	< LOD	34.86
Boyles Gap Lake	EPAFMC-SD-07	4/24/2012 13:38	sediment	Ex Situ	Wet	< LOD	16.09	5524.7	2910.07	< LOD	169.43	< LOD	51.49