Dredge Material Testing and Evaluation

LAKE WHETSTONE
MONTGOMERY COUNTY, MARYLAND

Prepared for

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TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY 1
INTRODUCTION 2
SITE LOCATION 2
PREVIOUS INVESTIGATIONS 2
CHARACTERIZATION OF LAKE AND LAKE SEDIMENTS 2
SAMPLING METHODS 3
LABORATORY TESTING 4
ANALYTICAL LABORATORY RESULTS 4
- Physical Analysis 4
- Environmental Contaminant Analysis 8
- Nutrient Analyses 12

ENVIRONMENTAL AND HEALTH IMPACTS 12
CONCLUSIONS AND RECOMMENDATIONS 14
REFERENCES 15

FIGURES
- Figure 1- Overview Map
- Figure 2- Lake Whetstone Sampling Locations
- Figure 3- Sample S-4 Sampling Location
- Figure 4- Land Use

TABLES
- Table 1- Particle Size Summary
- Table 2- Soil Laboratory Analytical Results Reported at Detectable Levels
- Table 3A- Soil Laboratory Analytical Results Reported Above USEPA Soil Screening Levels and MDE Cleanup Standards
- Table 3B - Soil Laboratory Analytical Results Reported Above USEPA Soil Screening Levels and MDE Cleanup Standards
- Table 4- General Sediment Chemistry and Nutrient Levels

APPENDICES
- Appendix A– Laboratory Results
  - A.1 TestAmerica Results
  - A.2 ALS Environmental Results
  - A.3 Gannett Fleming, Inc. Geotechnical Soils Laboratory Results

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LAKE WHETSTONE
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EXECUTIVE SUMMARY

Gannett Fleming, Inc. (GF) conducted an investigation to characterize sediment in the proposed dredge area located at the southern end of Lake Whetstone (Lake). The purpose of the investigation was to sample the Lake sediments and local Apple Ridge Ballfield, and complete laboratory analyses to determine if any environmental or health concerns exist in the dredge material from the Lake.

Sediment core samples were collected from four different locations, including three samples (S-1 to S-3) in the proposed dredge area of the Lake and one background sample (S-4) located at the Apple Ridge Ballfield. The four samples were analyzed as follows:

- Physical Analyses: A physical analysis was completed on each sample by performing a sieve analysis at GF's Geotechnical Soils Laboratory to determine the grain sizes in the sediment samples.
- Contaminant Analyses: The chemical properties of the sediment samples were determined by conducting twenty-three separate laboratory analyses. The chemical analyses were conducted to investigate the general chemistry, presence of contaminants, and soil nutrients that exist in the proposed dredge material. The chemical analyses were performed by TestAmerica in Pittsburgh, Pennsylvania.
- Biological: The biological properties of the sediment samples were determined by conducting fecal coliform analyses. The fecal coliform analysis was conducted by ALS Environmental in Middletown, Pennsylvania.

The laboratory results determined for the sediments collected in the investigation were used to perform a screening-level assessment of contaminants using federal and state standards. Based on the sediment characterization completed in this investigation, the following conclusions can be stated:

- The physical analyses results indicate the proposed dredge material varies from poorly graded sand with gravel to sandy silt.
- The contaminant analyses results indicate that five polycyclic aromatic hydrocarbons (PAHs) (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz(a,h)anthracene, and indeno[1,2,3-cd]pyrene) and three metals (aluminum, arsenic, and chromium) are present in the sediment samples at levels above soil screening levels (SSLs) determined by the United States Environmental Protection Agency (USEPA) and cleanup standards established by the Maryland Department of the Environment (MDE).
- This investigation was limited to a screening-level investigation and did not include collection and laboratory analysis for statistical analysis to support an ecological or human health risk assessment. Collection of additional background soil samples, lake sediment samples, and lake water samples would be required to complete ecological and human health risk assessments.

GF recommends presenting the screening level analytical results to MDE to formulate an approach to proceed with the proposed dredging project that meets the needs of the public and the necessary permits for the dredging project.

INTRODUCTION

Gannett Fleming, Inc. (GF) completed an investigation to characterize lake sediments in the proposed dredge area, which is located at the southern end of Lake Whetstone (Lake). The purpose of the investigation was to sample the Lake sediments and local Apple Ridge Ballfield, and complete laboratory analyses to determine if any environmental or health concerns exist in using the dredge material from the Lake as fill material.

An investigation of the dredge material was proposed by the Montgomery County Department of Environmental Protection (DEP). The investigation included a testing plan to evaluate the Lake sediments, which included the collection of three sediment samples within the area of proposed dredging and an additional sample as a background sample at the Apple Ridge Ballfield. The Apple Ridge Ballfield, which is located approximately 2 miles from the Lake, is also a proposed area for placement of the dredge material (Figures 1, 2, and 3).

SITE LOCATION

The Lake is located in Montgomery Village, Maryland, which is a northern suburb of Gaithersburg, Maryland. The Lake is located approximately 1.3 miles east of I-270 along Montgomery Village Avenue (Rte. 124) (Figure 1).

PREVIOUS INVESTIGATIONS

In 2001, a dredging and erosion mitigation study was performed at Lake Whetstone and North Creek Lake by Chesapeake Environmental Management, Inc. The investigation included dredge analysis and erosion analysis of the shoreline. A composite sediment sample was analyzed for priority pollutants by Toxicity Characteristics Leaching Procedure (TCLP). No priority pollutants were detected in the composite sample collected from Lake Whetstone (CEM, 2001).

CHARACTERIZATION OF LAKE AND LAKE SEDIMENTS

The Lake is a narrow, elongated water body that has a northwest to southeast orientation. The Lake covers an area of approximately 26.6 acres. Dredging is proposed in the southeastern end of the Lake. The proposed dredging area covers approximately 4 acres, and the estimated volume of sediment expected to be removed from the Lake is 10,500 cubic yards. Whetstone Run provides an inlet (in the southeastern end) and outlet (in the northwestern end) to the Lake. Visible sediment deposition at the Lake was observed in the southwestern end of the Lake.

The Lake is located within the Whetstone Run watershed, which is a third-order watershed within the Great Seneca Creek watershed. The Whetstone Run watershed flows through Montgomery Village and Gaithersburg and encompasses an area of approximately 4.8 square miles (Figure 4).

The Lake sediments in the proposed dredge area were characterized by collecting sediment samples and performing laboratory analysis to determine the grain size and the concentration of contaminants that may be present. The results of the laboratory analysis will help to determine

how the sediments are handled and used. The particle size (gravel, sand, silt, or clay) of the sediment samples were classified at a geotechnical soils laboratory. Sediments composed largely of sand and gravel are typically easier to dredge and dewater. Sediments composed largely of silt are easy to dredge, but can be harder to dewater. Sediments composed largely of clay are generally more difficult to dredge and dewater. The type and extent of sediments in the proposed dredge area of the Lake are important to determine the best approach to dredge and dewatering the sediment and identify potential sediment re-use options.

The area surrounding the Lake is suburban with predominantly residential and commercial land use (Figure 4). The majority of land use is classified as medium and high-density residential, which comprises about 57 percent of the Whetstone Run watershed. Commercial land use also covers a significant area (18 percent) of the watershed. Industrial land use covers only one percent of the watershed. Based on current land use in proximity of the Lake, there are limited point sources of pollution that could contaminate the Lake sediments. The most likely sources of contamination to the Lake sediments are chemicals and/or organic compounds leaked onto or applied to roadways, parking lots, driveways, and lawns within commercial and residential areas. These pollutants can be deposited into the Lake during storm events.

SAMPLING METHODS

Samples were collected at three locations in the southeastern end of the Lake (Figure 2). The three samples collected at the Lake where chosen to obtain a general distribution of sediments, both the physical and chemical properties, within the proposed dredge area of the Lake. One additional sample was collected at the potential placement area located at the Apple Ridge Ballfields (Figure 3).

Samples were collected using conventional hand-held sampling equipment. Sediment samples were collected by manually inserting a stainless-steel hand auger into the sediment both above and below the lake water level. The sample locations (shown in Figures 2 and 3) are described as follows: S-1 was located on the sandbar; S-2 was located to the east of the sandbar and approximately 20 feet from the shoreline; S-3 was located on the western edge of the sandbar approximately 10 feet from the shoreline; S-4 was located as the Apple Ridge Ballfields and was located in centerfield of the baseball field. The sediment samples were collected to depths of three to almost eight feet below the sediment surface (S-1 was cored to a depth of 3.0 feet, S-2 was cored to a depth of 7.5 feet, and S-3 was augured to a depth of 7.8 feet). The background sample was also collected using the hand auger, and the sample was collected at a depth of 1.2 feet. At each sample location, core samples were removed from the sampler, placed into a large container and mixed to form a homogenous sediment sample. The homogeneous sample was placed into containers supplied by the testing laboratories.

Clean nitrile gloves were worn when handling all samples to minimize the potential of cross contamination between samples. Core sampling equipment was cleaned between sample locations in accordance to USEPA decontamination procedures (USEPA, 1994). All samples were placed in appropriate laboratory-supplied containers and placed in coolers on ice. Chain-of-custody was maintained until the samples were delivered to the appropriate laboratory for analysis. Chain of custody forms are provided with the appropriate laboratory results (Appendix A).

LABORATORY TESTING

The selection of sediment testing performed in this study was based on the U.S. Army Corps of Engineer's (USACE) technical note DOER-C2, "Dredged Material Characterization and Tests for Beneficial Use Suitability" by Winfield and Lee (1999). The DEP selected laboratory tests to be conducted using the USACE document for guidance. The four (4) sediment samples collected in the proposed dredge area were sent to and tested at laboratories for analyses of physical, chemical, and biological properties as shown below.

- Physical: The physical properties of the proposed dredge sediments were determined by conducting sieve analysis to determine the grain-size of the material. The sieve analysis was conducted by GF's Geotechnical Soils Laboratory in Camp Hill, Pennsylvania.
- Chemical: The chemical properties of the proposed dredge sediments were determined by conducting twenty-three separate analyses. The chemical analyses were conducted to determine information on the general chemistry, contaminants, and soil nutrient content of the proposed dredge material. The chemical analyses were conducted by Test America in Pittsburgh, Pennsylvania.
- Biological: The biological properties of the proposed dredge sediments were determined by conducting fecal coliform analyses of the collected samples. The fecal coliform analysis was conducted by ALS Environmental in Middletown, Pennsylvania.

ANALYTICAL LABORATORY RESULTS

Analytical laboratory analyses were performed on sediment samples collected in this investigation for physical, environmental, and nutrient analyses. The laboratory results were reviewed and compared to assess the suitability of the proposed dredge material.

Physical Analysis

The samples were analyzed for physical characteristics of the sediment, which included particle-size determined by sieve analysis (Table 1 and Appendix A).

Table 1. Particle Size Summary

Sample No.	Gravel (%)	Sand (%)	Fines: Silt and Clay (%)	USCS Description
1	34.3	61.2	4.5	SP - Poorly graded SAND with gravel
2	11.9	68.2	19.9	SM – Gray silty SAND
3	1.1	40.6	58.3	ML – Gray sandy SILT
4	11.5	27.8	60.7	ML – Brown sandy SILT

The detectable levels of laboratory results for general chemistry, bacteriological, contaminants, and soil nutrient analysis are shown on Table 2. This table includes all laboratory results and excludes the analysis reported as "not detected at the reporting limit" and denoted as "ND".

Table 2: Soil Laboratory Analytical Results Reported at Detectable Levels

Chemical Constituent	Units	Sample ID			
		Lake Whetstone			Apple Ridge Ballfields
Metals		S-1	S-2	S-3	S-4
Aluminum	mg/Kg	3600	8900	13000	15000
Antimony	mg/Kg	0.16	0.16	0.3	0.088
Arsenic	mg/Kg	1.4	1.7	2.6	1.4
Beryllium	mg/Kg	0.29	0.57	0.79	1.2
Cadmium	mg/Kg	0.095	0.25	0.45	0.3
Chromium	mg/Kg	22	31	41	32
Cobalt	mg/Kg	7.1	12	16	25
Copper	mg/Kg	9.3	19	30	42
Iron	mg/Kg	16000	18000	24000	33000
Lead	mg/Kg	6.2	27	26	13
Manganese	mg/Kg	110	210	290	490
Mercury	mg/Kg	0.0089	0.033	0.052	0.00022
Nickel	mg/Kg	20	27	43	25
Potassium	mg/Kg	330	780	1200	1800
Selenium	mg/Kg	0.28	0.72	1.1	1.6
Silver	mg/Kg	0.016	0.035	0.054	0.021
Sodium	mg/Kg	32	49	70	20
Thallium	mg/Kg	0.047	0.14	0.2	0.29
Tin	mg/Kg	2.8	1.2	1.8	0.95
Zinc	mg/Kg	32	65	120	56

General Chemistry	Units	S-1	S-2	S-3	S-4
pH	SU	6.65	6.52	6.61	6.44
Total Phosphorus as PO4	mg/Kg	33	40	58	10
Chloride	mg/Kg	37	80	180	36
Percent Moisture	%	15	29	48	17
Nitrogen, Kjeldahl	mg/Kg	170	1000	2100	530

Chemical Constituent	Units	Sample ID			
		Lake Whetstone			Apple Ridge Ballfields
General Chemistry (cont.)		**S-1**	**S-2**	**S-3**	**S-4**
Specific Conductance	umhos/cm	230	270	520	81
Total Organic Carbon	mg/Kg	2500	7900	19000	5100
Nitrate as N	mg/Kg	ND	ND	ND	1.4
C:N Ratio	Ratio	0.084	0.292	0.251	0.042
Cation Exchange Capacity	meq/100g	4	11.5	16.5	12.4
Neutralizing Value (% CCE)	%	<0.1 %	<0.1 %	<0.1 %	<0.1 %
Salinity	mmhos/cm	1	1.3	1.1	0.3
Sodium Adsorption Ratio (SAR)	Ratio	1.47	1.33	1.14	0.457
Total Sulfur	mg/Kg	85.4	276	562	84.2
Calcium	ppm	52.8	46	28	15.3
Total Carbon	%	0.2	1.3	1.9	0.3
Magnesium	ppm	16.4	19.5	16.5	7.23
Total N	%	0.1	0.2	0.3	0.2
Sodium	ppm	47.7	42.7	30.7	8.68
Ammonia, distilled	mg/Kg	8.5	63	210	4.9

Bacteriological	**Units**	**S-1**	**S-2**	**S-3**	**S-4**
Fecal Coliform	MPN/gm	23	326	14	ND

Dioxins	**Units**	**S-1**	**S-2**	**S-3**	**S-4**
OCDD	ng/g	ND	3	6.2	6.1

Semivolatile Organic Compounds (SVOCs)	**Units**	**S-1**	**S-2**	**S-3**	**S-4**
Acenaphthene	ug/Kg	6.2	20	20	ND
Anthracene	ug/Kg	30	70	72	ND
Benzo[a]anthracene	ug/Kg	200	450	550	ND
Benzo[a]pyrene	ug/Kg	240	530	740	ND
Benzo[b]fluoranthene	ug/Kg	280	930	1500	ND
Benzo[g,h,i]perylene	ug/Kg	220	520	880	ND
Benzo[k]fluoranthene	ug/Kg	150	ND	ND	ND

Chemical Constituent	Units	Sample ID			
		Lake Whetstone			Apple Ridge Ballfields
SVOCs (cont.)		**S-1**	**S-2**	**S-3**	**S-4**
Bis(2-ethylhexyl) phthalate	ug/Kg	54	300	430	6.4
Chrysene	ug/Kg	260	680	980	ND
Dibenz(a,h)anthracene	ug/Kg	70	190	330	ND
Di-n-butyl phthalate	ug/Kg	19	ND	ND	ND
Fluoranthene	ug/Kg	460	1100	1500	2.2
Fluorene	ug/Kg	8.8	42	39	ND
Indeno[1,2,3-cd]pyrene	ug/Kg	190	460	770	ND
Phenanthrene	ug/Kg	160	470	470	ND
Pyrene	ug/Kg	370	900	1200	1.7

PCB Congeners	Units	S-1	S-2	S-3	S-4
PCB 101	ug/Kg	ND	0.14	0.26	ND
PCB 118	ug/Kg	ND	0.26	ND	ND
PCB 138	ug/Kg	ND	0.26	0.3	ND
PCB 153	ug/Kg	ND	0.22	0.24	ND
PCB 18	ug/Kg	ND	ND	0.24	ND
PCB 28	ug/Kg	ND	0.19	ND	ND
PCB 8	ug/Kg	0.16	0.35	0.75	0.13

Organochloride Pesticides	Units	S-1	S-2	S-3	S-4
4,4'-DDD	ug/Kg	ND	1	0.78	0.028
4,4'-DDE	ug/Kg	0.24	1.6	1.2	0.15
4,4'-DDT	ug/Kg	0.12	0.29	0.24	0.052
beta-BHC	ug/Kg	ND	ND	0.17	ND
Chlordane (technical)	ug/Kg	ND	3	5	ND
delta-BHC	ug/Kg	ND	ND	0.57	0.08
Dieldrin	ug/Kg	0.059	ND	0.14	0.05
Endosulfan sulfate	ug/Kg	ND	ND	0.085	ND
Endrin	ug/Kg	0.063	0.14	0.14	ND
gamma-BHC (Lindane)	ug/Kg	0.35	0.33	0.65	0.065
Heptachlor epoxide	ug/Kg	ND	0.082	0.12	0.029
Methoxychlor	ug/Kg	ND	0.35	0.3	0.068
Toxaphene	ug/Kg	ND	24	33	ND

ND - Not Detected

Environmental Contaminant Analysis

The results of the laboratory analysis of the proposed dredge material were compared to screening level standards of the U.S. Environmental Protection Agency (USEPA) and the Maryland Department of the Environment (MDE). The Mid-Atlantic Risk Assessment of the USEPA (Region 3) has developed generic soil screening levels (SSLs) to be used in determining areas, contaminants, and conditions at a site where no further remedial action is needed (EPA, 2011). The generic SSLs listed are default values that are effective when used as a tool to conduct a conservative initial screening. SSLs are provided for both residential and industrial screening levels. MDE has developed Cleanup Standards for hazardous substances in soil and groundwater. In June 2008, MDE issued Cleanup Standards for Soil and Groundwater as an Interim Final Guidance (Update No. 2.1) document (MDE, 2008). This document presents the approach and supporting documentation used to develop numeric Cleanup Standards for hazardous substances in the soil and groundwater media, and remedial action categories for the State of Maryland. The Cleanup Standards have been developed to represent concentration levels at which no further remedial action would be required at a property based upon the harm posed by these substances to human health within the constraints of current knowledge (i.e., applicable only to the soil media Residential Cleanup Standard and the groundwater media Cleanup Standard). The sediment samples obtained from Lake Whetstone were compared to the soil values within the Interim Guidance tables for both residential and non-residential areas as part of the preliminary screening of the dredge material. The contaminants that were reported at levels above screening levels presented by the USEPA and MDE include polycyclic aromatic hydrocarbons and metals (see Table 3A (PAHs) and Table 3B (Metals)).

According to the USEPA (1996), the SSL values are used as a screening tool to assist risk assessors and others involved in decision-making concerning CERCLA hazardous waste sites and to determine whether levels of contamination found at the site may warrant further investigation or site cleanup, or whether no further investigation or action may be required. This screening tool was applied to this project, which is outside the CERCLA program. It should be emphasized that SSLs are not cleanup standards.

The generic SSLs combine current human health toxicity values with standard exposure factors to estimate contaminant concentrations in soil, air, and water that are considered by the USEPA to be protective of human health. Concentrations above these levels may warrant further characterization and evaluation of the materials and does not immediately suggest a need for remedial actions. Further characterization and evaluation may include additional sampling of the dredged material, establishing background levels for the region, and coordinating with local regulatory agencies for the application of site-specific standards.

PAHs were detected in each of the sediment samples (S-1, S-2, and S-3) collected in the proposed dredge material area. The concentrations of PAHs in the background sample (S-4) were reported as “not detected”. The levels of five PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz(a,h)anthracene, and indeno[1,2,3-cd]pyrene) were reported above USEPAs SSLs and MDE soil cleanup standards. In general, S-1 has lower concentrations of PAHs than were detected in S-2 and S-3. Samples S-2 and S-3 had levels for each the five PAHs listed in Table 3A that were above the USEPA residential SSLs and MDE residential cleanup standards. The levels of PAHs in samples S-2 and S-3 ranged from 3 to almost 50 times the

USEPA's residential SSLs, and 2 to more than 30 times the MDE's residential cleanup standards. The concentration of benzo[a]pyrene in samples S-2 and S-3 was above the MDE non-residential cleanup standard, and the concentration of dibenz(a,h)anthracene in sample S-3 was only 0.06 mg/Kg below the MDE non-residential cleanup standard.

Concentrations of three metals (aluminum, arsenic, and chromium) were detected at levels above MDEs residential and non-residential soil cleanup standards in all sediment samples, including the background sample (Table 3B). This data indicates that the reported levels are present at regional concentration levels of metals, which represents a background concentration. Levels of cobalt were also detected above residential SSLs, however, these levels were only detected in the background sample (S-4). The Maryland cleanup standards contain proposed residential standards for selected metals and represent a standard risk-based approach. Anticipated typical concentrations (ATC) for these metal concentrations in soil were determined for three different provinces (Eastern, Central, and Western) of Maryland and were based on differences in the age, chemistry, and structure of the underlying geology. The ATC values represent regional values of concentrations of metals that exist in Maryland soils. In some cases, the residential cleanup standards are higher than the ATC levels. MDE states that this results due to "a consequence of multiple factors and does not necessarily indicate that a hazard is posed to either human health or the environment..." (MDE, 2008). The ATC levels are higher than residential cleanup standards for aluminum, arsenic, and chromium. For these analytes, the ATC value determined for each province may be used as an alternative residential soil standard. When the ATC values are substituted as the residential soil standards, only chromium exceeds the MDE alternative standard (MDE, 2008). However, the chromium levels are below the MDE non-residential standard and present in the background sample.

Results of biological analysis performed on the sediment samples indicated that fecal coliform bacteria were present in the sediment samples collected at the proposed dredge area. Bacteria samples were analyzed using the most probable number (MPN) method, which involves dividing the original sample into much smaller volumes (orders of magnitude smaller) and performing the analysis on multiple small volume samples. Fecal coliform levels reported by the laboratory were 23 MPN/gm, 326 MPN/gm, and 14 MPN/gm in samples S-1, S-2, and S-3, respectively. Fecal coliform bacteria were not present in sample S-4.

The fecal bacteria samples were taken from the Lake sediment. Water quality samples of the Lake were not taken in this investigation. Bacteria population counts will vary daily in the lake water/sediments and results of bacteria tests should not be used to predict future water conditions. Several factors influence bacteria population counts including the presence of fecal matter from wildlife or sewage discharges, temperature, turbidity, flow velocity, water depth, and consistency of the substrate. These conditions will vary within the water body and will change as the influencing factors change.

This investigation has allowed DEP to detect if chemical constituents and metals are present in the Lake sediments. However, only three lake sediment samples and one background sample were analyzed during this screening-level investigation. Additional sampling and laboratory analysis would be required to confirm the extent and evaluate the significance of these contaminant concentrations. If sufficient samples are collected, statistical analysis could be completed to evaluate ecological and human health risks associated with exposure to the sediments.

Lake Whetstone
Montgomery Village, Maryland

Table 3A. Soil Laboratory Analytical Results Reported Above USEPA Soil Screening Levels and MDE Cleanup Standards

Site Location		Lake Whetstone	Lake Whetstone	Lake Whetstone	Apple Ridge Ballfield	USEPA Soil Screening Levels		MDE Soil Standards		
Sample ID		S-1	S-2	S-3	S-4					
Date		10/10/11	10/10/11	10/10/11	10/10/11	Residential Soil	Industrial Soil	Residential Cleanup Standard	Non-Residential Cleanup Standard	Soil-to-Groundwater
Constituents	CAS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Semivolatile Organic Compounds										
Benzo(a) anthracene	56-55-3	**0.2**	**0.45**	**0.55**	<0.008	0.15	2.1	0.22	3.9	0.48
Benzo(b) fluoranthene	205-99-2	**0.28**	**0.93**	**1.5**	<0.008	0.15	2.1	0.22	3.9	1.5
Benzo(a) pyrene	50-32-8	**0.24**	**0.53**	**0.74**	<0.008	0.015	0.21	0.022	0.39	0.12
Indeno (1,2,3-cd) pyrene	193-39-5	**0.19**	**0.46**	**0.77**	<0.008	0.15	2.1	0.22	3.9	4.2
Dibenz(a,h) anthracene	53-70-3	**0.07**	**0.19**	**0.33**	<0.008	0.015	0.21	0.022	0.39	0.46

Lake Whetstone
Montgomery Village, Maryland

Table 3B. Soil Laboratory Analytical Results Reported Above USEPA Soil Screening Levels and MDE Cleanup Standards

Site Location		Lake Whetstone	Lake Whetstone	Lake Whetstone	Apple Ridge Ballfield	MDE Soil Standards			
Sample ID		S-1	S-2	S-3	S-4				
Date		10/10/11	10/10/11	10/10/11	10/10/11	Residential Cleanup Standard	Non-Residential Cleanup Standard	Soil-to-Groundwater	Anticipated Typical Concetrations (ATC)
Constituents	CAS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals									
Aluminum	7429-90-5	3600	**8900**	**13000**	**15000**	7800	100000	NA	19000
Arsenic	7440-38-2	**1.4**	**1.7**	**2.6**	**1.4**	0.43	1.9	0.026	4.9
Chromium	7440-47-3	22 (B)	**31 (B)**	**41 (B)**	**32 (B)**	23	310	42	30

NA - No values available
B- Detected in the blank and the sample

Nutrient Analyses

The sediment fertility was assessed in the laboratory analysis conducted in the testing program. Agricultural nutrients were analyzed for each of the samples (Table 2 and Appendix A). The nutrient levels of the sediments could affect potential beneficial reuse and/or land application of the dredged sediments.

The laboratory results indicated desirable levels of potassium, phosphorus, and sulfur. The pH ranged from 6.44 to 6.65, which is considered to be acceptable for agricultural use. Generally, the finer grained samples (S-2 and S-3) contained higher nutrient levels than the coarse-grained sand found in Sample S-1, which is likely due to the higher content of silts and clays. The level of calcium and neutralizing value were relatively low for all samples.

Table 4. General Sediment Chemistry and Nutrient Levels

Site Location		Lake Whetstone			Apple Ridge Ballfields
Analyte	**Units**	**S-1**	**S-2**	**S-3**	**S-4**
pH	SU	6.65	6.52	6.61	6.44
Electrical Conductivity	umhos/cm	230	270	520	81
Total Organic Carbon (TOC)	mg/Kg	2500	7900	19000	5100
C:N Ratio	Ratio	2:1	7:1	6:1	1:1
Cation Exchange Capacity (CEC)	meq/100g	4.0	11.5	16.5	12.4
Nitrate as Nitrogen	mg/Kg	ND	ND	ND	1.4
Kjeldahl Nitrogen	mg/Kg	170	1000	2100	530
C:N Ratio	Ratio	2:1	7:1	6:1	1:1
Neutralizing Value (% CCE)	%	<0.1	<0.1	<0.1	<0.1
Sodium Adsorption Ratio (SAR)	Ratio	1.47	1.33	1.14	.457
Salinity	mmhos/cm	1.0	1.3	1.1	0.3
Total Phosphorus	ppm	33	80	180	36
Total Nitrogen	%	0.1	0.2	0.3	0.2
Potassium	mg/Kg	330	780	1200	1800
Sulfur	ppm	85.4	276	562	84.2
Calcium	ppm	52.8	46	28	15.3
Sodium	ppm	32	49	70	20

ENVIRONMENTAL AND HEALTH IMPACTS

A preliminary screening of the dredge material was conducted by GF to begin developing a dataset to characterize the proposed dredge material. PAHs and metals were detected at levels above the federal and state screening-level assessment. In the following section, we will further describe these constituents.

Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs are a group of organic compounds that contain two or more fused aromatic rings. PAHs are formed and released into the environment as the result of combustion/pyrolysis. According to USEPA, exposure to PAHs can be from air contamination by smoke from fireplaces, wood stoves, furnaces burning coal or oil, and from smoked or charbroiled foods, smoking tobacco products, inhaling vehicle exhaust, and inhaling fumes from working exposure to coal tar and asphalt. PAHs also result from the production and processing of metals, coal, oil, and gas. PAHs tend to accumulate in soils by adhering to soil particles. The adhesion of PAHs in soil is dependent on the amount of organic matter present and the particle size of the soil. Adhesion of the PAHs in soil is greater with increased amounts of organic matter and with finer-grained sediments (silts and clays) as compared to coarser-grained sediments (sands).

These constituents are known by the USEPA as suspected of causing cancer in humans. PAHs are bioaccumulative and do not break down easily in the environment, thus they are subject to long-range air transport. These constituents are deposited as fine particulates over the landscape (i.e. paved areas, roof tops, undeveloped lands, and directly to surface waters). During precipitation events, PAHs are carried into storm water ditches, streams, and lakes in the form of runoff and are trapped in the environment by sediments. The watershed of the Lake is highly urbanized and the lake itself serves a storm water control function, therefore, the presence of these constituents in lake sediments does not indicate contaminants of an unknown origin. The United States Geological Survey (USGS) has been investigating the presence of PAHs in urban lakes across the United States. Their investigations have identified coal-tar-based pavement sealcoat as a major source of elevated PAHs, especially in the central, southern, and eastern United States (Mahler and Van Metre, 2011). Coal-tar-based pavement sealcoat is often applied to driveways, playgrounds, and parking lots. In the USGS study, coal-tar-based sealcoat use was identified as the primary cause of upward trends in PAHs in urban lake sediment (Mahler and Van Metre, 2011).

USEPA is addressing the issue with PAHs in the environment through their *FINAL RULE TO REDUCE AIR TOXICS EMISSIONS FROM AREA SOURCE ASPHALT REFINING AND ASPHALT ROOFING MANUFACTURING FACILITIES ACTION, November 16, 2009.* The final rule limits emissions of polycyclic organic matter in the form of PAHs, such as benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)antracene, and indeno(1,2,3-c,d)pyrene (USEPA, 2009).

Metals

Metals concentrations in sample results for S-1 thru S-3 did not vary greatly from the background results in sample S-4 (Apple Ridge Ballfield). This may indicate a regional concentration level of metals that is a background concentration. Based on ATC values determined by MDE for central Maryland, the levels of metals detected in the sediment samples are typical for central Maryland soils.

A risk assessment was not performed as part of this screening level investigation due to an insufficient number of soil samples to provide a statistically sufficient dataset. The screening level investigation has identified contaminants of concern (COC) that exist in the sediments (proposed dredge material) of the Lake, which include five PAHs (five PAHs

(benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz(a,h)anthracene, and indeno[1,2,3-cd]pyrene) and three metals (aluminum, arsenic, and chromium). Additional sampling and laboratory analyses would be required to confirm the extent and evaluate the significance of these COCs.

CONCLUSIONS AND RECOMMENDATIONS

Based on the sediment characterization completed in this investigation, the following conclusions can be stated:

- The sediment classification indicated that the proposed dredge material varies from poorly graded sand with gravel to sandy silt.
- The sediment characterization results indicate that levels of five PAHs (five PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz(a,h)anthracene, and indeno[1,2,3-cd]pyrene) and three metals (aluminum, arsenic, and chromium) were found in the sediment samples at levels at or above soil screening levels for residential use determined by the USEPA and MDE. The reported levels of these constituents may require further investigation.
- Concentrations of metals in the Lake and Apple Ridge Ballfield sediment/soil samples were reported at concentration similar to the ATC values determined by MDE for central Maryland.
- Dredging activities may require special conditions in removing and reusing the sediment beyond those typically imposed on dredging projects. GF recommends the DEP participate in a pre-application meeting with MDE and United States Army Corps of Engineers Baltimore District to determine what is required to obtain authorization to dredge Lake Whetstone

REFERENCES

CEM, 2001, A Dredging and Erosion Mitigations Assessment-Lake Whetstone and North Creek Lake; Chesapeake Environmental Management, Inc., Bel Air, MD, November 11, 2001.

MDE, 2008, Cleanup Standards for Soil and Groundwater; State of Maryland, Department of the Environment, June 2008, Interim Final Guidance (Update No. 2.1), 110p.

USEPA, 2011, U.S. Environmental Protection Agency's (EPA) Regional Screening Levels (RSL) for Resident Soil and Industrial Soil Screening Levels; June 2011. http://www.epa.gov/reg3hwmd/risk/human/rbconcentration_table/Generic_Tables/index.htm

Mahler, B.J., and Van Metre, P.C., 2011, Coal-Tar-Based Pavement Sealcoat, Polycyclic Aromatic Hydrocarbons (PAHs), and Environmental Health; U.S. Geological Survey Fact Sheet 2011–3010, February 2011, 6 p, http://pubs.usgs.gov/fs/2011/3010/

USEPA, 2009, Final Rule to Reduce Air Toxics Emissions from an Area Source Asphalt Refining and Asphalt Roof Manufacturing Facilities Action, November 16, 2009, http://www.epa.gov/ttn/oarpg/t3/fact_sheets/asphaltfinal_fs111709.pdf

USEPA, 1996, Soil Screening Guidance: User's Guide; United States Office of Solid Waste and Emergency Response, Publication 9355.4-23, July 1996

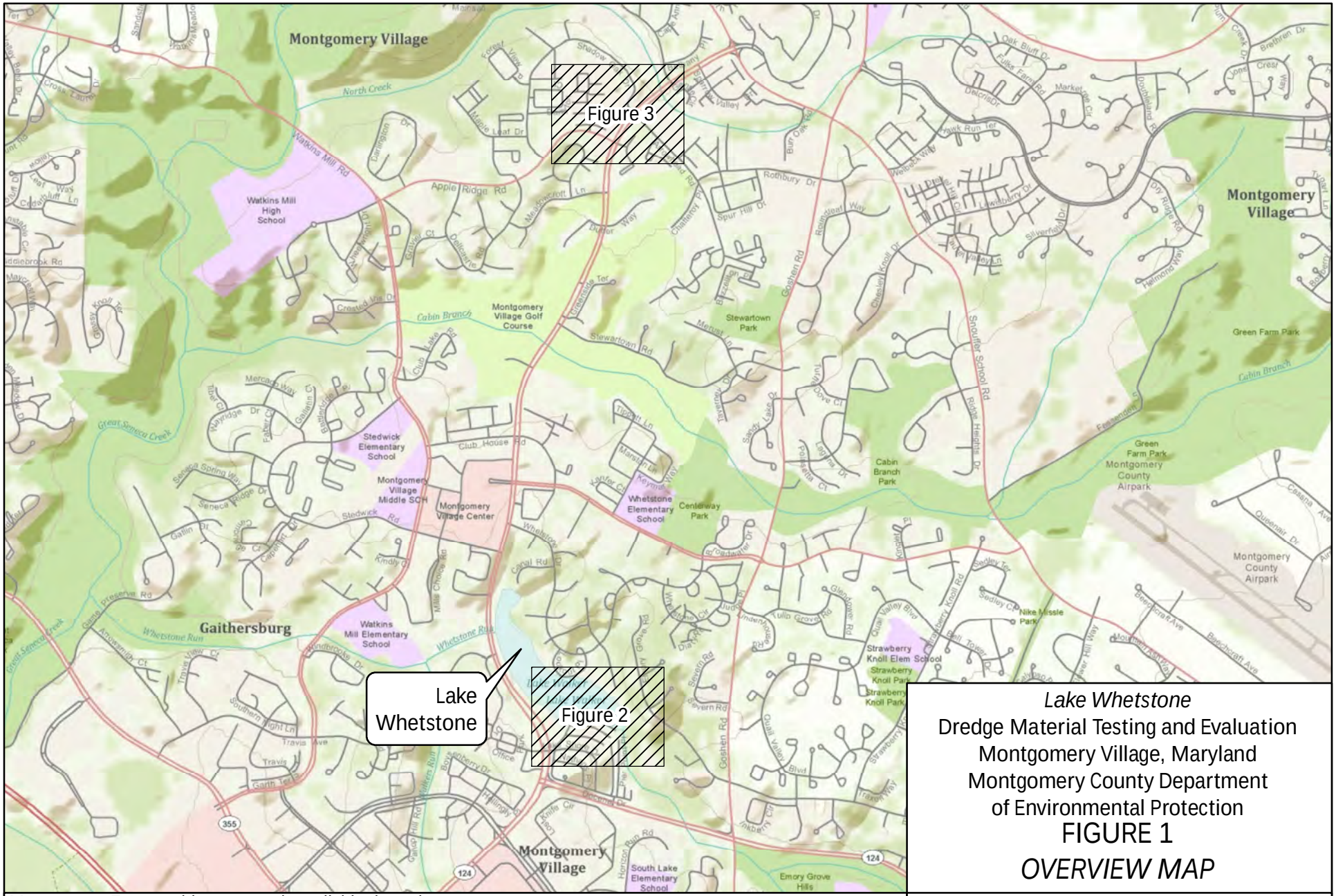
USEPA, 1994, Sampling Equipment Decontamination; United States Environmental Protection Agency, SOP 2006, August 11, 1994.

Winfield, L. E., and Lee, C. R., 1999, Dredged Material Characterization Tests for Beneficial Use Suitability; DOER Technical Notes Collection (TN DOER-C2), U.S. Army Engineer Research and Development Center, Vicksburg, MS, May 1999.

FIGURES

FIGURE 1

Overview Map



Lake Whetstone
Dredge Material Testing and Evaluation
Montgomery Village, Maryland
Montgomery County Department
of Environmental Protection

FIGURE 1

OVERVIEW MAP

Map source: Topographic maps made available through ArcGIS online base maps.

Date: November, 2011

N

GANNETT FLEMING, INC.

Scale (Feet)
0 500 1,000 2,000 3,000

1 inch = 2,000 feet

FIGURE 2

Lake Whetstone Sampling Locations

Lake Whetstone
Dredge Material Testing and Evaluation
Montgomery Village, Maryland
Montgomery County Department
of Environmental Protection

FIGURE 2

SAMPLING LOCATIONS

Map source: 2007 high resolution aerial photography of Montgomery County, MD made available via MDSHA 6-inch aerial imagery service.

Date: November, 2011

N

GANNETT FLEMING, INC.

Scale (Feet)
0 50 100 200 300

1 inch = 200 feet

FIGURE 3

Sample S-4 Sampling Location

Lake Whetstone
Dredge Material Testing and Evaluation
Montgomery Village, Maryland
Montgomery County Department
of Environmental Protection

FIGURE 3

SAMPLE S-4 LOCATION

Map source: 2007 high resolution aerial photography of Montgomery County, MD made available via MDSHA 6-inch aerial imagery service.

Date: November, 2011

N

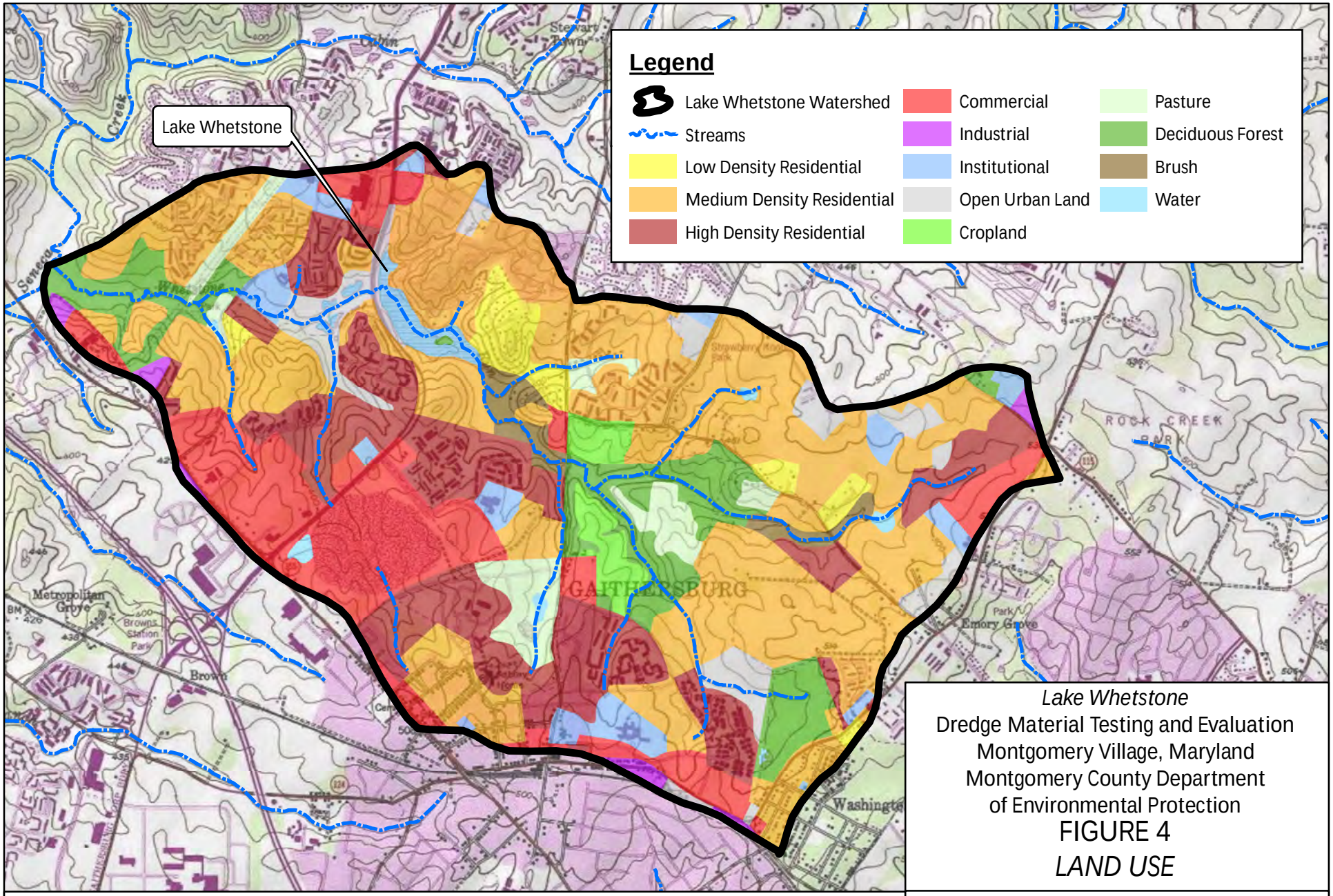
GANNETT FLEMING, INC.

Scale (Feet)
0 50 100 200 300

1 inch = 200 feet

FIGURE 4

Land Use



Lake Whetstone
Dredge Material Testing and Evaluation
Montgomery Village, Maryland
Montgomery County Department
of Environmental Protection

FIGURE 4
LAND USE

Map source: Maryland Department of Planning - 2002 land use/land cover of Maryland and Maryland DNR 14-digit HUC boundaries.

Date: November, 2011

N

GANNETT FLEMING, INC.

Scale (Feet)
0 625 1,250 2,500 3,750

1 inch = 2,500 feet

APPENDIX A

LABORATORY RESULTS

A.1 TESTAMERICA RESULTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-4815-1
Client Project/Site: 054926 Lake Whetstone
Revision: 1

For:
Gannett Fleming
207 Senate
PO BOX 67100
Harrisburg, Pennsylvania 17106-7100

Attn: Jeremy Robinson

Authorized for release by:
11/16/2011 1:49:45 PM

Carrie Gamber
Project Manager II
carrie.gamber@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Definitions 5
Certification Summary 6
Sample Summary 8
Method Summary 9
Client Sample Results 10
QC Sample Results 28
QC Association 50
Subcontract Data 56
Chain of Custody 64
Receipt Checklists 67

Job ID: 180-4815-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-4815-1 Revised

NOTE: This revised report contains the dioxins data that were inadvertently omitted from the original report.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS Semi VOA
Method(s) 8270C LL: The matrix spike/matrix spike duplicate (MS/MSD) for batch 17878 exceeded control limits for several analyte(s): These analytes have been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

Method(s) 8270C LL: The following sample(s) was diluted due to the nature of the sample matrix: (180-4815-4 MS), (180-4815-4 MSD), S-1 (180-4815-1), S-2 (180-4815-2), S-3 (180-4815-3), S-4 (180-4815-4). Elevated reporting limits (RLs) are provided. Typical sediment matrix.

No other analytical or quality issues were noted.

GC Semi VOA
Method(s) Lloyd Kahn: The matrix spike (MS) recovery for batch 18052 was outside of control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Several samples were analyzed at a dilution for pesticides. Elevated reporting limits (RLs) are provided.

The LCS and/or LCSD recovered outside of QC limits for PCB 101 on one of the columns.

No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 350.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 17804 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 365.1, SM 4500 P E: The Phosphorus matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with batch 20028 were outside control limits: S-1 (180-4815-1), S-2 (180-4815-2), S-3 (180-4815-3), S-4 (180-4815-4). The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Subcontract Work
Methods Calcium Carbonate Equivalents, CEC, Salinity, SAR, Carbon:Nitrogen Ratio, Sulfur, DTPA Metals, Wetland Conditions: These methods were subcontracted to A&L Analytical Laboratories-Memphis,TN. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.

Method Dioxins low res: This method was subcontracted to TestAmerica West Sacramento.

Case Narrative

TestAmerica West Sacramento Project Number G1J140481

General Comments
The samples were received by the laboratory at 1 degrees C. Wet ice was used as the cooling agent.

There were no other anomalies associated with this project.

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
F	MS or MSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
F	MS or MSD exceeds the control limits
X	Surrogate is outside control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
F	RPD of the MS and MSD exceeds the control limits
*	LCS or LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

DIOXIN

Qualifier	Qualifier Description
J	Estimated result. Result is less than the reporting limit.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
F	MS or MSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	Arkansas	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	Virginia	NELAC	3	460189
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-11-00328
TestAmerica North Canton	Virginia	NELAC Secondary AB	3	460175
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210
TestAmerica North Canton	Wisconsin	State Program	5	999518190
TestAmerica West Sacramento	A2LA	DoD ELAP		2928-01
TestAmerica West Sacramento	Alaska	Alaska UST	10	UST-055
TestAmerica West Sacramento	Arizona	State Program	9	AZ0708
TestAmerica West Sacramento	Arkansas	State Program	6	88-0691
TestAmerica West Sacramento	Colorado	State Program	8	N/A
TestAmerica West Sacramento	Connecticut	State Program	1	PH-0691
TestAmerica West Sacramento	Florida	NELAC	4	E87570
TestAmerica West Sacramento	Georgia	State Program	4	960
TestAmerica West Sacramento	Guam	State Program	9	N/A
TestAmerica West Sacramento	Hawaii	State Program	9	N/A
TestAmerica West Sacramento	Illinois	NELAC	5	200060
TestAmerica West Sacramento	Kansas	NELAC	7	E-10375
TestAmerica West Sacramento	Louisiana	NELAC	6	30612
TestAmerica West Sacramento	Michigan	State Program	5	9947

Certification Summary

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica West Sacramento	Nevada	State Program	9	CA44
TestAmerica West Sacramento	New Jersey	NELAC	2	CA005
TestAmerica West Sacramento	New Mexico	State Program	6	N/A
TestAmerica West Sacramento	New York	NELAC	2	11666
TestAmerica West Sacramento	Oregon	NELAC	10	CA200005
TestAmerica West Sacramento	Pennsylvania	NELAC	3	68-01272
TestAmerica West Sacramento	South Carolina	State Program	4	87014
TestAmerica West Sacramento	Texas	NELAC	6	T104704399-08-TX
TestAmerica West Sacramento	US Fish & Wildlife	US Fish & Wildlife		LE148388-0
TestAmerica West Sacramento	USDA	USDA		P330-09-00055
TestAmerica West Sacramento	Utah	NELAC	8	QUAN1
TestAmerica West Sacramento	Virginia	State Program	3	178
TestAmerica West Sacramento	Washington	State Program	10	C581
TestAmerica West Sacramento	West Virginia	West Virginia DEP	3	334
TestAmerica West Sacramento	West Virginia	West Virginia DHHR (DW)	3	9930C
TestAmerica West Sacramento	Wisconsin	State Program	5	998204680
TestAmerica West Sacramento	Wyoming	State Program	8	8TMS-Q

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-4815-1	S-1	Sediment	10/10/11 12:10	10/12/11 10:00
180-4815-2	S-2	Sediment	10/10/11 14:40	10/12/11 10:00
180-4815-3	S-3	Sediment	10/10/11 15:00	10/12/11 10:00
180-4815-4	S-4	Sediment	10/10/11 13:20	10/12/11 10:00

Method Summary

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL PIT
8081A	Organochlorine Pesticides (GC)	SW846	TAL PIT
8082A	PCB Congeners (GC)	SW846	TAL PIT
8280A	Dioxins/Furans, HRGC/LRMS (8280A)	SW846	TAL WSC
6020	Metals (ICP/MS)	SW846	TAL PIT
7471A	Mercury (CVAA)	SW846	TAL PIT
350.1	Nitrogen, Ammonia	MCAWW	TAL PIT
9045C	pH	SW846	TAL PIT
9056A	Anions, Ion Chromatography	SW846	TAL PIT
D 2216-90	Moisture, Percent (D2216-90) - AFCEE	ASTM	TAL WSC
Lloyd Kahn	Organic Carbon, Total (TOC)	EPA	TAL PIT
Moisture	Percent Moisture	EPA	TAL PIT
SM 2510B	Conductivity, Specific Conductance	SM	TAL PIT
SM 4500 Norg C	Nitrogen-Total Kjeldahl	SM	TAL NC
SM 4500 P E	Phosphorus	SM	TAL NC
Calcium Carbonate Equivalents, CEC, Sali	General Sub Contract Method	NONE	A&L Analyt
DTPA Metals, Wetland Conditions	General Sub Contract Method	NONE	A&L Analyt

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
NONE = NONE
SM = "Standard Methods For The Examination Of Water And Wastewater",
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

A&L Analyt = A&L Analytical Laboratories-Memphis,TN, 2790 Whitten Road, Memphis, TN 38133, TEL (901)213-2400
TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058
TAL WSC = TestAmerica West Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-1

Date Collected: 10/10/11 12:10
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-1

Matrix: Sediment
Percent Solids: 84.6

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzidine	ND		2000	410	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
1,2-Dichlorobenzene	ND		97	10	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
1,3-Dichlorobenzene	ND		97	7.6	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
1,4-Dichlorobenzene	ND		97	7.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Benzoic acid	ND		500	41	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Benzyl alcohol	ND		97	12	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Bis(2-chloroethyl)ether	ND		20	2.6	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Bis(2-chloroethoxy)methane	ND		97	6.5	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Bis(2-ethylhexyl) phthalate	**54**	**J**	200	16	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
4-Bromophenyl phenyl ether	ND		97	8.5	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Butyl benzyl phthalate	ND		97	13	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
4-Chloro-3-methylphenol	ND		97	9.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2-Chloronaphthalene	ND		20	2.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2-Chlorophenol	ND		97	8.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
4-Chlorophenyl phenyl ether	ND		97	11	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Dibenzofuran	ND		97	9.7	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Di-n-butyl phthalate	**19**	**J**	97	12	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
3,3'-Dichlorobenzidine	ND		97	10	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2,4-Dichlorophenol	ND		20	2.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Diethyl phthalate	ND		97	11	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
4,6-Dinitro-2-methylphenol	ND		500	39	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2,4-Dimethylphenol	ND		97	15	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Dimethyl phthalate	ND		97	11	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2,4-Dinitrophenol	ND		500	120	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2,4-Dinitrotoluene	ND		97	7.9	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2,6-Dinitrotoluene	ND		97	10	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
1,2-Diphenylhydrazine(as Azobenzene)	ND		97	13	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Di-n-octyl phthalate	ND		97	10	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Hexachlorobenzene	ND		20	2.1	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Hexachlorobutadiene	ND		20	2.2	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Hexachloroethane	ND		97	7.1	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Hexachlorocyclopentadiene	ND		97	11	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Isophorone	ND		97	7.4	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2-Methylphenol	ND		97	6.9	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Methylphenol, 3 & 4	ND		97	9.6	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Nitrobenzene	ND		200	8.2	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2-Nitrophenol	ND		97	11	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
4-Nitrophenol	ND		500	36	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
N-Nitrosodiphenylamine	ND		97	9.1	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
N-Nitrosodimethylamine	ND		97	8.4	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
N-Nitrosodi-n-propylamine	ND		20	2.3	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2,2'-oxybis[1-chloropropane]	ND		20	2.1	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Pentachlorophenol	ND		97	8.8	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Phenol	ND		20	2.3	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
1,2,4-Trichlorobenzene	ND		97	5.4	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2,4,6-Trichlorophenol	ND		97	15	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
2-Methylnaphthalene	ND		20	1.8	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
1-Methylnaphthalene	ND		20	2.1	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Naphthalene	ND		20	1.7	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-1

Date Collected: 10/10/11 12:10
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-1

Matrix: Sediment
Percent Solids: 84.6

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	ND		20	2.2	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Acenaphthene	**6.2**	**J**	20	1.9	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Fluorene	**8.8**	**J**	20	2.6	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Phenanthrene	**160**		20	3.1	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Anthracene	**30**		20	1.9	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Fluoranthene	**460**		20	2.1	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Pyrene	**370**		20	2.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Benzo[a]anthracene	**200**		20	2.5	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Chrysene	**260**		20	2.3	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Benzo[b]fluoranthene	**280**		20	3.1	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Benzo[k]fluoranthene	**150**		20	4.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Benzo[a]pyrene	**240**		20	2.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Indeno[1,2,3-cd]pyrene	**190**		20	2.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Dibenz(a,h)anthracene	**70**		20	2.2	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5
Benzo[g,h,i]perylene	**220**		20	2.0	ug/Kg	☼	10/19/11 04:28	10/25/11 11:55	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*74*		*21 - 116*	*10/19/11 04:28*	*10/25/11 11:55*	*5*
2-Fluorobiphenyl	*56*		*28 - 108*	*10/19/11 04:28*	*10/25/11 11:55*	*5*
2-Fluorophenol	*44*		*28 - 107*	*10/19/11 04:28*	*10/25/11 11:55*	*5*
Nitrobenzene-d5	*45*		*27 - 110*	*10/19/11 04:28*	*10/25/11 11:55*	*5*
Phenol-d5	*49*		*30 - 112*	*10/19/11 04:28*	*10/25/11 11:55*	*5*
Terphenyl-d14	*64*		*21 - 130*	*10/19/11 04:28*	*10/25/11 11:55*	*5*

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.25	0.032	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
4,4'-DDE	**0.24**	**J**	0.25	0.037	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
4,4'-DDT	**0.12**	**J**	0.25	0.037	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Aldrin	ND		0.25	0.044	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
alpha-BHC	ND		0.25	0.040	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
beta-BHC	ND		0.25	0.064	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Chlordane (technical)	ND		2.5	0.11	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Chlorobenside	ND		0.25	0.13	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
DCPA	ND		0.25	0.037	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
delta-BHC	ND		0.25	0.038	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Dieldrin	**0.059**	**J p**	0.25	0.041	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Endosulfan I	ND		0.25	0.046	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Endosulfan II	ND		0.25	0.043	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Endosulfan sulfate	ND		0.25	0.026	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Endrin	**0.063**	**J**	0.25	0.048	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Endrin aldehyde	ND		0.25	0.048	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
gamma-BHC (Lindane)	**0.35**	**B**	0.25	0.043	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Heptachlor	ND		0.25	0.054	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Heptachlor epoxide	ND		0.25	0.048	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Methoxychlor	ND		0.49	0.051	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Mirex	ND		0.25	0.023	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5
Toxaphene	ND		9.8	1.6	ug/Kg	☼	10/19/11 04:33	10/27/11 09:36	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*57*		*45 - 140*	*10/19/11 04:33*	*10/27/11 09:36*	*5*

Client Sample ID: S-1

Date Collected: 10/10/11 12:10
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-1

Matrix: Sediment
Percent Solids: 84.6

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	62		45 - 140	10/19/11 04:33	10/27/11 09:36	5
DCB Decachlorobiphenyl (Surr)	70		45 - 140	10/19/11 04:33	10/27/11 09:36	5
DCB Decachlorobiphenyl (Surr)	68		45 - 140	10/19/11 04:33	10/27/11 09:36	5

Method: 8082A - PCB Congeners (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB 8	**0.16**	**J p**	0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 18	ND		0.58	0.080	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 28	ND		0.58	0.13	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 44	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 49	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 52	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 66	ND		0.58	0.095	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 77	ND		0.58	0.13	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 87	ND		0.58	0.11	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 90	ND		0.58	0.089	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 101	ND	*	0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 105	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 118	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 126	ND		0.58	0.15	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 128	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 138	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 153	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 156	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 169	ND		0.58	0.11	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 170	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 180	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 209	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 183	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:14	1
PCB 184	ND		0.58	0.10	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 187	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 195	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1
PCB 206	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 13:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	77		35 - 140	10/20/11 06:40	10/24/11 13:14	1
PCB 205	114		35 - 140	10/20/11 06:40	10/24/11 13:14	1

Method: 8280A - Dioxins/Furans, HRGC/LRMS (8280A)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.60	0.027	1		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
Total TCDD	ND		0.60	0.38			ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,7,8-PeCDD	ND		1.5	0.061	0.5		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
Total PeCDD	ND		1.5	0.11			ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,4,7,8-HxCDD	ND		1.5	0.043	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,6,7,8-HxCDD	ND		1.5	0.041	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,7,8,9-HxCDD	ND		1.5	0.053	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
Total HxCDD	ND		1.5	0.062			ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,4,6,7,8-HpCDD	ND		1.5	0.048	0.01		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
Total HpCDD	ND		1.5	0.048			ng/g	☼	10/28/11 16:30	11/01/11 16:08	1

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-1

Date Collected: 10/10/11 12:10
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-1

Matrix: Sediment

Method: 8280A - Dioxins/Furans, HRGC/LRMS (8280A) (Continued)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
OCDD	ND		3.0	0.098	0.001		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
2,3,7,8-TCDF	ND		0.60	0.021	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
Total TCDF	ND		0.60	0.11			ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,7,8-PeCDF	ND		1.5	0.023	0.05		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
2,3,4,7,8-PeCDF	ND		1.5	0.031	0.5		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
Total PeCDF	ND		1.5	0.048			ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,4,7,8-HxCDF	ND		1.5	0.018	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,6,7,8-HxCDF	ND		1.5	0.028	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
2,3,4,6,7,8-HxCDF	ND		1.5	0.023	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,7,8,9-HxCDF	ND		1.5	0.028	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
Total HxCDF	ND		1.5	0.063			ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,4,6,7,8-HpCDF	ND		1.5	0.039	0.01		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
1,2,3,4,7,8,9-HpCDF	ND		1.5	0.10	0.01		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
Total HpCDF	ND		1.5	0.11			ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
OCDF	ND		3.0	0.042	0.001		ng/g	☼	10/28/11 16:30	11/01/11 16:08	1
Total TEQ	***(EPA 1989)***					**0.00**					

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*106*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:08*	*1*

Internal Standard	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*45*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:08*	*1*
13C-2,3,7,8-TCDF	*46*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:08*	*1*
13C-1,2,3,6,7,8-HxCDD	*47*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:08*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*45*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:08*	*1*
13C-OCDD	*44*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:08*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3600**		1.7	0.17	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Antimony	**0.16**	**B**	0.12	0.0015	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Arsenic	**1.4**		0.058	0.011	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Beryllium	**0.29**		0.058	0.0044	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Cadmium	**0.095**		0.058	0.0041	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Chromium	**22**	**B**	0.12	0.0036	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Cobalt	**7.1**		0.029	0.00087	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Copper	**9.3**		0.12	0.019	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Iron	**16000**	**B**	2.9	0.21	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Lead	**6.2**	**B**	0.058	0.0022	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Manganese	**110**	**B**	0.29	0.0060	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Nickel	**20**		0.058	0.0066	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Selenium	**0.28**	**J**	0.29	0.029	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Potassium	**330**		5.8	0.79	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Silver	**0.016**	**J**	0.058	0.0023	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Thallium	**0.047**	**J**	0.058	0.0012	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Tin	**2.8**		0.29	0.035	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Zinc	**32**		0.29	0.038	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1
Sodium	**32**	**B**	5.8	0.80	mg/Kg	☼	10/20/11 16:15	10/27/11 18:32	1

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-1

Date Collected: 10/10/11 12:10
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-1
Matrix: Sediment
Percent Solids: 84.6

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0089	J	0.019	0.0063	mg/Kg	☼	10/26/11 03:19	10/26/11 08:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia, distilled	8.5		5.9	2.6	mg/Kg	☼	10/15/11 16:45	10/18/11 12:59	1
pH	6.65		0.100	0.100	SU			10/14/11 14:04	1
Percent Moisture	17.0		0.10	0.10	%			10/24/11 07:16	1
Total Organic Carbon - Duplicates	2500		1200	300	mg/Kg	☼		10/14/11 18:31	1
Percent Moisture	15		0.10	0.10	%			10/13/11 09:23	1
Nitrogen, Kjeldahl	170	J B	180	63	mg/Kg	☼	10/17/11 15:07	10/18/11 13:33	1
Total Phosphorus as PO4	33		12	0.12	mg/Kg	☼	10/19/11 10:58	10/19/11 15:16	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.58	0.17	mg/Kg	☼		10/17/11 19:24	1
Chloride	37	B	12	2.6	mg/Kg	☼		10/17/11 19:24	1
Nitrite as N	ND		0.58	0.19	mg/Kg	☼		10/17/11 19:24	1
Orthophosphate	ND		5.8	0.71	mg/Kg	☼		10/17/11 19:24	1
Specific Conductance	230		10	10	umhos/cm			10/17/11 16:42	1

Client Sample ID: S-2

Date Collected: 10/10/11 14:40
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-2
Matrix: Sediment
Percent Solids: 70.9

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzidine	ND		4700	980	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
1,2-Dichlorobenzene	ND		230	25	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
1,3-Dichlorobenzene	ND		230	18	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
1,4-Dichlorobenzene	ND		230	17	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Benzoic acid	ND		1200	97	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Benzyl alcohol	ND		230	28	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Bis(2-chloroethyl)ether	ND		47	6.3	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Bis(2-chloroethoxy)methane	ND		230	15	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Bis(2-ethylhexyl) phthalate	300	J	470	38	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
4-Bromophenyl phenyl ether	ND		230	20	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Butyl benzyl phthalate	ND		230	32	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
4-Chloro-3-methylphenol	ND		230	22	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2-Chloronaphthalene	ND		47	4.9	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2-Chlorophenol	ND		230	19	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
4-Chlorophenyl phenyl ether	ND		230	26	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Dibenzofuran	ND		230	23	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Di-n-butyl phthalate	ND		230	29	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
3,3'-Dichlorobenzidine	ND		230	25	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2,4-Dichlorophenol	ND		47	4.7	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Diethyl phthalate	ND		230	26	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
4,6-Dinitro-2-methylphenol	ND		1200	94	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2,4-Dimethylphenol	ND		230	37	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Dimethyl phthalate	ND		230	26	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2,4-Dinitrophenol	ND		1200	280	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-2

Date Collected: 10/10/11 14:40
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-2

Matrix: Sediment
Percent Solids: 70.9

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		230	19	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2,6-Dinitrotoluene	ND		230	24	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
1,2-Diphenylhydrazine(as Azobenzene)	ND		230	30	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Di-n-octyl phthalate	ND		230	25	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Hexachlorobenzene	ND		47	5.0	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Hexachlorobutadiene	ND		47	5.2	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Hexachloroethane	ND		230	17	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Hexachlorocyclopentadiene	ND		230	25	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Isophorone	ND		230	18	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2-Methylphenol	ND		230	16	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Methylphenol, 3 & 4	ND		230	23	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Nitrobenzene	ND		470	20	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2-Nitrophenol	ND		230	26	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
4-Nitrophenol	ND		1200	85	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
N-Nitrosodiphenylamine	ND		230	22	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
N-Nitrosodimethylamine	ND		230	20	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
N-Nitrosodi-n-propylamine	ND		47	5.5	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2,2'-oxybis[1-chloropropane]	ND		47	5.1	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Pentachlorophenol	ND		230	21	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Phenol	ND		47	5.5	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
1,2,4-Trichlorobenzene	ND		230	13	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2,4,6-Trichlorophenol	ND		230	35	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
2-Methylnaphthalene	ND		47	4.2	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
1-Methylnaphthalene	ND		47	5.0	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Naphthalene	ND		47	4.0	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Acenaphthylene	ND		47	5.4	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Acenaphthene	**20**	**J**	47	4.5	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Fluorene	**42**	**J**	47	6.2	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Phenanthrene	**470**		47	7.5	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Anthracene	**70**		47	4.6	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Fluoranthene	**1100**		47	5.0	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Pyrene	**900**		47	4.7	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Benzo[a]anthracene	**450**		47	5.9	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Chrysene	**680**		47	5.6	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Benzo[b]fluoranthene	**930**		47	7.4	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Benzo[k]fluoranthene	ND		47	9.5	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Benzo[a]pyrene	**530**		47	4.7	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Indeno[1,2,3-cd]pyrene	**460**		47	4.8	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Dibenz(a,h)anthracene	**190**		47	5.2	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10
Benzo[g,h,i]perylene	**520**		47	4.7	ug/Kg	☼	10/19/11 04:28	10/25/11 12:17	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*96*		*21 - 116*	*10/19/11 04:28*	*10/25/11 12:17*	*10*
2-Fluorobiphenyl	*87*		*28 - 108*	*10/19/11 04:28*	*10/25/11 12:17*	*10*
2-Fluorophenol	*75*		*28 - 107*	*10/19/11 04:28*	*10/25/11 12:17*	*10*
Nitrobenzene-d5	*74*		*27 - 110*	*10/19/11 04:28*	*10/25/11 12:17*	*10*
Phenol-d5	*80*		*30 - 112*	*10/19/11 04:28*	*10/25/11 12:17*	*10*
Terphenyl-d14	*80*		*21 - 130*	*10/19/11 04:28*	*10/25/11 12:17*	*10*

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-2

Date Collected: 10/10/11 14:40
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-2

Matrix: Sediment
Percent Solids: 70.9

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**1.0**		0.29	0.038	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
4,4'-DDE	**1.6**		0.29	0.044	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
4,4'-DDT	**0.29**	**p**	0.29	0.044	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Aldrin	ND		0.29	0.053	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
alpha-BHC	ND		0.29	0.048	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
beta-BHC	ND		0.29	0.076	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Chlordane (technical)	**3.0**	**p**	2.9	0.13	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Chlorobenside	ND		0.29	0.15	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
DCPA	ND		0.29	0.045	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
delta-BHC	ND		0.29	0.045	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Dieldrin	ND		0.29	0.049	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Endosulfan I	ND		0.29	0.055	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Endosulfan II	ND		0.29	0.052	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Endosulfan sulfate	ND		0.29	0.031	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Endrin	**0.14**	**J p**	0.29	0.057	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Endrin aldehyde	ND		0.29	0.057	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
gamma-BHC (Lindane)	**0.33**	**B**	0.29	0.051	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Heptachlor	ND		0.29	0.065	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Heptachlor epoxide	**0.082**	**J p**	0.29	0.057	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Methoxychlor	**0.35**	**J p**	0.59	0.061	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Mirex	ND		0.29	0.027	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5
Toxaphene	**24**		12	2.0	ug/Kg	☼	10/19/11 04:33	10/27/11 09:52	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*76*		*45 - 140*	*10/19/11 04:33*	*10/27/11 09:52*	*5*
Tetrachloro-m-xylene	*83*		*45 - 140*	*10/19/11 04:33*	*10/27/11 09:52*	*5*
DCB Decachlorobiphenyl (Surr)	*109*		*45 - 140*	*10/19/11 04:33*	*10/27/11 09:52*	*5*
DCB Decachlorobiphenyl (Surr)	*93*		*45 - 140*	*10/19/11 04:33*	*10/27/11 09:52*	*5*

Method: 8082A - PCB Congeners (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB 8	**0.35**	**J p**	0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 18	ND		0.68	0.094	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 28	**0.19**	**J p**	0.68	0.15	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 44	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 49	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 52	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1
PCB 66	ND		0.68	0.11	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1
PCB 77	ND		0.68	0.15	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1
PCB 87	ND		0.68	0.13	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 90	ND		0.68	0.10	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 101	**0.14**	**J p**	0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1
PCB 105	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 118	**0.26**	**J**	0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1
PCB 126	ND		0.68	0.18	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 128	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1
PCB 138	**0.26**	**J p**	0.68	0.15	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 153	**0.22**	**J p**	0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 156	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1
PCB 169	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 170	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-2
Date Collected: 10/10/11 14:40
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-2
Matrix: Sediment
Percent Solids: 70.9

Method: 8082A - PCB Congeners (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB 180	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1
PCB 209	ND		0.68	0.15	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 183	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 184	ND		0.68	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1
PCB 187	ND		0.68	0.15	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 195	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 206	ND		0.68	0.14	ug/Kg	☼	10/20/11 06:40	10/24/11 14:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*87*		*35 - 140*	*10/20/11 06:40*	*10/24/11 14:29*	*1*
PCB 205	*107*		*35 - 140*	*10/20/11 06:40*	*10/24/11 14:29*	*1*

Method: 8280A - Dioxins/Furans, HRGC/LRMS (8280A)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.72	0.021	1		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
Total TCDD	ND		0.72	0.48			ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,7,8-PeCDD	ND		1.8	0.036	0.5		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
Total PeCDD	ND		1.8	0.12			ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,4,7,8-HxCDD	ND		1.8	0.021	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,6,7,8-HxCDD	ND		1.8	0.024	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,7,8,9-HxCDD	ND		1.8	0.030	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
Total HxCDD	ND		1.8	0.036			ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,4,6,7,8-HpCDD	ND		1.8	0.12	0.01		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
Total HpCDD	ND		1.8	0.12			ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
OCDD	**3.0**	**J**	3.6	0.016	0.001	0.0030	ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
2,3,7,8-TCDF	ND		0.72	0.024	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
Total TCDF	ND		0.72	0.024			ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,7,8-PeCDF	ND		1.8	0.018	0.05		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
2,3,4,7,8-PeCDF	ND		1.8	0.011	0.5		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
Total PeCDF	ND		1.8	0.023			ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,4,7,8-HxCDF	ND		1.8	0.021	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,6,7,8-HxCDF	ND		1.8	0.014	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
2,3,4,6,7,8-HxCDF	ND		1.8	0.014	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,7,8,9-HxCDF	ND		1.8	0.012	0.1		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
Total HxCDF	ND		1.8	0.036			ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,4,6,7,8-HpCDF	ND		1.8	0.034	0.01		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
1,2,3,4,7,8,9-HpCDF	ND		1.8	0.046	0.01		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
Total HpCDF	ND		1.8	0.047			ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
OCDF	ND		3.6	0.034	0.001		ng/g	☼	10/28/11 16:30	11/01/11 16:56	0.97
Total TEQ	***(EPA 1989)***					**0.0030**					

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*129*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:56*	*0.97*

Internal Standard	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*56*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:56*	*0.97*
13C-2,3,7,8-TCDF	*58*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:56*	*0.97*
13C-1,2,3,6,7,8-HxCDD	*58*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:56*	*0.97*
13C-1,2,3,4,6,7,8-HpCDF	*59*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:56*	*0.97*
13C-OCDD	*60*		*25 - 150*	*10/28/11 16:30*	*11/01/11 16:56*	*0.97*

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-2

Date Collected: 10/10/11 14:40
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-2
Matrix: Sediment
Percent Solids: 70.9

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	8900		2.0	0.19	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Antimony	0.16	B	0.14	0.0018	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Arsenic	1.7		0.068	0.012	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Beryllium	0.57		0.068	0.0051	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Cadmium	0.25		0.068	0.0047	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Chromium	31	B	0.14	0.0041	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Cobalt	12		0.034	0.0010	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Copper	19		0.14	0.022	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Iron	18000	B	3.4	0.24	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Lead	27	B	0.068	0.0026	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Manganese	210	B	0.34	0.0070	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Nickel	27		0.068	0.0077	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Selenium	0.72		0.34	0.034	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Potassium	780		6.8	0.92	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Silver	0.035	J	0.068	0.0026	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Thallium	0.14		0.068	0.0014	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Tin	1.2		0.34	0.040	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Zinc	65		0.34	0.044	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1
Sodium	49	B	6.8	0.93	mg/Kg	☼	10/20/11 16:15	10/27/11 18:36	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.033		0.023	0.0077	mg/Kg	☼	10/26/11 03:19	10/26/11 08:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia, distilled	63		7.0	3.1	mg/Kg	☼	10/15/11 16:45	10/18/11 13:00	1
pH	6.52		0.100	0.100	SU			10/14/11 14:05	1
Percent Moisture	32.8		0.10	0.10	%			10/24/11 07:17	1
Total Organic Carbon - Duplicates	7900		1400	350	mg/Kg	☼		10/14/11 18:41	1
Percent Moisture	29		0.10	0.10	%			10/13/11 09:23	1
Nitrogen, Kjeldahl	1000	B	220	76	mg/Kg	☼	10/17/11 15:07	10/18/11 13:33	1
Total Phosphorus as PO4	80		15	0.15	mg/Kg	☼	10/19/11 10:58	10/19/11 15:16	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.71	0.21	mg/Kg	☼		10/17/11 19:38	1
Chloride	40	B	14	3.1	mg/Kg	☼		10/17/11 19:38	1
Nitrite as N	ND		0.71	0.23	mg/Kg	☼		10/17/11 19:38	1
Orthophosphate	ND		7.1	0.86	mg/Kg	☼		10/17/11 19:38	1
Specific Conductance	270		10	10	umhos/cm			10/17/11 16:42	1

Client Sample ID: S-3

Date Collected: 10/10/11 15:00
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-3
Matrix: Sediment
Percent Solids: 52.2

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzidine	ND		9600	2000	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
1,2-Dichlorobenzene	ND		470	50	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-3
Date Collected: 10/10/11 15:00
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-3
Matrix: Sediment
Percent Solids: 52.2

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		470	37	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
1,4-Dichlorobenzene	ND		470	34	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Benzoic acid	ND		2400	200	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Benzyl alcohol	ND		470	58	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Bis(2-chloroethyl)ether	ND		96	13	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Bis(2-chloroethoxy)methane	ND		470	31	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Bis(2-ethylhexyl) phthalate	**430**	**J**	950	77	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
4-Bromophenyl phenyl ether	ND		470	41	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Butyl benzyl phthalate	ND		470	65	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
4-Chloro-3-methylphenol	ND		470	44	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2-Chloronaphthalene	ND		96	9.9	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2-Chlorophenol	ND		470	39	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
4-Chlorophenyl phenyl ether	ND		470	53	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Dibenzofuran	ND		470	47	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Di-n-butyl phthalate	ND		470	60	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
3,3'-Dichlorobenzidine	ND		470	50	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2,4-Dichlorophenol	ND		96	9.6	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Diethyl phthalate	ND		470	52	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
4,6-Dinitro-2-methylphenol	ND		2400	190	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2,4-Dimethylphenol	ND		470	74	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Dimethyl phthalate	ND		470	52	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2,4-Dinitrophenol	ND		2400	570	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2,4-Dinitrotoluene	ND		470	38	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2,6-Dinitrotoluene	ND		470	49	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
1,2-Diphenylhydrazine(as Azobenzene)	ND		470	61	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Di-n-octyl phthalate	ND		470	50	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Hexachlorobenzene	ND		96	10	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Hexachlorobutadiene	ND		96	11	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Hexachloroethane	ND		470	34	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Hexachlorocyclopentadiene	ND		470	51	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Isophorone	ND		470	36	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2-Methylphenol	ND		470	33	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Methylphenol, 3 & 4	ND		470	47	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Nitrobenzene	ND		950	40	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2-Nitrophenol	ND		470	52	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
4-Nitrophenol	ND		2400	170	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
N-Nitrosodiphenylamine	ND		470	44	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
N-Nitrosodimethylamine	ND		470	41	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
N-Nitrosodi-n-propylamine	ND		96	11	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2,2'-oxybis[1-chloropropane]	ND		96	10	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Pentachlorophenol	ND		470	43	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Phenol	ND		96	11	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
1,2,4-Trichlorobenzene	ND		470	26	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2,4,6-Trichlorophenol	ND		470	71	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
2-Methylnaphthalene	ND		96	8.6	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
1-Methylnaphthalene	ND		96	10	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Naphthalene	ND		96	8.2	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Acenaphthylene	ND		96	11	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Acenaphthene	**20**	**J**	96	9.1	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-3

Date Collected: 10/10/11 15:00
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-3

Matrix: Sediment
Percent Solids: 52.2

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	39	J	96	13	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Phenanthrene	470		96	15	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Anthracene	72	J	96	9.3	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Fluoranthene	1500		96	10	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Pyrene	1200		96	9.6	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Benzo[a]anthracene	550		96	12	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Chrysene	980		96	11	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Benzo[b]fluoranthene	1500		96	15	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Benzo[k]fluoranthene	ND		96	19	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Benzo[a]pyrene	740		96	9.5	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Indeno[1,2,3-cd]pyrene	770		96	9.8	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Dibenz(a,h)anthracene	330		96	11	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15
Benzo[g,h,i]perylene	880		96	9.5	ug/Kg	☼	10/19/11 04:28	10/25/11 12:39	15

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*70*	*D*	*21 - 116*	*10/19/11 04:28*	*10/25/11 12:39*	*15*
2-Fluorobiphenyl	*64*	*D*	*28 - 108*	*10/19/11 04:28*	*10/25/11 12:39*	*15*
2-Fluorophenol	*49*	*D*	*28 - 107*	*10/19/11 04:28*	*10/25/11 12:39*	*15*
Nitrobenzene-d5	*55*	*D*	*27 - 110*	*10/19/11 04:28*	*10/25/11 12:39*	*15*
Phenol-d5	*57*	*D*	*30 - 112*	*10/19/11 04:28*	*10/25/11 12:39*	*15*
Terphenyl-d14	*63*	*D*	*21 - 130*	*10/19/11 04:28*	*10/25/11 12:39*	*15*

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	0.78		0.40	0.052	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
4,4'-DDE	1.2		0.40	0.060	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
4,4'-DDT	0.24	J p	0.40	0.060	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Aldrin	ND		0.40	0.071	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
alpha-BHC	ND		0.40	0.065	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
beta-BHC	0.17	J	0.40	0.10	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Chlordane (technical)	5.0	p	4.0	0.18	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Chlorobenside	ND		0.40	0.21	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
DCPA	ND		0.40	0.061	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
delta-BHC	0.57		0.40	0.061	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Dieldrin	0.14	J	0.40	0.066	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Endosulfan I	ND		0.40	0.075	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Endosulfan II	ND		0.40	0.070	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Endosulfan sulfate	0.085	J p	0.40	0.042	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Endrin	0.14	J p	0.40	0.077	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Endrin aldehyde	ND		0.40	0.077	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
gamma-BHC (Lindane)	0.65	B	0.40	0.070	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Heptachlor	ND		0.40	0.088	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Heptachlor epoxide	0.12	J p	0.40	0.077	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Methoxychlor	0.30	J p	0.80	0.083	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Mirex	ND		0.40	0.037	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5
Toxaphene	33	p	16	2.7	ug/Kg	☼	10/19/11 04:33	10/27/11 10:07	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*64*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:07*	*5*
Tetrachloro-m-xylene	*70*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:07*	*5*
DCB Decachlorobiphenyl (Surr)	*121*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:07*	*5*

Client Sample ID: S-3

Date Collected: 10/10/11 15:00
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-3

Matrix: Sediment
Percent Solids: 52.2

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	99		45 - 140	10/19/11 04:33	10/27/11 10:07	5

Method: 8082A - PCB Congeners (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB 8	**0.75**	**J p**	0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 18	**0.24**	**J p**	0.95	0.13	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 28	ND		0.95	0.21	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 44	ND		0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 49	ND		0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 52	ND		0.95	0.19	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 66	ND		0.95	0.16	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 77	ND		0.95	0.21	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 87	ND		0.95	0.18	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 90	ND		0.95	0.15	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 101	**0.26**	**J**	0.95	0.19	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 105	ND		0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 118	ND		0.95	0.19	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 126	ND		0.95	0.25	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 128	ND		0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 138	**0.30**	**J p**	0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 153	**0.24**	**J p**	0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 156	ND		0.95	0.19	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 169	ND		0.95	0.19	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 170	ND		0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 180	ND		0.95	0.19	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 209	ND		0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 183	ND		0.95	0.19	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 184	ND		0.95	0.16	ug/Kg	☼	10/20/11 06:40	10/24/11 14:54	1
PCB 187	ND		0.95	0.20	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 195	ND		0.95	0.19	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 206	ND		0.95	0.19	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	80		35 - 140	10/20/11 06:40	10/24/11 14:54	1
PCB 205	101		35 - 140	10/20/11 06:40	10/24/11 14:54	1

Method: 8280A - Dioxins/Furans, HRGC/LRMS (8280A)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.50	0.046	1		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
Total TCDD	ND		0.50	0.36			ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,7,8-PeCDD	ND		1.3	0.052	0.5		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
Total PeCDD	ND		1.3	0.091			ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,4,7,8-HxCDD	ND		1.3	0.043	0.1		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,6,7,8-HxCDD	ND		1.3	0.043	0.1		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,7,8,9-HxCDD	ND		1.3	0.034	0.1		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
Total HxCDD	ND		1.3	0.061			ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,4,6,7,8-HpCDD	ND		1.3	0.15	0.01		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
Total HpCDD	ND		1.3	0.21			ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
OCDD	**6.2**		2.5	0.022	0.001	0.0062	ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
2,3,7,8-TCDF	ND		0.50	0.039	0.1		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-3

Date Collected: 10/10/11 15:00
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-3

Matrix: Sediment

Method: 8280A - Dioxins/Furans, HRGC/LRMS (8280A) (Continued)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
Total TCDF	ND		0.50	0.043			ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,7,8-PeCDF	ND		1.3	0.020	0.05		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
2,3,4,7,8-PeCDF	ND		1.3	0.021	0.5		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
Total PeCDF	ND		1.3	0.028			ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,4,7,8-HxCDF	ND		1.3	0.024	0.1		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,6,7,8-HxCDF	ND		1.3	0.024	0.1		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
2,3,4,6,7,8-HxCDF	ND		1.3	0.033	0.1		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,7,8,9-HxCDF	ND		1.3	0.026	0.1		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
Total HxCDF	ND		1.3	0.052			ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,4,6,7,8-HpCDF	ND		1.3	0.039	0.01		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
1,2,3,4,7,8,9-HpCDF	ND		1.3	0.038	0.01		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
Total HpCDF	ND		1.3	0.045			ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
OCDF	ND		2.5	0.068	0.001		ng/g	☼	10/28/11 16:30	11/01/11 17:43	0.49
Total TEQ	***(EPA 1989)***					**0.0062**					

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*116*		*25 - 150*	*10/28/11 16:30*	*11/01/11 17:43*	*0.49*

Internal Standard	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*44*		*25 - 150*	*10/28/11 16:30*	*11/01/11 17:43*	*0.49*
13C-2,3,7,8-TCDF	*46*		*25 - 150*	*10/28/11 16:30*	*11/01/11 17:43*	*0.49*
13C-1,2,3,6,7,8-HxCDD	*50*		*25 - 150*	*10/28/11 16:30*	*11/01/11 17:43*	*0.49*
13C-1,2,3,4,6,7,8-HpCDF	*48*		*25 - 150*	*10/28/11 16:30*	*11/01/11 17:43*	*0.49*
13C-OCDD	*48*		*25 - 150*	*10/28/11 16:30*	*11/01/11 17:43*	*0.49*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**13000**		2.7	0.26	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Antimony	**0.30**	**B**	0.18	0.0024	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Arsenic	**2.6**		0.091	0.016	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Beryllium	**0.79**		0.091	0.0068	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Cadmium	**0.45**		0.091	0.0064	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Chromium	**41**	**B**	0.18	0.0055	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Cobalt	**16**		0.045	0.0014	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Copper	**30**		0.18	0.030	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Iron	**24000**	**B**	4.5	0.32	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Lead	**26**	**B**	0.091	0.0035	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Manganese	**290**	**B**	0.45	0.0094	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Nickel	**43**		0.091	0.010	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Selenium	**1.1**		0.45	0.046	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Potassium	**1200**		9.1	1.2	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Silver	**0.054**	**J**	0.091	0.0035	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Thallium	**0.20**		0.091	0.0018	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Tin	**1.8**		0.45	0.054	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Zinc	**120**		0.45	0.059	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1
Sodium	**70**	**B**	9.1	1.2	mg/Kg	☼	10/20/11 16:15	10/27/11 01:43	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.052**		0.031	0.010	mg/Kg	☼	10/26/11 03:19	10/26/11 08:46	1

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-3

Date Collected: 10/10/11 15:00
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-3
Matrix: Sediment
Percent Solids: 52.2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia, distilled	210		9.6	4.3	mg/Kg	☼	10/15/11 16:45	10/18/11 13:02	1
pH	6.61		0.100	0.100	SU			10/14/11 14:06	1
Percent Moisture	51.4		0.10	0.10	%			10/24/11 07:17	1
Total Organic Carbon - Duplicates	19000		1900	480	mg/Kg	☼		10/14/11 18:51	1
Percent Moisture	48		0.10	0.10	%			10/13/11 09:23	1
Nitrogen, Kjeldahl	2100	B	310	110	mg/Kg	☼	10/17/11 15:07	10/18/11 13:33	1
Total Phosphorus as PO4	180		19	0.19	mg/Kg	☼	10/19/11 10:58	10/19/11 15:16	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.95	0.28	mg/Kg	☼		10/17/11 19:52	1
Chloride	58	B	19	4.2	mg/Kg	☼		10/17/11 19:52	1
Nitrite as N	ND		0.95	0.31	mg/Kg	☼		10/17/11 19:52	1
Orthophosphate	ND		9.5	1.2	mg/Kg	☼		10/17/11 19:52	1
Specific Conductance	520		10	10	umhos/cm			10/17/11 17:22	1

Client Sample ID: S-4

Date Collected: 10/10/11 13:20
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-4
Matrix: Sediment
Percent Solids: 83.3

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzidine	ND		800	170	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
1,2-Dichlorobenzene	ND		39	4.2	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
1,3-Dichlorobenzene	ND		39	3.1	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
1,4-Dichlorobenzene	ND		39	2.8	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Benzoic acid	ND		200	17	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Benzyl alcohol	ND		39	4.8	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Bis(2-chloroethyl)ether	ND		8.0	1.1	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Bis(2-chloroethoxy)methane	ND		39	2.6	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Bis(2-ethylhexyl) phthalate	6.4	J	80	6.4	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
4-Bromophenyl phenyl ether	ND		39	3.5	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Butyl benzyl phthalate	ND		39	5.4	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
4-Chloro-3-methylphenol	ND		39	3.7	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2-Chloronaphthalene	ND		8.0	0.83	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2-Chlorophenol	ND		39	3.3	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
4-Chlorophenyl phenyl ether	ND		39	4.4	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Dibenzofuran	ND		39	3.9	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Di-n-butyl phthalate	ND		39	5.0	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
3,3'-Dichlorobenzidine	ND		39	4.2	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2,4-Dichlorophenol	ND		8.0	0.80	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Diethyl phthalate	ND		39	4.3	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
4,6-Dinitro-2-methylphenol	ND		200	16	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2,4-Dimethylphenol	ND		39	6.2	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Dimethyl phthalate	ND		39	4.3	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2,4-Dinitrophenol	ND		200	47	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2,4-Dinitrotoluene	ND		39	3.2	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2,6-Dinitrotoluene	ND		39	4.1	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
1,2-Diphenylhydrazine(as Azobenzene)	ND		39	5.1	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-4
Date Collected: 10/10/11 13:20
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-4
Matrix: Sediment
Percent Solids: 83.3

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate	ND		39	4.2	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Hexachlorobenzene	ND		8.0	0.85	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Hexachlorobutadiene	ND		8.0	0.89	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Hexachloroethane	ND		39	2.9	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Hexachlorocyclopentadiene	ND		39	4.3	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Isophorone	ND		39	3.0	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2-Methylphenol	ND		39	2.8	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Methylphenol, 3 & 4	ND		39	3.9	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Nitrobenzene	ND		80	3.3	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2-Nitrophenol	ND		39	4.4	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
4-Nitrophenol	ND		200	15	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
N-Nitrosodiphenylamine	ND		39	3.7	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
N-Nitrosodimethylamine	ND		39	3.4	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
N-Nitrosodi-n-propylamine	ND		8.0	0.93	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2,2'-oxybis[1-chloropropane]	ND		8.0	0.86	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Pentachlorophenol	ND		39	3.6	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Phenol	ND		8.0	0.94	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
1,2,4-Trichlorobenzene	ND		39	2.2	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2,4,6-Trichlorophenol	ND		39	6.0	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
2-Methylnaphthalene	ND		8.0	0.72	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
1-Methylnaphthalene	ND		8.0	0.85	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Naphthalene	ND		8.0	0.69	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Acenaphthylene	ND		8.0	0.91	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Acenaphthene	ND		8.0	0.76	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Fluorene	ND		8.0	1.0	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Phenanthrene	ND		8.0	1.3	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Anthracene	ND		8.0	0.78	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Fluoranthene	**2.2**	**J**	8.0	0.85	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Pyrene	**1.7**	**J**	8.0	0.80	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Benzo[a]anthracene	ND		8.0	1.0	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Chrysene	ND		8.0	0.95	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Benzo[b]fluoranthene	ND		8.0	1.3	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Benzo[k]fluoranthene	ND		8.0	1.6	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Benzo[a]pyrene	ND		8.0	0.80	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Indeno[1,2,3-cd]pyrene	ND		8.0	0.82	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Dibenz(a,h)anthracene	ND		8.0	0.88	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2
Benzo[g,h,i]perylene	ND		8.0	0.79	ug/Kg	☼	10/19/11 04:28	10/25/11 13:02	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*49*		*21 - 116*	*10/19/11 04:28*	*10/25/11 13:02*	*2*
2-Fluorobiphenyl	*62*		*28 - 108*	*10/19/11 04:28*	*10/25/11 13:02*	*2*
2-Fluorophenol	*36*		*28 - 107*	*10/19/11 04:28*	*10/25/11 13:02*	*2*
Nitrobenzene-d5	*58*		*27 - 110*	*10/19/11 04:28*	*10/25/11 13:02*	*2*
Phenol-d5	*39*		*30 - 112*	*10/19/11 04:28*	*10/25/11 13:02*	*2*
Terphenyl-d14	*62*		*21 - 130*	*10/19/11 04:28*	*10/25/11 13:02*	*2*

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.028**	**J**	0.050	0.0065	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
4,4'-DDE	**0.15**		0.050	0.0075	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
4,4'-DDT	**0.052**		0.050	0.0075	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-4
Date Collected: 10/10/11 13:20
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-4
Matrix: Sediment
Percent Solids: 83.3

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.050	0.0089	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
alpha-BHC	ND		0.050	0.0081	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
beta-BHC	ND		0.050	0.013	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Chlordane (technical)	ND		0.50	0.022	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Chlorobenside	ND		0.050	0.026	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
DCPA	ND		0.050	0.0076	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
delta-BHC	**0.080**		0.050	0.0076	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Dieldrin	**0.050**		0.050	0.0083	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Endosulfan I	ND		0.050	0.0094	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Endosulfan II	ND		0.050	0.0088	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Endosulfan sulfate	ND		0.050	0.0052	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Endrin	ND		0.050	0.0097	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Endrin aldehyde	ND		0.050	0.0097	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
gamma-BHC (Lindane)	**0.065**	**B**	0.050	0.0087	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Heptachlor	ND		0.050	0.011	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Heptachlor epoxide	**0.029**	**J**	0.050	0.0097	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Methoxychlor	**0.068**	**J p**	0.099	0.010	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Mirex	ND		0.050	0.0046	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1
Toxaphene	ND		2.0	0.33	ug/Kg	☼	10/19/11 04:33	10/27/11 10:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*47*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:22*	*1*
Tetrachloro-m-xylene	*52*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:22*	*1*
DCB Decachlorobiphenyl (Surr)	*63*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:22*	*1*
DCB Decachlorobiphenyl (Surr)	*59*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:22*	*1*

Method: 8082A - PCB Congeners (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB 8	**0.13**	**J p**	0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 18	ND		0.58	0.079	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 28	ND		0.58	0.13	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 44	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 49	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 52	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 66	ND		0.58	0.095	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 77	ND		0.58	0.13	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 87	ND		0.58	0.11	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 90	ND		0.58	0.089	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 101	ND	*	0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 105	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 118	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 126	ND		0.58	0.15	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 128	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 138	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 153	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 156	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 169	ND		0.58	0.11	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 170	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 180	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:19	1
PCB 209	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 183	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1

Client Sample ID: S-4

Date Collected: 10/10/11 13:20
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-4

Matrix: Sediment
Percent Solids: 83.3

Method: 8082A - PCB Congeners (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB 184	ND		0.58	0.10	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 187	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 195	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1
PCB 206	ND		0.58	0.12	ug/Kg	☼	10/20/11 06:40	10/24/11 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*83*		*35 - 140*	*10/20/11 06:40*	*10/24/11 15:19*	*1*
PCB 205	*93*		*35 - 140*	*10/20/11 06:40*	*10/24/11 15:19*	*1*

Method: 8280A - Dioxins/Furans, HRGC/LRMS (8280A)

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.60	0.063	1		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
Total TCDD	ND		0.60	0.41			ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,7,8-PeCDD	ND		1.5	0.072	0.5		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
Total PeCDD	ND		1.5	0.16			ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,4,7,8-HxCDD	ND		1.5	0.062	0.1		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,6,7,8-HxCDD	ND		1.5	0.067	0.1		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,7,8,9-HxCDD	ND		1.5	0.065	0.1		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
Total HxCDD	ND		1.5	0.10			ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,4,6,7,8-HpCDD	ND		1.5	0.11	0.01		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
Total HpCDD	ND		1.5	0.11			ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
OCDD	**6.1**		3.0	0.050	0.001	0.0061	ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
2,3,7,8-TCDF	ND		0.60	0.056	0.1		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
Total TCDF	ND		0.60	0.079			ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,7,8-PeCDF	ND		1.5	0.024	0.05		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
2,3,4,7,8-PeCDF	ND		1.5	0.026	0.5		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
Total PeCDF	ND		1.5	0.050			ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,4,7,8-HxCDF	ND		1.5	0.071	0.1		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,6,7,8-HxCDF	ND		1.5	0.070	0.1		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
2,3,4,6,7,8-HxCDF	ND		1.5	0.062	0.1		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,7,8,9-HxCDF	ND		1.5	0.042	0.1		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
Total HxCDF	ND		1.5	0.11			ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,4,6,7,8-HpCDF	ND		1.5	0.040	0.01		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
1,2,3,4,7,8,9-HpCDF	ND		1.5	0.074	0.01		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
Total HpCDF	ND		1.5	0.087			ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
OCDF	ND		3.0	0.15	0.001		ng/g	☼	10/28/11 16:30	11/01/11 18:31	1
Total TEQ	***(EPA 1989)***					**0.0061**					

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*103*		*25 - 150*	*10/28/11 16:30*	*11/01/11 18:31*	*1*

Internal Standard	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*44*		*25 - 150*	*10/28/11 16:30*	*11/01/11 18:31*	*1*
13C-2,3,7,8-TCDF	*45*		*25 - 150*	*10/28/11 16:30*	*11/01/11 18:31*	*1*
13C-1,2,3,6,7,8-HxCDD	*44*		*25 - 150*	*10/28/11 16:30*	*11/01/11 18:31*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*42*		*25 - 150*	*10/28/11 16:30*	*11/01/11 18:31*	*1*
13C-OCDD	*39*		*25 - 150*	*10/28/11 16:30*	*11/01/11 18:31*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**15000**		1.7	0.16	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1

Client Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Client Sample ID: S-4

Date Collected: 10/10/11 13:20
Date Received: 10/12/11 10:00

Lab Sample ID: 180-4815-4

Matrix: Sediment
Percent Solids: 83.3

Method: 6020 - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.088	J B	0.11	0.0015	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Arsenic	1.4		0.056	0.010	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Beryllium	1.2		0.056	0.0042	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Cadmium	0.30		0.056	0.0039	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Chromium	32	B	0.11	0.0034	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Cobalt	25		0.028	0.00084	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Copper	42		0.11	0.019	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Iron	33000	B	2.8	0.20	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Lead	13	B	0.056	0.0021	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Manganese	490	B	0.28	0.0058	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Nickel	25		0.056	0.0063	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Selenium	1.6		0.28	0.028	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Potassium	1800		5.6	0.76	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Silver	0.021	J	0.056	0.0022	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Thallium	0.29		0.056	0.0011	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Tin	0.95		0.28	0.033	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Zinc	56		0.28	0.036	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1
Sodium	20	B	5.6	0.77	mg/Kg	☼	10/20/11 16:15	10/27/11 01:48	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00022	J	0.00024	0.000079	mg/Kg	☼	10/26/11 03:19	10/26/11 08:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia, distilled	4.9	J	6.0	2.7	mg/Kg	☼	10/15/11 16:45	10/18/11 13:03	1
pH	6.44		0.100	0.100	SU			10/14/11 14:07	1
Percent Moisture	16.9		0.10	0.10	%			10/24/11 07:17	1
Total Organic Carbon - Duplicates	5100		1200	300	mg/Kg	☼		10/19/11 11:52	1
Percent Moisture	17		0.10	0.10	%			10/13/11 09:23	1
Nitrogen, Kjeldahl	530	B	190	64	mg/Kg	☼	10/17/11 15:07	10/18/11 13:33	1
Total Phosphorus as PO4	36		12	0.11	mg/Kg	☼	10/19/11 10:58	10/19/11 15:16	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	1.4		0.60	0.18	mg/Kg	☼		10/17/11 20:06	1
Chloride	10	J B	12	2.6	mg/Kg	☼		10/17/11 20:06	1
Nitrite as N	ND		0.60	0.19	mg/Kg	☼		10/17/11 20:06	1
Orthophosphate	ND		6.0	0.73	mg/Kg	☼		10/17/11 20:06	1
Specific Conductance	81		10	10	umhos/cm			10/17/11 17:22	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 180-17878/1-A
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17878

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzidine	ND		340	70	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
1,2-Dichlorobenzene	ND		17	1.7	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
1,3-Dichlorobenzene	ND		17	1.3	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
1,4-Dichlorobenzene	ND		17	1.2	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Benzoic acid	ND		85	6.9	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Benzyl alcohol	ND		17	2.0	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Bis(2-chloroethyl)ether	ND		3.4	0.45	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Bis(2-chloroethoxy)methane	ND		17	1.1	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Bis(2-ethylhexyl) phthalate	ND		33	2.7	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
4-Bromophenyl phenyl ether	ND		17	1.5	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Butyl benzyl phthalate	ND		17	2.3	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
4-Chloro-3-methylphenol	ND		17	1.5	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2-Chloronaphthalene	ND		3.4	0.35	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2-Chlorophenol	ND		17	1.4	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
4-Chlorophenyl phenyl ether	ND		17	1.9	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Dibenzofuran	ND		17	1.6	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Di-n-butyl phthalate	ND		17	2.1	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
3,3'-Dichlorobenzidine	ND		17	1.8	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2,4-Dichlorophenol	ND		3.4	0.33	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Diethyl phthalate	ND		17	1.8	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
4,6-Dinitro-2-methylphenol	ND		85	6.7	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2,4-Dimethylphenol	ND		17	2.6	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Dimethyl phthalate	ND		17	1.8	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2,4-Dinitrophenol	ND		85	20	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2,4-Dinitrotoluene	ND		17	1.3	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2,6-Dinitrotoluene	ND		17	1.7	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		17	2.1	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Di-n-octyl phthalate	ND		17	1.8	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Hexachlorobenzene	ND		3.4	0.36	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Hexachlorobutadiene	ND		3.4	0.37	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Hexachloroethane	ND		17	1.2	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Hexachlorocyclopentadiene	ND		17	1.8	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Isophorone	ND		17	1.3	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2-Methylphenol	ND		17	1.2	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Methylphenol, 3 & 4	ND		17	1.6	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Nitrobenzene	ND		33	1.4	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2-Nitrophenol	ND		17	1.8	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
4-Nitrophenol	ND		85	6.1	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
N-Nitrosodiphenylamine	ND		17	1.5	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
N-Nitrosodimethylamine	ND		17	1.4	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
N-Nitrosodi-n-propylamine	ND		3.4	0.39	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2,2'-oxybis[1-chloropropane]	ND		3.4	0.36	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Pentachlorophenol	ND		17	1.5	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Phenol	ND		3.4	0.39	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
1,2,4-Trichlorobenzene	ND		17	0.92	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2,4,6-Trichlorophenol	ND		17	2.5	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
2-Methylnaphthalene	ND		3.4	0.30	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
1-Methylnaphthalene	ND		3.4	0.36	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Naphthalene	ND		3.4	0.29	ug/Kg		10/19/11 04:28	10/25/11 10:27	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: MB 180-17878/1-A
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17878

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	ND		3.4	0.38	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Acenaphthene	ND		3.4	0.32	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Fluorene	ND		3.4	0.44	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Phenanthrene	ND		3.4	0.53	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Anthracene	ND		3.4	0.33	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Fluoranthene	ND		3.4	0.36	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Pyrene	ND		3.4	0.34	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Benzo[a]anthracene	ND		3.4	0.42	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Chrysene	ND		3.4	0.40	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Benzo[b]fluoranthene	ND		3.4	0.52	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Benzo[k]fluoranthene	ND		3.4	0.67	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Benzo[a]pyrene	ND		3.4	0.33	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Indeno[1,2,3-cd]pyrene	ND		3.4	0.34	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Dibenz(a,h)anthracene	ND		3.4	0.37	ug/Kg		10/19/11 04:28	10/25/11 10:27	1
Benzo[g,h,i]perylene	ND		3.4	0.33	ug/Kg		10/19/11 04:28	10/25/11 10:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*79*		*21 - 116*	*10/19/11 04:28*	*10/25/11 10:27*	*1*
2-Fluorobiphenyl	*63*		*28 - 108*	*10/19/11 04:28*	*10/25/11 10:27*	*1*
2-Fluorophenol	*72*		*28 - 107*	*10/19/11 04:28*	*10/25/11 10:27*	*1*
Nitrobenzene-d5	*64*		*27 - 110*	*10/19/11 04:28*	*10/25/11 10:27*	*1*
Phenol-d5	*72*		*30 - 112*	*10/19/11 04:28*	*10/25/11 10:27*	*1*
Terphenyl-d14	*65*		*21 - 130*	*10/19/11 04:28*	*10/25/11 10:27*	*1*

Lab Sample ID: LCS 180-17878/2-A
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17878

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzidine	333	209	J	ug/Kg		63	10 - 150
1,2-Dichlorobenzene	333	195		ug/Kg		59	40 - 102
1,3-Dichlorobenzene	333	201		ug/Kg		60	41 - 100
1,4-Dichlorobenzene	333	200		ug/Kg		60	41 - 101
Benzoic acid	333	211		ug/Kg		63	10 - 93
Benzyl alcohol	333	188		ug/Kg		56	18 - 129
Bis(2-chloroethyl)ether	333	199		ug/Kg		60	40 - 100
Bis(2-chloroethoxy)methane	333	202		ug/Kg		61	42 - 103
Bis(2-ethylhexyl) phthalate	333	213		ug/Kg		64	41 - 121
4-Bromophenyl phenyl ether	333	226		ug/Kg		68	43 - 111
Butyl benzyl phthalate	333	215		ug/Kg		65	40 - 117
4-Chloro-3-methylphenol	333	204		ug/Kg		61	43 - 110
2-Chloronaphthalene	333	218		ug/Kg		65	40 - 104
2-Chlorophenol	333	205		ug/Kg		61	40 - 105
4-Chlorophenyl phenyl ether	333	222		ug/Kg		67	42 - 111
Dibenzofuran	333	210		ug/Kg		63	42 - 106
Di-n-butyl phthalate	333	205		ug/Kg		61	44 - 120
3,3'-Dichlorobenzidine	333	223		ug/Kg		67	24 - 113
2,4-Dichlorophenol	333	218		ug/Kg		65	44 - 110
Diethyl phthalate	333	201		ug/Kg		60	44 - 113

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCS 180-17878/2-A
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17878

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,6-Dinitro-2-methylphenol	333	235		ug/Kg		70	28 - 130
2,4-Dimethylphenol	333	213		ug/Kg		64	39 - 106
Dimethyl phthalate	333	215		ug/Kg		65	44 - 111
2,4-Dinitrophenol	333	242		ug/Kg		73	19 - 140
2,4-Dinitrotoluene	333	218		ug/Kg		65	48 - 118
2,6-Dinitrotoluene	333	224		ug/Kg		67	47 - 119
1,2-Diphenylhydrazine(as Azobenzene)	333	186		ug/Kg		56	29 - 110
Di-n-octyl phthalate	333	222		ug/Kg		67	35 - 129
Hexachlorobenzene	333	211		ug/Kg		63	42 - 110
Hexachlorobutadiene	333	213		ug/Kg		64	40 - 114
Hexachloroethane	333	196		ug/Kg		59	40 - 102
Hexachlorocyclopentadiene	333	243		ug/Kg		73	10 - 150
Isophorone	333	202		ug/Kg		61	39 - 114
2-Methylphenol	333	202		ug/Kg		61	41 - 104
Methylphenol, 3 & 4	667	554		ug/Kg		83	43 - 107
Nitrobenzene	333	208		ug/Kg		62	40 - 109
2-Nitrophenol	333	226		ug/Kg		68	45 - 112
4-Nitrophenol	333	230		ug/Kg		69	27 - 131
N-Nitrosodiphenylamine	333	219		ug/Kg		66	41 - 110
N-Nitrosodimethylamine	333	276		ug/Kg		83	33 - 116
N-Nitrosodi-n-propylamine	333	209		ug/Kg		63	42 - 108
2,2'-oxybis[1-chloropropane]	333	188		ug/Kg		56	37 - 105
Pentachlorophenol	333	227		ug/Kg		68	18 - 125
Phenol	333	202		ug/Kg		60	39 - 105
1,2,4-Trichlorobenzene	333	208		ug/Kg		62	41 - 105
2,4,6-Trichlorophenol	333	240		ug/Kg		72	43 - 111
2-Methylnaphthalene	333	211		ug/Kg		63	43 - 105
1-Methylnaphthalene	333	212		ug/Kg		63	10 - 140
Naphthalene	333	213		ug/Kg		64	42 - 104
Acenaphthylene	333	229		ug/Kg		69	43 - 117
Acenaphthene	333	223		ug/Kg		67	42 - 104
Fluorene	333	220		ug/Kg		66	43 - 110
Phenanthrene	333	207		ug/Kg		62	41 - 107
Anthracene	333	218		ug/Kg		65	43 - 111
Fluoranthene	333	213		ug/Kg		64	40 - 118
Pyrene	333	213		ug/Kg		64	39 - 113
Benzo[a]anthracene	333	212		ug/Kg		63	45 - 110
Chrysene	333	228		ug/Kg		68	44 - 108
Benzo[b]fluoranthene	333	208		ug/Kg		62	37 - 108
Benzo[k]fluoranthene	333	203		ug/Kg		61	39 - 115
Benzo[a]pyrene	333	231		ug/Kg		69	42 - 114
Indeno[1,2,3-cd]pyrene	333	210		ug/Kg		63	34 - 130
Dibenz(a,h)anthracene	333	217		ug/Kg		65	34 - 131
Benzo[g,h,i]perylene	333	250		ug/Kg		75	35 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*81*		*21 - 116*
2-Fluorobiphenyl	*67*		*28 - 108*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCS 180-17878/2-A
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17878

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*72*		*28 - 107*
Nitrobenzene-d5	*65*		*27 - 110*
Phenol-d5	*70*		*30 - 112*
Terphenyl-d14	*68*		*21 - 130*

Lab Sample ID: 180-4815-4 MS
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: S-4
Prep Type: Total/NA
Prep Batch: 17878

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzidine	ND		400	ND	F	ug/Kg	☼	0	10 - 150
1,2-Dichlorobenzene	ND		400	235		ug/Kg	☼	59	40 - 102
1,3-Dichlorobenzene	ND		400	235		ug/Kg	☼	59	41 - 100
1,4-Dichlorobenzene	ND		400	233		ug/Kg	☼	58	41 - 101
Benzoic acid	ND		400	17.0	J F	ug/Kg	☼	4	10 - 93
Benzyl alcohol	ND		400	260		ug/Kg	☼	65	18 - 129
Bis(2-chloroethyl)ether	ND		400	241		ug/Kg	☼	60	40 - 100
Bis(2-chloroethoxy)methane	ND		400	255		ug/Kg	☼	64	42 - 103
Bis(2-ethylhexyl) phthalate	6.4	J	400	254		ug/Kg	☼	62	41 - 121
4-Bromophenyl phenyl ether	ND		400	283		ug/Kg	☼	71	43 - 111
Butyl benzyl phthalate	ND		400	261		ug/Kg	☼	65	40 - 117
4-Chloro-3-methylphenol	ND		400	210		ug/Kg	☼	53	43 - 110
2-Chloronaphthalene	ND		400	277		ug/Kg	☼	69	40 - 104
2-Chlorophenol	ND		400	230		ug/Kg	☼	58	40 - 105
4-Chlorophenyl phenyl ether	ND		400	271		ug/Kg	☼	68	42 - 111
Dibenzofuran	ND		400	263		ug/Kg	☼	66	42 - 106
Di-n-butyl phthalate	ND		400	266		ug/Kg	☼	67	44 - 120
3,3'-Dichlorobenzidine	ND		400	28.7	J F	ug/Kg	☼	7	24 - 113
2,4-Dichlorophenol	ND		400	237		ug/Kg	☼	59	44 - 110
Diethyl phthalate	ND		400	271		ug/Kg	☼	68	44 - 113
4,6-Dinitro-2-methylphenol	ND		400	282		ug/Kg	☼	70	28 - 130
2,4-Dimethylphenol	ND		400	115	F	ug/Kg	☼	29	39 - 106
Dimethyl phthalate	ND		400	278		ug/Kg	☼	69	44 - 111
2,4-Dinitrophenol	ND		400	212		ug/Kg	☼	53	19 - 140
2,4-Dinitrotoluene	ND		400	281		ug/Kg	☼	70	48 - 118
2,6-Dinitrotoluene	ND		400	296		ug/Kg	☼	74	47 - 119
1,2-Diphenylhydrazine(as Azobenzene)	ND		400	249		ug/Kg	☼	62	29 - 110
Di-n-octyl phthalate	ND		400	243		ug/Kg	☼	61	35 - 129
Hexachlorobenzene	ND		400	267		ug/Kg	☼	67	42 - 110
Hexachlorobutadiene	ND		400	259		ug/Kg	☼	65	40 - 114
Hexachloroethane	ND		400	221		ug/Kg	☼	55	40 - 102
Hexachlorocyclopentadiene	ND		400	204		ug/Kg	☼	51	10 - 150
Isophorone	ND		400	249		ug/Kg	☼	62	39 - 114
2-Methylphenol	ND		400	178		ug/Kg	☼	44	41 - 104
Methylphenol, 3 & 4	ND		800	379		ug/Kg	☼	47	43 - 107
Nitrobenzene	ND		400	259		ug/Kg	☼	65	40 - 109
2-Nitrophenol	ND		400	276		ug/Kg	☼	69	45 - 112
4-Nitrophenol	ND		400	250		ug/Kg	☼	63	27 - 131
N-Nitrosodiphenylamine	ND		400	250		ug/Kg	☼	62	41 - 110

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: 180-4815-4 MS
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: S-4
Prep Type: Total/NA
Prep Batch: 17878

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
N-Nitrosodimethylamine	ND		400	308		ug/Kg	☼	77	33 - 116
N-Nitrosodi-n-propylamine	ND		400	222		ug/Kg	☼	55	42 - 108
2,2'-oxybis[1-chloropropane]	ND		400	232		ug/Kg	☼	58	37 - 105
Pentachlorophenol	ND		400	245		ug/Kg	☼	61	18 - 125
Phenol	ND		400	185		ug/Kg	☼	46	39 - 105
1,2,4-Trichlorobenzene	ND		400	255		ug/Kg	☼	64	41 - 105
2,4,6-Trichlorophenol	ND		400	242		ug/Kg	☼	61	43 - 111
2-Methylnaphthalene	ND		400	258		ug/Kg	☼	64	43 - 105
1-Methylnaphthalene	ND		400	259		ug/Kg	☼	65	10 - 140
Naphthalene	ND		400	265		ug/Kg	☼	66	42 - 104
Acenaphthylene	ND		400	296		ug/Kg	☼	74	43 - 117
Acenaphthene	ND		400	275		ug/Kg	☼	69	42 - 104
Fluorene	ND		400	272		ug/Kg	☼	68	43 - 110
Phenanthrene	ND		400	269		ug/Kg	☼	67	41 - 107
Anthracene	ND		400	280		ug/Kg	☼	70	43 - 111
Fluoranthene	2.2	J	400	263		ug/Kg	☼	65	40 - 118
Pyrene	1.7	J	400	255		ug/Kg	☼	63	39 - 113
Benzo[a]anthracene	ND		400	274		ug/Kg	☼	68	45 - 110
Chrysene	ND		400	276		ug/Kg	☼	69	44 - 108
Benzo[b]fluoranthene	ND		400	226		ug/Kg	☼	56	37 - 108
Benzo[k]fluoranthene	ND		400	261		ug/Kg	☼	65	39 - 115
Benzo[a]pyrene	ND		400	260		ug/Kg	☼	65	42 - 114
Indeno[1,2,3-cd]pyrene	ND		400	286		ug/Kg	☼	72	34 - 130
Dibenz(a,h)anthracene	ND		400	295		ug/Kg	☼	74	34 - 131
Benzo[g,h,i]perylene	ND		400	340		ug/Kg	☼	85	35 - 127

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*71*		*21 - 116*
2-Fluorobiphenyl	*71*		*28 - 108*
2-Fluorophenol	*52*		*28 - 107*
Nitrobenzene-d5	*66*		*27 - 110*
Phenol-d5	*58*		*30 - 112*
Terphenyl-d14	*66*		*21 - 130*

Lab Sample ID: 180-4815-4 MSD
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: S-4
Prep Type: Total/NA
Prep Batch: 17878

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzidine	ND		397	ND	F	ug/Kg	☼	0	10 - 150	NC	30
1,2-Dichlorobenzene	ND		397	246		ug/Kg	☼	62	40 - 102	5	25
1,3-Dichlorobenzene	ND		397	243		ug/Kg	☼	61	41 - 100	3	32
1,4-Dichlorobenzene	ND		397	249		ug/Kg	☼	63	41 - 101	7	32
Benzoic acid	ND		397	ND	F	ug/Kg	☼	0	10 - 93	NC	36
Benzyl alcohol	ND		397	265		ug/Kg	☼	67	18 - 129	2	41
Bis(2-chloroethyl)ether	ND		397	251		ug/Kg	☼	63	40 - 100	4	33
Bis(2-chloroethoxy)methane	ND		397	269		ug/Kg	☼	68	42 - 103	5	35
Bis(2-ethylhexyl) phthalate	6.4	J	397	270		ug/Kg	☼	66	41 - 121	6	31
4-Bromophenyl phenyl ether	ND		397	289		ug/Kg	☼	73	43 - 111	2	20

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: 180-4815-4 MSD
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: S-4
Prep Type: Total/NA
Prep Batch: 17878

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Butyl benzyl phthalate	ND		397	264		ug/Kg	☼	66	40 - 117	1	34
4-Chloro-3-methylphenol	ND		397	223		ug/Kg	☼	56	43 - 110	6	31
2-Chloronaphthalene	ND		397	282		ug/Kg	☼	71	40 - 104	2	34
2-Chlorophenol	ND		397	243		ug/Kg	☼	61	40 - 105	6	37
4-Chlorophenyl phenyl ether	ND		397	281		ug/Kg	☼	71	42 - 111	4	37
Dibenzofuran	ND		397	271		ug/Kg	☼	68	42 - 106	3	33
Di-n-butyl phthalate	ND		397	275		ug/Kg	☼	69	44 - 120	3	34
3,3'-Dichlorobenzidine	ND		397	23.0	J F	ug/Kg	☼	6	24 - 113	22	30
2,4-Dichlorophenol	ND		397	256		ug/Kg	☼	64	44 - 110	8	27
Diethyl phthalate	ND		397	275		ug/Kg	☼	69	44 - 113	2	32
4,6-Dinitro-2-methylphenol	ND		397	291		ug/Kg	☼	73	28 - 130	3	35
2,4-Dimethylphenol	ND		397	115	F	ug/Kg	☼	29	39 - 106	0	42
Dimethyl phthalate	ND		397	284		ug/Kg	☼	72	44 - 111	2	34
2,4-Dinitrophenol	ND		397	222		ug/Kg	☼	56	19 - 140	4	43
2,4-Dinitrotoluene	ND		397	288		ug/Kg	☼	72	48 - 118	2	33
2,6-Dinitrotoluene	ND		397	305		ug/Kg	☼	77	47 - 119	3	30
1,2-Diphenylhydrazine(as Azobenzene)	ND		397	255		ug/Kg	☼	64	29 - 110	3	33
Di-n-octyl phthalate	ND		397	254		ug/Kg	☼	64	35 - 129	5	33
Hexachlorobenzene	ND		397	282		ug/Kg	☼	71	42 - 110	6	29
Hexachlorobutadiene	ND		397	283		ug/Kg	☼	71	40 - 114	9	25
Hexachloroethane	ND		397	228		ug/Kg	☼	57	40 - 102	3	34
Hexachlorocyclopentadiene	ND		397	212		ug/Kg	☼	53	10 - 150	4	33
Isophorone	ND		397	268		ug/Kg	☼	67	39 - 114	7	33
2-Methylphenol	ND		397	183		ug/Kg	☼	46	41 - 104	3	37
Methylphenol, 3 & 4	ND		795	401		ug/Kg	☼	50	43 - 107	6	36
Nitrobenzene	ND		397	276		ug/Kg	☼	69	40 - 109	6	31
2-Nitrophenol	ND		397	289		ug/Kg	☼	73	45 - 112	5	30
4-Nitrophenol	ND		397	266		ug/Kg	☼	67	27 - 131	6	33
N-Nitrosodiphenylamine	ND		397	255		ug/Kg	☼	64	41 - 110	2	32
N-Nitrosodimethylamine	ND		397	313		ug/Kg	☼	79	33 - 116	2	30
N-Nitrosodi-n-propylamine	ND		397	236		ug/Kg	☼	59	42 - 108	6	32
2,2'-oxybis[1-chloropropane]	ND		397	239		ug/Kg	☼	60	37 - 105	3	31
Pentachlorophenol	ND		397	249		ug/Kg	☼	63	18 - 125	2	34
Phenol	ND		397	194		ug/Kg	☼	49	39 - 105	5	40
1,2,4-Trichlorobenzene	ND		397	273		ug/Kg	☼	69	41 - 105	7	36
2,4,6-Trichlorophenol	ND		397	246		ug/Kg	☼	62	43 - 111	1	36
2-Methylnaphthalene	ND		397	272		ug/Kg	☼	68	43 - 105	5	34
1-Methylnaphthalene	ND		397	274		ug/Kg	☼	69	10 - 140	6	30
Naphthalene	ND		397	278		ug/Kg	☼	70	42 - 104	5	25
Acenaphthylene	ND		397	294		ug/Kg	☼	74	43 - 117	0	36
Acenaphthene	ND		397	280		ug/Kg	☼	70	42 - 104	2	34
Fluorene	ND		397	278		ug/Kg	☼	70	43 - 110	2	37
Phenanthrene	ND		397	282		ug/Kg	☼	71	41 - 107	5	20
Anthracene	ND		397	287		ug/Kg	☼	72	43 - 111	2	35
Fluoranthene	2.2	J	397	280		ug/Kg	☼	70	40 - 118	6	23
Pyrene	1.7	J	397	267		ug/Kg	☼	67	39 - 113	5	28
Benzo[a]anthracene	ND		397	282		ug/Kg	☼	71	45 - 110	3	31
Chrysene	ND		397	283		ug/Kg	☼	71	44 - 108	3	31
Benzo[b]fluoranthene	ND		397	235		ug/Kg	☼	59	37 - 108	4	28

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: 180-4815-4 MSD
Matrix: Sediment
Analysis Batch: 18597

Client Sample ID: S-4
Prep Type: Total/NA
Prep Batch: 17878

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[k]fluoranthene	ND		397	274		ug/Kg	☼	69	39 - 115	5	42
Benzo[a]pyrene	ND		397	277		ug/Kg	☼	70	42 - 114	7	31
Indeno[1,2,3-cd]pyrene	ND		397	309		ug/Kg	☼	78	34 - 130	7	30
Dibenz(a,h)anthracene	ND		397	319		ug/Kg	☼	80	34 - 131	8	32
Benzo[g,h,i]perylene	ND		397	357		ug/Kg	☼	90	35 - 127	5	21

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*68*		*21 - 116*
2-Fluorobiphenyl	*73*		*28 - 108*
2-Fluorophenol	*54*		*28 - 107*
Nitrobenzene-d5	*69*		*27 - 110*
Phenol-d5	*60*		*30 - 112*
Terphenyl-d14	*70*		*21 - 130*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 180-17879/1-B
Matrix: Sediment
Analysis Batch: 19126

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17879

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.042	0.0055	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
4,4'-DDE	ND		0.042	0.0063	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
4,4'-DDT	ND		0.042	0.0063	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Aldrin	ND		0.042	0.0075	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
alpha-BHC	ND		0.042	0.0068	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
beta-BHC	ND		0.042	0.011	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Chlordane (technical)	ND		0.42	0.018	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Chlorobenside	ND		0.042	0.022	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
DCPA	ND		0.042	0.0064	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
delta-BHC	ND		0.042	0.0064	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Dieldrin	ND		0.042	0.0070	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Endosulfan I	ND		0.042	0.0079	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Endosulfan II	ND		0.042	0.0074	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Endosulfan sulfate	ND		0.042	0.0044	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Endrin	ND		0.042	0.0081	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Endrin aldehyde	ND		0.042	0.0081	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
gamma-BHC (Lindane)	ND		0.042	0.0073	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Heptachlor	ND		0.042	0.0093	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Heptachlor epoxide	ND		0.042	0.0081	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Methoxychlor	ND		0.083	0.0087	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Mirex	ND		0.042	0.0039	ug/Kg		10/19/11 04:33	10/27/11 10:38	1
Toxaphene	ND		1.7	0.28	ug/Kg		10/19/11 04:33	10/27/11 10:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:38*	*1*
Tetrachloro-m-xylene	*74*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:38*	*1*
DCB Decachlorobiphenyl (Surr)	*71*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:38*	*1*
DCB Decachlorobiphenyl (Surr)	*67*		*45 - 140*	*10/19/11 04:33*	*10/27/11 10:38*	*1*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 180-17879/2-B
Matrix: Sediment
Analysis Batch: 19126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17879

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	1.67	1.43		ug/Kg		86	50 - 150
4,4'-DDE	1.67	1.40		ug/Kg		84	50 - 150
4,4'-DDT	1.67	0.988		ug/Kg		59	50 - 150
Aldrin	1.67	1.35		ug/Kg		81	50 - 150
alpha-BHC	1.67	1.35		ug/Kg		81	50 - 150
beta-BHC	1.67	1.32		ug/Kg		79	50 - 150
delta-BHC	1.67	1.32		ug/Kg		79	20 - 124
Dieldrin	1.67	1.35		ug/Kg		81	50 - 150
Endosulfan I	1.67	1.33		ug/Kg		80	50 - 150
Endosulfan II	1.67	1.25		ug/Kg		75	50 - 150
Endosulfan sulfate	1.67	1.56		ug/Kg		93	44 - 140
Endrin	1.67	1.33		ug/Kg		80	50 - 150
Endrin aldehyde	1.67	1.15		ug/Kg		69	50 - 150
gamma-BHC (Lindane)	1.67	1.31		ug/Kg		79	50 - 150
Heptachlor	1.67	1.31		ug/Kg		79	50 - 150
Heptachlor epoxide	1.67	1.35		ug/Kg		81	50 - 150
Methoxychlor	1.67	0.946		ug/Kg		57	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*84*		*45 - 140*
Tetrachloro-m-xylene	*88*		*45 - 140*
DCB Decachlorobiphenyl (Surr)	*83*		*45 - 140*
DCB Decachlorobiphenyl (Surr)	*90*		*45 - 140*

Lab Sample ID: 180-4750-B-1-R MS
Matrix: Sediment
Analysis Batch: 19126

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 17879

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND		6.57	6.50	4 p	ug/Kg	☼	-419	50 - 150
4,4'-DDE	4.8	p	6.57	9.62	p	ug/Kg	☼	74	50 - 150
4,4'-DDT	13		6.57	17.3	p	ug/Kg	☼	65	50 - 150
Aldrin	1.8		6.57	5.03	F p	ug/Kg	☼	49	50 - 150
alpha-BHC	0.84		6.57	3.44		ug/Kg	☼	52	50 - 150
beta-BHC	1.4		6.57	4.64		ug/Kg	☼	71	50 - 150
delta-BHC	ND		6.57	6.05		ug/Kg	☼	92	20 - 124
Dieldrin	16		6.57	21.7		ug/Kg	☼	81	50 - 150
Endosulfan I	4.6	B	6.57	8.36		ug/Kg	☼	51	50 - 150
Endosulfan II	2.9		6.57	6.67	p	ug/Kg	☼	58	50 - 150
Endosulfan sulfate	5.0		6.57	10.0	p	ug/Kg	☼	77	44 - 140
Endrin	6.7		6.57	7.39	F p	ug/Kg	☼	11	50 - 150
Endrin aldehyde	5.2		6.57	4.74	F	ug/Kg	☼	-7	50 - 150
gamma-BHC (Lindane)	1.5		6.57	3.62	F	ug/Kg	☼	33	50 - 150
Heptachlor	2.6		6.57	4.37		ug/Kg	☼	67	50 - 150
Heptachlor epoxide	5.3	p	6.57	8.98	p	ug/Kg	☼	56	50 - 150
Methoxychlor	39	p	6.57	41.9	4 p	ug/Kg	☼	51	50 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*54*		*45 - 140*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 180-4750-B-1-R MS
Matrix: Sediment
Analysis Batch: 19126

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 17879

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene	57		45 - 140
DCB Decachlorobiphenyl (Surr)	183	X	45 - 140
DCB Decachlorobiphenyl (Surr)	148	X	45 - 140

Lab Sample ID: 180-4750-B-1-S MSD
Matrix: Sediment
Analysis Batch: 19126

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 17879

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND		6.59	6.59	4 p	ug/Kg	☼	-417	50 - 150	1	20
4,4'-DDE	4.8	p	6.59	10.2	p	ug/Kg	☼	82	50 - 150	6	20
4,4'-DDT	13		6.59	17.0	p	ug/Kg	☼	60	50 - 150	2	37
Aldrin	1.8		6.59	5.08	F p	ug/Kg	☼	49	50 - 150	1	20
alpha-BHC	ND		6.59	3.43		ug/Kg	☼	52	50 - 150	0	20
beta-BHC	1.4		6.59	4.66		ug/Kg	☼	71	50 - 150	0	20
delta-BHC	ND		6.59	5.94		ug/Kg	☼	90	20 - 124	2	20
Dieldrin	16		6.59	22.0		ug/Kg	☼	84	50 - 150	1	20
Endosulfan I	4.6	B	6.59	8.33		ug/Kg	☼	51	50 - 150	0	23
Endosulfan II	2.9		6.59	6.68	p	ug/Kg	☼	58	50 - 150	0	33
Endosulfan sulfate	22		6.59	12.3	F	ug/Kg	☼	-143	44 - 140	63	26
Endrin	6.7		6.59	37.6	4	ug/Kg	☼	117	50 - 150	7	20
Endrin aldehyde	5.2		6.59	4.65	F	ug/Kg	☼	-8	50 - 150	2	20
gamma-BHC (Lindane)	1.5		6.59	3.58	F	ug/Kg	☼	32	50 - 150	1	20
Heptachlor	2.6		6.59	4.31		ug/Kg	☼	65	50 - 150	1	20
Heptachlor epoxide	5.3	p	6.59	9.14	p	ug/Kg	☼	58	50 - 150	2	20
Methoxychlor	39	p	6.59	42.6	4 p	ug/Kg	☼	62	50 - 150	2	26

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	54		45 - 140
Tetrachloro-m-xylene	57		45 - 140
DCB Decachlorobiphenyl (Surr)	183	X	45 - 140
DCB Decachlorobiphenyl (Surr)	148	X	45 - 140

Method: 8082A - PCB Congeners (GC)

Lab Sample ID: MB 180-18024/1-A
Matrix: Sediment
Analysis Batch: 18484

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18024

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	90		35 - 140	10/20/11 06:40	10/24/11 15:43	1
PCB 205	105		35 - 140	10/20/11 06:40	10/24/11 15:43	1

Lab Sample ID: MB 180-18024/1-A
Matrix: Sediment
Analysis Batch: 18483

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18024

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB 8	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1

Method: 8082A - PCB Congeners (GC) (Continued)

Lab Sample ID: MB 180-18024/1-A
Matrix: Sediment
Analysis Batch: 18483

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18024

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB 18	ND		0.50	0.069	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 28	ND		0.50	0.11	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 44	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 49	ND		0.50	0.11	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 52	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 66	ND		0.50	0.082	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 77	ND		0.50	0.11	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 87	ND		0.50	0.094	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 90	ND		0.50	0.077	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 101	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 105	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 118	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 126	ND		0.50	0.13	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 128	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 138	ND		0.50	0.11	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 153	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 156	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 169	ND		0.50	0.099	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 170	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 180	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 209	ND		0.50	0.11	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 183	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 184	ND		0.50	0.086	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 187	ND		0.50	0.11	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 195	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1
PCB 206	ND		0.50	0.10	ug/Kg		10/20/11 06:40	10/24/11 16:08	1

Lab Sample ID: LCS 180-18024/2-A
Matrix: Sediment
Analysis Batch: 18484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18024

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB 8	10.0	11.7		ug/Kg		117	50 - 140
PCB 18	10.0	10.3		ug/Kg		103	50 - 140
PCB 28	10.0	11.2		ug/Kg		112	50 - 140
PCB 44	10.0	9.85		ug/Kg		98	50 - 140
PCB 49	10.0	9.64		ug/Kg		96	50 - 140
PCB 52	10.0	9.15		ug/Kg		91	50 - 140
PCB 66	10.0	11.5		ug/Kg		115	50 - 140
PCB 77	10.0	12.2		ug/Kg		122	50 - 140
PCB 87	10.0	11.4		ug/Kg		114	50 - 140
PCB 101	10.0	5.96		ug/Kg		60	50 - 140
PCB 105	10.0	10.2		ug/Kg		102	50 - 140
PCB 126	10.0	9.08		ug/Kg		91	50 - 140
PCB 128	10.0	9.07		ug/Kg		91	50 - 140
PCB 138	10.0	8.83		ug/Kg		88	50 - 140
PCB 153	10.0	8.43		ug/Kg		84	50 - 140
PCB 156	10.0	9.51		ug/Kg		95	50 - 140
PCB 169	10.0	9.70		ug/Kg		97	50 - 140
PCB 170	10.0	9.14		ug/Kg		91	50 - 140

Method: 8082A - PCB Congeners (GC) (Continued)

Lab Sample ID: LCS 180-18024/2-A
Matrix: Sediment
Analysis Batch: 18484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18024

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB 209	10.0	8.74		ug/Kg		87	50 - 140
PCB 183	10.0	9.06		ug/Kg		91	50 - 140
PCB 187	10.0	8.92		ug/Kg		89	50 - 140
PCB 195	10.0	8.56		ug/Kg		86	50 - 140
PCB 206	10.0	8.08		ug/Kg		81	50 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*90*		*35 - 140*
PCB 205	*105*		*35 - 140*

Lab Sample ID: LCS 180-18024/2-A
Matrix: Sediment
Analysis Batch: 18483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18024

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB 118	10.0	8.48		ug/Kg		85	50 - 140
PCB 180	10.0	6.81		ug/Kg		68	50 - 140

Lab Sample ID: 180-4815-1 MS
Matrix: Sediment
Analysis Batch: 18484

Client Sample ID: S-1
Prep Type: Total/NA
Prep Batch: 18024

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB 8	2.8		11.4	13.3		ug/Kg	☼	93	50 - 140
PCB 18	ND		11.4	11.0		ug/Kg	☼	97	50 - 140
PCB 28	0.36		11.4	13.6		ug/Kg	☼	117	50 - 140
PCB 44	ND		11.4	10.3		ug/Kg	☼	91	50 - 140
PCB 49	ND		11.4	10.2		ug/Kg	☼	90	50 - 140
PCB 52	ND		11.4	9.65		ug/Kg	☼	85	50 - 140
PCB 66	ND		11.4	12.9		ug/Kg	☼	114	50 - 140
PCB 77	ND		11.4	14.6		ug/Kg	☼	129	50 - 140
PCB 87	0.40		11.4	12.5		ug/Kg	☼	107	50 - 140
PCB 101	ND		11.4	6.34		ug/Kg	☼	56	50 - 140
PCB 105	ND		11.4	11.2		ug/Kg	☼	98	50 - 140
PCB 126	ND		11.4	10.3		ug/Kg	☼	91	50 - 140
PCB 128	ND		11.4	9.58		ug/Kg	☼	84	50 - 140
PCB 138	0.19		11.4	9.31		ug/Kg	☼	80	50 - 140
PCB 153	ND		11.4	8.84		ug/Kg	☼	78	50 - 140
PCB 156	ND		11.4	10.2		ug/Kg	☼	90	50 - 140
PCB 169	ND		11.4	10.3		ug/Kg	☼	90	50 - 140
PCB 170	ND		11.4	9.54		ug/Kg	☼	84	50 - 140
PCB 209	ND		11.4	9.58		ug/Kg	☼	84	50 - 140
PCB 183	ND		11.4	9.32		ug/Kg	☼	82	50 - 140
PCB 187	ND		11.4	9.33		ug/Kg	☼	82	50 - 140
PCB 195	ND		11.4	8.99		ug/Kg	☼	79	50 - 140
PCB 206	ND		11.4	9.00		ug/Kg	☼	79	50 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*83*		*35 - 140*

Method: 8082A - PCB Congeners (GC) (Continued)

Lab Sample ID: 180-4815-1 MS
Matrix: Sediment
Analysis Batch: 18484

Client Sample ID: S-1
Prep Type: Total/NA
Prep Batch: 18024

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
PCB 205	*103*		*35 - 140*

Lab Sample ID: 180-4815-1 MS
Matrix: Sediment
Analysis Batch: 18483

Client Sample ID: S-1
Prep Type: Total/NA
Prep Batch: 18024

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB 118	ND		11.4	8.97		ug/Kg	☼	79	50 - 140		
PCB 180	ND		11.4	6.93		ug/Kg	☼	61	50 - 140		

Lab Sample ID: 180-4815-1 MSD
Matrix: Sediment
Analysis Batch: 18484

Client Sample ID: S-1
Prep Type: Total/NA
Prep Batch: 18024

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB 8	2.8		11.6	13.8		ug/Kg	☼	95	50 - 140	4	40
PCB 18	ND		11.6	11.3		ug/Kg	☼	97	50 - 140	3	40
PCB 28	0.36		11.6	13.6		ug/Kg	☼	114	50 - 140	0	40
PCB 44	ND		11.6	10.5		ug/Kg	☼	91	50 - 140	2	40
PCB 49	ND		11.6	10.3		ug/Kg	☼	89	50 - 140	1	40
PCB 52	ND		11.6	9.76		ug/Kg	☼	84	50 - 140	1	40
PCB 66	ND		11.6	13.0		ug/Kg	☼	112	50 - 140	0	40
PCB 77	ND		11.6	14.8		ug/Kg	☼	128	50 - 140	1	40
PCB 87	0.40		11.6	12.7		ug/Kg	☼	106	50 - 140	1	40
PCB 101	ND		11.6	6.33		ug/Kg	☼	55	50 - 140	0	40
PCB 105	ND		11.6	11.4		ug/Kg	☼	98	50 - 140	2	40
PCB 126	ND		11.6	10.4		ug/Kg	☼	90	50 - 140	1	40
PCB 128	ND		11.6	9.69		ug/Kg	☼	84	50 - 140	1	40
PCB 138	0.19		11.6	9.42		ug/Kg	☼	80	50 - 140	1	40
PCB 153	ND		11.6	9.02		ug/Kg	☼	78	50 - 140	2	40
PCB 156	ND		11.6	10.3		ug/Kg	☼	89	50 - 140	NC	40
PCB 169	ND		11.6	10.5		ug/Kg	☼	90	50 - 140	2	40
PCB 170	ND		11.6	9.77		ug/Kg	☼	84	50 - 140	2	40
PCB 209	ND		11.6	9.10		ug/Kg	☼	79	50 - 140	5	40
PCB 183	ND		11.6	9.45		ug/Kg	☼	82	50 - 140	1	40
PCB 187	ND		11.6	9.35		ug/Kg	☼	81	50 - 140	0	40
PCB 195	ND		11.6	9.09		ug/Kg	☼	78	50 - 140	1	40
PCB 206	ND		11.6	8.61		ug/Kg	☼	74	50 - 140	4	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*84*		*35 - 140*
PCB 205	*102*		*35 - 140*

Lab Sample ID: 180-4815-1 MSD
Matrix: Sediment
Analysis Batch: 18483

Client Sample ID: S-1
Prep Type: Total/NA
Prep Batch: 18024

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB 118	ND		11.6	9.02		ug/Kg	☼	78	50 - 140	1	40

Method: 8082A - PCB Congeners (GC) (Continued)

Lab Sample ID: 180-4815-1 MSD
Matrix: Sediment
Analysis Batch: 18483

Client Sample ID: S-1
Prep Type: Total/NA
Prep Batch: 18024

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB 180	ND		11.6	6.83		ug/Kg	☼	59	50 - 140	1	40

Method: 8280A - Dioxins/Furans, HRGC/LRMS (8280A)

Lab Sample ID: G1J280000122B
Matrix: Solid
Analysis Batch: 1301122

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 1301122_P

Analyte	MB Result	MB Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.50	0.017	1		ng/g		10/28/11 16:30	11/01/11 14:33	1
Total TCDD	ND		0.50	0.32			ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,7,8-PeCDD	ND		1.2	0.025	0.5		ng/g		10/28/11 16:30	11/01/11 14:33	1
Total PeCDD	ND		1.2	0.11			ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,4,7,8-HxCDD	ND		1.2	0.024	0.1		ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,6,7,8-HxCDD	ND		1.2	0.024	0.1		ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,7,8,9-HxCDD	ND		1.2	0.033	0.1		ng/g		10/28/11 16:30	11/01/11 14:33	1
Total HxCDD	ND		1.2	0.040			ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,4,6,7,8-HpCDD	ND		1.2	0.016	0.01		ng/g		10/28/11 16:30	11/01/11 14:33	1
Total HpCDD	ND		1.2	0.032			ng/g		10/28/11 16:30	11/01/11 14:33	1
OCDD	ND		2.5	0.028	0.001		ng/g		10/28/11 16:30	11/01/11 14:33	1
2,3,7,8-TCDF	ND		0.50	0.0098	0.1		ng/g		10/28/11 16:30	11/01/11 14:33	1
Total TCDF	ND		0.50	0.015			ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,7,8-PeCDF	ND		1.2	0.016	0.05		ng/g		10/28/11 16:30	11/01/11 14:33	1
2,3,4,7,8-PeCDF	ND		1.2	0.014	0.5		ng/g		10/28/11 16:30	11/01/11 14:33	1
Total PeCDF	ND		1.2	0.018			ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,4,7,8-HxCDF	ND		1.2	0.011	0.1		ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,6,7,8-HxCDF	ND		1.2	0.010	0.1		ng/g		10/28/11 16:30	11/01/11 14:33	1
2,3,4,6,7,8-HxCDF	ND		1.2	0.011	0.1		ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,7,8,9-HxCDF	ND		1.2	0.018	0.1		ng/g		10/28/11 16:30	11/01/11 14:33	1
Total HxCDF	ND		1.2	0.036			ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,4,6,7,8-HpCDF	ND		1.2	0.033	0.01		ng/g		10/28/11 16:30	11/01/11 14:33	1
1,2,3,4,7,8,9-HpCDF	ND		1.2	0.025	0.01		ng/g		10/28/11 16:30	11/01/11 14:33	1
Total HpCDF	ND		1.2	0.038			ng/g		10/28/11 16:30	11/01/11 14:33	1
OCDF	ND		2.5	0.023	0.001		ng/g		10/28/11 16:30	11/01/11 14:33	1
Total TEQ						**0.00**					

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*123*		*25 - 150*	*10/28/11 16:30*	*11/01/11 14:33*	*1*

Internal Standard	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*48*		*25 - 150*	*10/28/11 16:30*	*11/01/11 14:33*	*1*
13C-2,3,7,8-TCDF	*49*		*25 - 150*	*10/28/11 16:30*	*11/01/11 14:33*	*1*
13C-1,2,3,6,7,8-HxCDD	*52*		*25 - 150*	*10/28/11 16:30*	*11/01/11 14:33*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*51*		*25 - 150*	*10/28/11 16:30*	*11/01/11 14:33*	*1*
13C-OCDD	*53*		*25 - 150*	*10/28/11 16:30*	*11/01/11 14:33*	*1*

Method: 8280A - Dioxins/Furans, HRGC/LRMS (8280A) (Continued)

Lab Sample ID: G1J280000122C
Matrix: Solid
Analysis Batch: 1301122

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 1301122_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	2.50	2.54		ng/g		102	65 - 125
1,2,3,7,8-PeCDD	6.25	6.92		ng/g		111	62 - 132
1,2,3,4,7,8-HxCDD	6.25	6.32		ng/g		101	61 - 121
1,2,3,6,7,8-HxCDD	6.25	6.43		ng/g		103	62 - 125
1,2,3,7,8,9-HxCDD	6.25	6.41		ng/g		103	59 - 128
1,2,3,4,6,7,8-HpCDD	6.25	6.38		ng/g		102	57 - 130
OCDD	12.5	12.7		ng/g		102	62 - 124
2,3,7,8-TCDF	2.50	2.50		ng/g		100	63 - 123
1,2,3,7,8-PeCDF	6.25	6.68		ng/g		107	66 - 126
2,3,4,7,8-PeCDF	6.25	6.99		ng/g		112	56 - 129
1,2,3,4,7,8-HxCDF	6.25	6.35		ng/g		102	54 - 130
1,2,3,6,7,8-HxCDF	6.25	6.54		ng/g		105	55 - 135
2,3,4,6,7,8-HxCDF	6.25	6.21		ng/g		99	56 - 132
1,2,3,7,8,9-HxCDF	6.25	6.31		ng/g		101	53 - 135
1,2,3,4,6,7,8-HpCDF	6.25	6.54		ng/g		105	62 - 127
1,2,3,4,7,8,9-HpCDF	6.25	6.37		ng/g		102	57 - 134
OCDF	12.5	12.6		ng/g		101	62 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*123*		*25 - 150*

Internal Standard	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*54*		*25 - 150*
13C-2,3,7,8-TCDF	*53*		*25 - 150*
13C-1,2,3,6,7,8-HxCDD	*54*		*25 - 150*
13C-1,2,3,4,6,7,8-HpCDF	*53*		*25 - 150*
13C-OCDD	*54*		*25 - 150*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-18129/1-A
Matrix: Sediment
Analysis Batch: 18801

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18129

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		1.5	0.14	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Antimony	0.0181	J	0.10	0.0013	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Arsenic	ND		0.050	0.0091	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Beryllium	ND		0.050	0.0038	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Cadmium	ND		0.050	0.0035	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Chromium	0.0141	J	0.10	0.0031	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Cobalt	ND		0.025	0.00075	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Copper	ND		0.10	0.017	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Iron	0.317	J	2.5	0.18	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Lead	0.00235	J	0.050	0.0019	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Manganese	0.00670	J	0.25	0.0052	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Nickel	ND		0.050	0.0057	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Selenium	ND		0.25	0.025	mg/Kg		10/20/11 16:15	10/27/11 00:47	1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-18129/1-A — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18801 — **Prep Batch: 18129**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		5.0	0.68	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Silver	ND		0.050	0.0020	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Thallium	ND		0.050	0.0010	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Tin	ND		0.25	0.030	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Zinc	ND		0.25	0.032	mg/Kg		10/20/11 16:15	10/27/11 00:47	1
Sodium	1.15	J	5.0	0.68	mg/Kg		10/20/11 16:15	10/27/11 00:47	1

Lab Sample ID: LCS 180-18129/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18801 — **Prep Batch: 18129**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	100	99.5		mg/Kg		99	80 - 120
Antimony	25.0	23.7		mg/Kg		95	80 - 120
Arsenic	2.00	1.71		mg/Kg		85	80 - 120
Beryllium	2.50	2.45		mg/Kg		98	80 - 120
Cadmium	2.50	2.32		mg/Kg		93	80 - 120
Chromium	10.0	9.45		mg/Kg		94	80 - 120
Cobalt	25.0	23.6		mg/Kg		94	80 - 120
Copper	12.5	12.2		mg/Kg		98	80 - 120
Iron	50.0	48.1		mg/Kg		96	80 - 120
Lead	1.00	0.945		mg/Kg		94	80 - 120
Manganese	25.0	23.2		mg/Kg		93	80 - 120
Nickel	25.0	23.9		mg/Kg		96	80 - 120
Selenium	0.500	0.442		mg/Kg		88	80 - 120
Potassium	2500	2260		mg/Kg		91	80 - 120
Silver	2.50	2.39		mg/Kg		95	80 - 120
Thallium	2.50	2.31		mg/Kg		93	80 - 120
Tin	100	92.9		mg/Kg		93	80 - 120
Zinc	25.0	22.0		mg/Kg		88	80 - 120
Sodium	2500	2190		mg/Kg		88	80 - 120

Lab Sample ID: 180-4733-A-1-D MS — **Client Sample ID: Matrix Spike**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18801 — **Prep Batch: 18129**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	8900		188	14000	4	mg/Kg	☼	2726	75 - 125
Antimony	0.35	B	47.0	27.7	F	mg/Kg	☼	58	75 - 125
Arsenic	8.9		3.76	12.2		mg/Kg	☼	88	75 - 125
Beryllium	1.1		4.70	5.69		mg/Kg	☼	99	75 - 125
Cadmium	0.30		4.70	4.51		mg/Kg	☼	90	75 - 125
Chromium	51	B	18.8	77.9	F	mg/Kg	☼	143	75 - 125
Cobalt	12		47.0	53.4		mg/Kg	☼	89	75 - 125
Copper	23		23.5	43.6		mg/Kg	☼	88	75 - 125
Iron	33000	B	93.9	34800	4	mg/Kg	☼	2006	75 - 125
Lead	27	B	1.88	33.5	4	mg/Kg	☼	342	75 - 125
Manganese	1200	B	47.0	1240	4	mg/Kg	☼	176	75 - 125
Nickel	19		47.0	61.5		mg/Kg	☼	91	75 - 125
Selenium	0.75		0.939	1.50		mg/Kg	☼	79	75 - 125

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-4733-A-1-D MS — **Client Sample ID: Matrix Spike**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18801 — **Prep Batch: 18129**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Potassium	3200		4700	8040		mg/Kg	☼	103	75 - 125
Silver	0.16		4.70	4.53		mg/Kg	☼	93	75 - 125
Thallium	0.086	J	4.70	4.86		mg/Kg	☼	102	75 - 125
Tin	2.2		188	168		mg/Kg	☼	88	75 - 125
Zinc	120		47.0	165		mg/Kg	☼	87	75 - 125
Sodium	2000	B	4700	6070		mg/Kg	☼	86	75 - 125

Lab Sample ID: 180-4733-A-1-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18801 — **Prep Batch: 18129**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	8900		179	13700	4	mg/Kg	☼	2691	75 - 125	2	20
Antimony	0.35	B	44.7	26.7	F	mg/Kg	☼	59	75 - 125	4	20
Arsenic	8.9		3.58	12.0		mg/Kg	☼	87	75 - 125	1	20
Beryllium	1.1		4.47	5.54		mg/Kg	☼	100	75 - 125	3	20
Cadmium	0.30		4.47	4.38		mg/Kg	☼	91	75 - 125	3	20
Chromium	51	B	17.9	74.9	F	mg/Kg	☼	133	75 - 125	4	20
Cobalt	12		44.7	50.4		mg/Kg	☼	87	75 - 125	6	20
Copper	23		22.4	42.3		mg/Kg	☼	87	75 - 125	3	20
Iron	33000	B	89.5	33800	4	mg/Kg	☼	982	75 - 125	3	20
Lead	27	B	1.79	30.8	4	mg/Kg	☼	212	75 - 125	8	20
Manganese	1200	B	44.7	1060	4	mg/Kg	☼	-229	75 - 125	16	20
Nickel	19		44.7	59.0		mg/Kg	☼	90	75 - 125	4	20
Selenium	0.75		0.895	1.51		mg/Kg	☼	84	75 - 125	1	20
Potassium	3200		4470	7800		mg/Kg	☼	103	75 - 125	3	20
Silver	0.16		4.47	4.38		mg/Kg	☼	94	75 - 125	3	20
Thallium	0.086	J	4.47	4.50		mg/Kg	☼	99	75 - 125	8	20
Tin	2.2		179	160		mg/Kg	☼	88	75 - 125	5	20
Zinc	120		44.7	163		mg/Kg	☼	88	75 - 125	1	20
Sodium	2000	B	4470	5910		mg/Kg	☼	87	75 - 125	3	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 180-18583/1-A — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18630 — **Prep Batch: 18583**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0055	mg/Kg		10/26/11 03:19	10/26/11 08:21	1

Lab Sample ID: LCS 180-18583/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18630 — **Prep Batch: 18583**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.208	0.203		mg/Kg		98	80 - 120

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 180-4733-A-1-G MS — **Client Sample ID: Matrix Spike**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18630 — **Prep Batch: 18583**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.11		0.157	0.282		mg/Kg	☼	109	75 - 125

Lab Sample ID: 180-4733-A-1-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18630 — **Prep Batch: 18583**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.11		0.154	0.279		mg/Kg	☼	111	75 - 125	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 180-17531/1-A — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17804 — **Prep Batch: 17531**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia, distilled	ND		5.0	2.2	mg/Kg		10/15/11 16:45	10/18/11 12:42	1

Lab Sample ID: LCS 180-17531/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17804 — **Prep Batch: 17531**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia, distilled	100	106		mg/Kg		106	90 - 110

Lab Sample ID: 180-4362-B-7-H MS — **Client Sample ID: Matrix Spike**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17804 — **Prep Batch: 17531**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia, distilled	13		149	179	F	mg/Kg	☼	112	90 - 110

Lab Sample ID: 180-4362-B-7-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17804 — **Prep Batch: 17531**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia, distilled	13		149	181	F	mg/Kg	☼	113	90 - 110	1	20

Method: 9045C - pH

Lab Sample ID: 180-4829-A-12 DU — **Client Sample ID: Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17451

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.19		7.190		SU		0	2

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-17773/6 — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17773

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.050	0.015	mg/Kg			10/17/11 12:05	1
Chloride	0.680	J	1.0	0.22	mg/Kg			10/17/11 12:05	1
Nitrite as N	ND		0.050	0.016	mg/Kg			10/17/11 12:05	1
Orthophosphate	ND		0.50	0.061	mg/Kg			10/17/11 12:05	1

Lab Sample ID: LCS 180-17773/5 — **Client Sample ID: Lab Control Sample**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17773

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.45		mg/Kg		98	80 - 120
Chloride	50.0	48.9		mg/Kg		98	80 - 120
Nitrite as N	2.50	2.47		mg/Kg		99	80 - 120
Orthophosphate	2.50	2.44		mg/Kg		98	80 - 120

Lab Sample ID: LCSD 180-17773/7 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17773

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.50	2.46		mg/Kg		98	80 - 120	0	20
Chloride	50.0	49.0		mg/Kg		98	80 - 120	0	20
Nitrite as N	2.50	2.50		mg/Kg		100	80 - 120	1	20
Orthophosphate	2.50	2.46		mg/Kg		99	80 - 120	1	20

Lab Sample ID: LB3 180-17658/5-A LB3 — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Soluble**
Analysis Batch: 17773

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.50	0.15	mg/Kg			10/17/11 20:20	1
Chloride	6.75	J	10	2.2	mg/Kg			10/17/11 20:20	1
Nitrite as N	ND		0.50	0.16	mg/Kg			10/17/11 20:20	1
Orthophosphate	ND		5.0	0.61	mg/Kg			10/17/11 20:20	1

Method: D 2216-90 - Moisture, Percent (D2216-90) - AFCEE

Lab Sample ID: G1J140481001X — **Client Sample ID: S-1 DUP**
Matrix: Solid — **Prep Type: Total**
Analysis Batch: 1294109

Analyte	Sample Result	Sample Qualifier	LR1 Result	LR1 Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	17.0		17.2		%		0.79	20

Method: Lloyd Kahn - Organic Carbon, Total (TOC)

Lab Sample ID: MB 180-17655/3 — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1000	250	mg/Kg			10/14/11 14:47	1

Lab Sample ID: LCS 180-17655/4 — **Client Sample ID: Lab Control Sample**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	22900	21700		mg/Kg		95	75 - 125

Lab Sample ID: LCSD 180-17655/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17655

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	22900	20900		mg/Kg		91	75 - 125	3	20

Lab Sample ID: 180-4750-B-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17655

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	210000		90800	320000		mg/Kg	☼	116	75 - 125

Lab Sample ID: 180-4750-B-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17655

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	210000		90800	392000	F	mg/Kg	☼	196	75 - 125	20	20

Lab Sample ID: 180-4750-A-1 DU — **Client Sample ID: Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17655

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	210000		242000		mg/Kg	☼	12	20

Lab Sample ID: MB 180-18052/3 — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18052

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1000	250	mg/Kg			10/19/11 11:20	1

Method: Lloyd Kahn - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 180-18052/4 — **Client Sample ID: Lab Control Sample**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18052

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon - Duplicates			22900	21100		mg/Kg		92	75 - 125		

Lab Sample ID: LCSD 180-18052/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18052

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates			22900	21900		mg/Kg		96	75 - 125	4	20

Lab Sample ID: 180-4829-A-12 MS — **Client Sample ID: Matrix Spike**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18052

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon - Duplicates	72000		68800	122000	F	mg/Kg	☼	72	75 - 125		

Lab Sample ID: 180-4829-A-12 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18052

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	72000		68800	132000		mg/Kg	☼	87	75 - 125	8	20

Lab Sample ID: 180-4829-A-12 DU — **Client Sample ID: Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 18052

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon - Duplicates	72000			79200		mg/Kg	☼			9	20

Method: Moisture - Percent Moisture

Lab Sample ID: 180-4815-1 DU — **Client Sample ID: S-1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17251

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	15			17		%				8	20

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 180-17677/2 — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 17677

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			10/17/11 16:42	1

Lab Sample ID: LB 180-17674/1-A LB — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Soluble**
Analysis Batch: 17677

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		10	10	umhos/cm			10/17/11 16:42	1

Lab Sample ID: 180-4815-1 DU — **Client Sample ID: S-1**
Matrix: Sediment — **Prep Type: Soluble**
Analysis Batch: 17677

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	230			233		umhos/cm				2	20

Method: SM 4500 Norg C - Nitrogen-Total Kjeldahl

Lab Sample ID: MB 240-19474/1-A — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 19604 — **Prep Batch: 19474**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	141	J	150	51	mg/Kg		10/17/11 15:07	10/18/11 13:33	1

Lab Sample ID: LCS 240-19474/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 19604 — **Prep Batch: 19474**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrogen, Kjeldahl			620	622		mg/Kg		100	70 - 133		

Lab Sample ID: 180-4759-C-5-B MS — **Client Sample ID: Matrix Spike**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 19604 — **Prep Batch: 19474**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrogen, Kjeldahl	1600	B	1490	2660		mg/Kg	☼	72	50 - 120		

Lab Sample ID: 180-4759-C-5-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 19604 — **Prep Batch: 19474**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	1600	B	1620	2740		mg/Kg	☼	72	50 - 120	3	50

QC Sample Results

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

Method: SM 4500 P E - Phosphorus

Lab Sample ID: MB 240-19763/10-A — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 20028 — **Prep Batch: 19763**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as PO4	ND		10	0.099	mg/Kg		10/19/11 10:58	10/19/11 15:16	1

Lab Sample ID: LCS 240-19763/11-A — **Client Sample ID: Lab Control Sample**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 20028 — **Prep Batch: 19763**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Phosphorus as PO4			54.3	58.3		mg/Kg		107	75 - 125		

Lab Sample ID: 240-4869-G-5-B MS — **Client Sample ID: Matrix Spike**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 20028 — **Prep Batch: 19763**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Phosphorus as PO4	72		50.8	145	F	mg/Kg	☼	144	75 - 125		

Lab Sample ID: 240-4869-G-5-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 20028 — **Prep Batch: 19763**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Phosphorus as PO4	72		51.9	144	F	mg/Kg	☼	139	75 - 125	1	20

QC Association Summary

Client: Gannett Fleming
Project/Site: 054926 Lake Whetstone

TestAmerica Job ID: 180-4815-1

GC/MS Semi VOA

Prep Batch: 17878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	3541	
180-4815-2	S-2	Total/NA	Sediment	3541	
180-4815-3	S-3	Total/NA	Sediment	3541	
180-4815-4	S-4	Total/NA	Sediment	3541	
180-4815-4 MS	S-4	Total/NA	Sediment	3541	
180-4815-4 MSD	S-4	Total/NA	Sediment	3541	
LCS 180-17878/2-A	Lab Control Sample	Total/NA	Sediment	3541	
MB 180-17878/1-A	Method Blank	Total/NA	Sediment	3541	

Analysis Batch: 18597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	8270C LL	17878
180-4815-2	S-2	Total/NA	Sediment	8270C LL	17878
180-4815-3	S-3	Total/NA	Sediment	8270C LL	17878
180-4815-4	S-4	Total/NA	Sediment	8270C LL	17878
180-4815-4 MS	S-4	Total/NA	Sediment	8270C LL	17878
180-4815-4 MSD	S-4	Total/NA	Sediment	8270C LL	17878
LCS 180-17878/2-A	Lab Control Sample	Total/NA	Sediment	8270C LL	17878
MB 180-17878/1-A	Method Blank	Total/NA	Sediment	8270C LL	17878

GC Semi VOA

Prep Batch: 17879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4750-B-1-R MS	Matrix Spike	Total/NA	Sediment	3541	
180-4750-B-1-S MSD	Matrix Spike Duplicate	Total/NA	Sediment	3541	
180-4815-1	S-1	Total/NA	Sediment	3541	
180-4815-2	S-2	Total/NA	Sediment	3541	
180-4815-3	S-3	Total/NA	Sediment	3541	
180-4815-4	S-4	Total/NA	Sediment	3541	
LCS 180-17879/2-B	Lab Control Sample	Total/NA	Sediment	3541	
MB 180-17879/1-B	Method Blank	Total/NA	Sediment	3541	

Prep Batch: 18024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	3541	
180-4815-1 MS	S-1	Total/NA	Sediment	3541	
180-4815-1 MSD	S-1	Total/NA	Sediment	3541	
180-4815-2	S-2	Total/NA	Sediment	3541	
180-4815-3	S-3	Total/NA	Sediment	3541	
180-4815-4	S-4	Total/NA	Sediment	3541	
LCS 180-18024/2-A	Lab Control Sample	Total/NA	Sediment	3541	
MB 180-18024/1-A	Method Blank	Total/NA	Sediment	3541	

Analysis Batch: 18483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	8082A	18024
180-4815-1 MS	S-1	Total/NA	Sediment	8082A	18024
180-4815-1 MSD	S-1	Total/NA	Sediment	8082A	18024
180-4815-2	S-2	Total/NA	Sediment	8082A	18024
180-4815-3	S-3	Total/NA	Sediment	8082A	18024
180-4815-4	S-4	Total/NA	Sediment	8082A	18024

GC Semi VOA (Continued)

Analysis Batch: 18483 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-18024/2-A	Lab Control Sample	Total/NA	Sediment	8082A	18024
MB 180-18024/1-A	Method Blank	Total/NA	Sediment	8082A	18024

Analysis Batch: 18484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	8082A	18024
180-4815-1 MS	S-1	Total/NA	Sediment	8082A	18024
180-4815-1 MSD	S-1	Total/NA	Sediment	8082A	18024
180-4815-2	S-2	Total/NA	Sediment	8082A	18024
180-4815-3	S-3	Total/NA	Sediment	8082A	18024
180-4815-4	S-4	Total/NA	Sediment	8082A	18024
LCS 180-18024/2-A	Lab Control Sample	Total/NA	Sediment	8082A	18024
MB 180-18024/1-A	Method Blank	Total/NA	Sediment	8082A	18024

Analysis Batch: 19126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4750-B-1-R MS	Matrix Spike	Total/NA	Sediment	8081A	17879
180-4750-B-1-S MSD	Matrix Spike Duplicate	Total/NA	Sediment	8081A	17879
180-4815-1	S-1	Total/NA	Sediment	8081A	17879
180-4815-2	S-2	Total/NA	Sediment	8081A	17879
180-4815-3	S-3	Total/NA	Sediment	8081A	17879
180-4815-4	S-4	Total/NA	Sediment	8081A	17879
LCS 180-17879/2-B	Lab Control Sample	Total/NA	Sediment	8081A	17879
MB 180-17879/1-B	Method Blank	Total/NA	Sediment	8081A	17879

Specialty Organics

Analysis Batch: 1301122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total	Sediment	8280A	
180-4815-2	S-2	Total	Sediment	8280A	
180-4815-3	S-3	Total	Sediment	8280A	
180-4815-4	S-4	Total	Sediment	8280A	
G1J280000122B	Method Blank	Total	Solid	8280A	
G1J280000122C	Lab Control Sample	Total	Solid	8280A	

Prep Batch: 1301122_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total	Sediment	8280A	
180-4815-2	S-2	Total	Sediment	8280A	
180-4815-3	S-3	Total	Sediment	8280A	
180-4815-4	S-4	Total	Sediment	8280A	
G1J280000122B	Method Blank	Total	Solid	8280A	
G1J280000122C	Lab Control Sample	Total	Solid	8280A	

Metals

Prep Batch: 18129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4733-A-1-D MS	Matrix Spike	Total/NA	Sediment	3050B	
180-4733-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Sediment	3050B	
180-4815-1	S-1	Total/NA	Sediment	3050B	

Metals (Continued)

Prep Batch: 18129 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-2	S-2	Total/NA	Sediment	3050B	
180-4815-3	S-3	Total/NA	Sediment	3050B	
180-4815-4	S-4	Total/NA	Sediment	3050B	
LCS 180-18129/2-A	Lab Control Sample	Total/NA	Sediment	3050B	
MB 180-18129/1-A	Method Blank	Total/NA	Sediment	3050B	

Prep Batch: 18583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4733-A-1-G MS	Matrix Spike	Total/NA	Sediment	7471A	
180-4733-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Sediment	7471A	
180-4815-1	S-1	Total/NA	Sediment	7471A	
180-4815-2	S-2	Total/NA	Sediment	7471A	
180-4815-3	S-3	Total/NA	Sediment	7471A	
180-4815-4	S-4	Total/NA	Sediment	7471A	
LCS 180-18583/2-A	Lab Control Sample	Total/NA	Sediment	7471A	
MB 180-18583/1-A	Method Blank	Total/NA	Sediment	7471A	

Analysis Batch: 18630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4733-A-1-G MS	Matrix Spike	Total/NA	Sediment	7471A	18583
180-4733-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Sediment	7471A	18583
180-4815-1	S-1	Total/NA	Sediment	7471A	18583
180-4815-2	S-2	Total/NA	Sediment	7471A	18583
180-4815-3	S-3	Total/NA	Sediment	7471A	18583
180-4815-4	S-4	Total/NA	Sediment	7471A	18583
LCS 180-18583/2-A	Lab Control Sample	Total/NA	Sediment	7471A	18583
MB 180-18583/1-A	Method Blank	Total/NA	Sediment	7471A	18583

Analysis Batch: 18801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4733-A-1-D MS	Matrix Spike	Total/NA	Sediment	6020	18129
180-4733-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Sediment	6020	18129
180-4815-3	S-3	Total/NA	Sediment	6020	18129
180-4815-4	S-4	Total/NA	Sediment	6020	18129
LCS 180-18129/2-A	Lab Control Sample	Total/NA	Sediment	6020	18129
MB 180-18129/1-A	Method Blank	Total/NA	Sediment	6020	18129

Analysis Batch: 18950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	6020	18129
180-4815-2	S-2	Total/NA	Sediment	6020	18129

General Chemistry

Analysis Batch: 17251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	Moisture	
180-4815-1 DU	S-1	Total/NA	Sediment	Moisture	
180-4815-2	S-2	Total/NA	Sediment	Moisture	
180-4815-3	S-3	Total/NA	Sediment	Moisture	
180-4815-4	S-4	Total/NA	Sediment	Moisture	

General Chemistry (Continued)

Analysis Batch: 17451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	9045C	
180-4815-2	S-2	Total/NA	Sediment	9045C	
180-4815-3	S-3	Total/NA	Sediment	9045C	
180-4815-4	S-4	Total/NA	Sediment	9045C	
180-4829-A-12 DU	Duplicate	Total/NA	Sediment	9045C	
LCS 180-17451/1	Lab Control Sample	Total/NA	Sediment	9045C	

Prep Batch: 17531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4362-B-7-H MS	Matrix Spike	Total/NA	Sediment	Distill/Ammonia	
180-4362-B-7-I MSD	Matrix Spike Duplicate	Total/NA	Sediment	Distill/Ammonia	
180-4815-1	S-1	Total/NA	Sediment	Distill/Ammonia	
180-4815-2	S-2	Total/NA	Sediment	Distill/Ammonia	
180-4815-3	S-3	Total/NA	Sediment	Distill/Ammonia	
180-4815-4	S-4	Total/NA	Sediment	Distill/Ammonia	
LCS 180-17531/2-A	Lab Control Sample	Total/NA	Sediment	Distill/Ammonia	
MB 180-17531/1-A	Method Blank	Total/NA	Sediment	Distill/Ammonia	

Analysis Batch: 17655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4750-A-1 DU	Duplicate	Total/NA	Sediment	Lloyd Kahn	
180-4750-B-1 MS	Matrix Spike	Total/NA	Sediment	Lloyd Kahn	
180-4750-B-1 MSD	Matrix Spike Duplicate	Total/NA	Sediment	Lloyd Kahn	
180-4815-1	S-1	Total/NA	Sediment	Lloyd Kahn	
180-4815-2	S-2	Total/NA	Sediment	Lloyd Kahn	
180-4815-3	S-3	Total/NA	Sediment	Lloyd Kahn	
LCS 180-17655/4	Lab Control Sample	Total/NA	Sediment	Lloyd Kahn	
LCSD 180-17655/5	Lab Control Sample Dup	Total/NA	Sediment	Lloyd Kahn	
MB 180-17655/3	Method Blank	Total/NA	Sediment	Lloyd Kahn	

Leach Batch: 17658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Soluble	Sediment	DI Leach	
180-4815-2	S-2	Soluble	Sediment	DI Leach	
180-4815-3	S-3	Soluble	Sediment	DI Leach	
180-4815-4	S-4	Soluble	Sediment	DI Leach	
LB3 180-17658/5-A LB3	Method Blank	Soluble	Sediment	DI Leach	

Leach Batch: 17674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Soluble	Sediment	DI Leach	
180-4815-1 DU	S-1	Soluble	Sediment	DI Leach	
180-4815-2	S-2	Soluble	Sediment	DI Leach	
180-4815-3	S-3	Soluble	Sediment	DI Leach	
180-4815-4	S-4	Soluble	Sediment	DI Leach	
LB 180-17674/1-A LB	Method Blank	Soluble	Sediment	DI Leach	

Analysis Batch: 17677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Soluble	Sediment	SM 2510B	
180-4815-1 DU	S-1	Soluble	Sediment	SM 2510B	
180-4815-2	S-2	Soluble	Sediment	SM 2510B	

General Chemistry (Continued)

Analysis Batch: 17677 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-3	S-3	Soluble	Sediment	SM 2510B	
180-4815-4	S-4	Soluble	Sediment	SM 2510B	
LB 180-17674/1-A LB	Method Blank	Soluble	Sediment	SM 2510B	
LCS 180-17677/1	Lab Control Sample	Total/NA	Sediment	SM 2510B	
MB 180-17677/2	Method Blank	Total/NA	Sediment	SM 2510B	

Analysis Batch: 17773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Soluble	Sediment	9056A	
180-4815-2	S-2	Soluble	Sediment	9056A	
180-4815-3	S-3	Soluble	Sediment	9056A	
180-4815-4	S-4	Soluble	Sediment	9056A	
LB3 180-17658/5-A LB3	Method Blank	Soluble	Sediment	9056A	
LCS 180-17773/5	Lab Control Sample	Total/NA	Sediment	9056A	
LCSD 180-17773/7	Lab Control Sample Dup	Total/NA	Sediment	9056A	
MB 180-17773/6	Method Blank	Total/NA	Sediment	9056A	

Analysis Batch: 17804

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4362-B-7-H MS	Matrix Spike	Total/NA	Sediment	350.1	17531
180-4362-B-7-I MSD	Matrix Spike Duplicate	Total/NA	Sediment	350.1	17531
180-4815-1	S-1	Total/NA	Sediment	350.1	17531
180-4815-2	S-2	Total/NA	Sediment	350.1	17531
180-4815-3	S-3	Total/NA	Sediment	350.1	17531
180-4815-4	S-4	Total/NA	Sediment	350.1	17531
LCS 180-17531/2-A	Lab Control Sample	Total/NA	Sediment	350.1	17531
MB 180-17531/1-A	Method Blank	Total/NA	Sediment	350.1	17531

Analysis Batch: 18052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-4	S-4	Total/NA	Sediment	Lloyd Kahn	
180-4829-A-12 DU	Duplicate	Total/NA	Sediment	Lloyd Kahn	
180-4829-A-12 MS	Matrix Spike	Total/NA	Sediment	Lloyd Kahn	
180-4829-A-12 MSD	Matrix Spike Duplicate	Total/NA	Sediment	Lloyd Kahn	
LCS 180-18052/4	Lab Control Sample	Total/NA	Sediment	Lloyd Kahn	
LCSD 180-18052/5	Lab Control Sample Dup	Total/NA	Sediment	Lloyd Kahn	
MB 180-18052/3	Method Blank	Total/NA	Sediment	Lloyd Kahn	

Prep Batch: 19474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4759-C-5-B MS	Matrix Spike	Total/NA	Sediment	SM4500Norg_C	
180-4759-C-5-C MSD	Matrix Spike Duplicate	Total/NA	Sediment	SM4500Norg_C	
180-4815-1	S-1	Total/NA	Sediment	SM4500Norg_C	
180-4815-2	S-2	Total/NA	Sediment	SM4500Norg_C	
180-4815-3	S-3	Total/NA	Sediment	SM4500Norg_C	
180-4815-4	S-4	Total/NA	Sediment	SM4500Norg_C	
LCS 240-19474/2-A	Lab Control Sample	Total/NA	Sediment	SM4500Norg_C	
MB 240-19474/1-A	Method Blank	Total/NA	Sediment	SM4500Norg_C	

Analysis Batch: 19604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4759-C-5-B MS	Matrix Spike	Total/NA	Sediment	SM 4500 Norg C	19474

General Chemistry (Continued)

Analysis Batch: 19604 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4759-C-5-C MSD	Matrix Spike Duplicate	Total/NA	Sediment	SM 4500 Norg C	19474
180-4815-1	S-1	Total/NA	Sediment	SM 4500 Norg C	19474
180-4815-2	S-2	Total/NA	Sediment	SM 4500 Norg C	19474
180-4815-3	S-3	Total/NA	Sediment	SM 4500 Norg C	19474
180-4815-4	S-4	Total/NA	Sediment	SM 4500 Norg C	19474
LCS 240-19474/2-A	Lab Control Sample	Total/NA	Sediment	SM 4500 Norg C	19474
MB 240-19474/1-A	Method Blank	Total/NA	Sediment	SM 4500 Norg C	19474

Prep Batch: 19763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	365.2/365.3/365	
180-4815-2	S-2	Total/NA	Sediment	365.2/365.3/365	
180-4815-3	S-3	Total/NA	Sediment	365.2/365.3/365	
180-4815-4	S-4	Total/NA	Sediment	365.2/365.3/365	
240-4869-G-5-B MS	Matrix Spike	Total/NA	Sediment	365.2/365.3/365	
240-4869-G-5-C MSD	Matrix Spike Duplicate	Total/NA	Sediment	365.2/365.3/365	
LCS 240-19763/11-A	Lab Control Sample	Total/NA	Sediment	365.2/365.3/365	
MB 240-19763/10-A	Method Blank	Total/NA	Sediment	365.2/365.3/365	

Analysis Batch: 20028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total/NA	Sediment	SM 4500 P E	19763
180-4815-2	S-2	Total/NA	Sediment	SM 4500 P E	19763
180-4815-3	S-3	Total/NA	Sediment	SM 4500 P E	19763
180-4815-4	S-4	Total/NA	Sediment	SM 4500 P E	19763
240-4869-G-5-B MS	Matrix Spike	Total/NA	Sediment	SM 4500 P E	19763
240-4869-G-5-C MSD	Matrix Spike Duplicate	Total/NA	Sediment	SM 4500 P E	19763
LCS 240-19763/11-A	Lab Control Sample	Total/NA	Sediment	SM 4500 P E	19763
MB 240-19763/10-A	Method Blank	Total/NA	Sediment	SM 4500 P E	19763

Analysis Batch: 1294109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-4815-1	S-1	Total	Sediment	D 2216-90	
180-4815-2	S-2	Total	Sediment	D 2216-90	
180-4815-3	S-3	Total	Sediment	D 2216-90	
180-4815-4	S-4	Total	Sediment	D 2216-90	
G1J140481001X	S-1 DUP	Total	Solid	D 2216-90	

Report Number
11-287-0212 **Page:** 1 of 8

Account Number
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Purchase Order :
Report Date : 11/03/2011
Date Received : 10/14/2011

Project : 054926 Lake Whetstone
Project #18008607
Job #180-4815-1

REPORT OF ANALYSIS

Date Sampled : 10/10/2011

Lab Number: 94889
Sample Id : S-1 (180-4815-1)

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Digestion ,	Digested		3050B	10/26/2011 10:15	
C/N RATIO , Ratio	2:1		CALCULATION		
Cation Exchange Capacity , meq/100g	4.00	0.100	SW-9081	10/18/2011 15:25	SNS
Neutralizing Value (%CCE) , %	<0.1	0.1	AOAC 1.1.04	10/25/2011 13:54	AYG
SALINITY , mmhos/cm	1.0		2520	11/03/2011 09:30	AEH
Sodium Adsorption Ratio , Calc	1.47		SATURATED PASTE	10/18/2011 08:00	AEH
Total Sulfur , mg/Kg	85.4	5.00	6010B	10/30/2011 14:11	JTR
Calcium , ppm	52.8	0.050	SATURATED PASTE	10/18/2011 08:00	AEH
Carbon, Total , %	0.2	0.1	LECO	10/24/2011 10:09	TDJ
Magnesium , ppm	16.4	0.050	SATURATED PASTE	10/18/2011 08:00	AEH
Total N (Inorg+Org) , %	0.1	0.1	LECO	10/24/2011 10:09	TDJ
Sodium , ppm	47.7	0.050	SATURATED PASTE	10/18/2011 08:00	AEH

Sample results are reported 'as received' and are not moisture corrected unless noted.

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11-287-0212 **Page:** 2 of 8

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Report Date : 11/03/2011
Date Received : 10/14/2011

Project : 054926 Lake Whetstone
Project #18008607
Job #180-4815-1

REPORT OF ANALYSIS

Date Sampled : 10/10/2011

Lab Number: 94889
Sample Id : S-1 (180-4815-1)

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst

Method Reference:
Calculation from lab derived data.
Methods for Chemical Analysis , EPA-600/4-79-020.
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, p. 420.
Official Methods of Analysis of AOAC International, 17th Edition, 1998
Standard Methods for the Analysis of Water and Wastewater, 20th Ed. 1998
USEPA, SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, 3rd Ed. Current Revision
Comments:

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Report Number
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Purchase Order :
Report Date : 11/03/2011
Date Received : 10/14/2011

Project : 054926 Lake Whetstone
Project #18008607
Job #180-4815-1

REPORT OF ANALYSIS

Date Sampled : 10/10/2011

Lab Number: 94890
Sample Id : S-2 (180-4815-2)

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Digestion ,	Digested		3050B	10/26/2011 10:15	
C/N RATIO , Ratio	7:1		CALCULATION		
Cation Exchange Capacity , meq/100g	11.5	0.100	SW-9081	10/18/2011 15:25	SNS
Neutralizing Value (%CCE) , %	<0.1	0.1	AOAC 1.1.04	10/25/2011 13:54	AYG
SALINITY , mmhos/cm	1.3		2520	11/03/2011 09:30	AEH
Sodium Adsorption Ratio , Calc	1.33		SATURATED PASTE	10/18/2011 08:00	AEH
Total Sulfur , mg/Kg	276	5.00	6010B	10/30/2011 14:12	JTR
Calcium , ppm	46.0	0.050	SATURATED PASTE	10/18/2011 08:00	AEH
Carbon, Total , %	1.3	0.1	LECO	10/24/2011 10:13	TDJ
Magnesium , ppm	19.5	0.050	SATURATED PASTE	10/18/2011 08:00	AEH
Total N (Inorg+Org) , %	0.2	0.1	LECO	10/24/2011 10:13	TDJ
Sodium , ppm	42.7	0.050	SATURATED PASTE	10/18/2011 08:00	AEH

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Report Number
11-287-0212 **Page:** 4 of 8

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Purchase Order :
Report Date : 11/03/2011
Date Received : 10/14/2011

Project : 054926 Lake Whetstone
Project #18008607
Job #180-4815-1

REPORT OF ANALYSIS

Date Sampled : 10/10/2011

Lab Number: 94890
Sample Id : S-2 (180-4815-2)

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst

Method Reference:
Calculation from lab derived data.
Methods for Chemical Analysis , EPA-600/4-79-020.
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, p. 420.
Official Methods of Analysis of AOAC International, 17th Edition, 1998
Standard Methods for the Analysis of Water and Wastewater, 20th Ed. 1998
USEPA, SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, 3rd Ed. Current Revision
Comments:

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Report Date : 11/03/2011
Date Received : 10/14/2011

Project : 054926 Lake Whetstone
Project #18008607
Job #180-4815-1

REPORT OF ANALYSIS

Date Sampled : 10/10/2011

Lab Number: 94891
Sample Id : S-3 (180-4815-3)

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Digestion ,	Digested		3050B	10/26/2011 10:15	
C/N RATIO , Ratio	6:1		CALCULATION		
Cation Exchange Capacity , meq/100g	16.5	0.100	SW-9081	10/18/2011 15:25	SNS
Neutralizing Value (%CCE) , %	<0.1	0.1	AOAC 1.1.04	10/25/2011 13:54	AYG
SALINITY , mmhos/cm	1.1		2520	11/03/2011 09:30	AEH
Sodium Adsorption Ratio , Calc	1.14		SATURATED PASTE	10/18/2011 08:00	AEH
Total Sulfur , mg/Kg	562	5.00	6010B	10/30/2011 14:13	JTR
Calcium , ppm	28.0	0.050	SATURATED PASTE	10/18/2011 08:00	AEH
Carbon, Total , %	1.9	0.1	LECO	10/24/2011 10:17	TDJ
Magnesium , ppm	16.5	0.050	SATURATED PASTE	10/18/2011 08:00	AEH
Total N (Inorg+Org) , %	0.3	0.1	LECO	10/24/2011 10:17	TDJ
Sodium , ppm	30.7	0.050	SATURATED PASTE	10/18/2011 08:00	AEH

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Report Number
11-287-0212 **Page:** 6 of 8

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Purchase Order :
Report Date : 11/03/2011
Date Received : 10/14/2011

Project : 054926 Lake Whetstone
Project #18008607
Job #180-4815-1

REPORT OF ANALYSIS

Date Sampled : 10/10/2011

Lab Number: 94891
Sample Id : S-3 (180-4815-3)

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst

Method Reference:
Calculation from lab derived data.
Methods for Chemical Analysis , EPA-600/4-79-020.
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, p. 420.
Official Methods of Analysis of AOAC International, 17th Edition, 1998
Standard Methods for the Analysis of Water and Wastewater, 20th Ed. 1998
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Comments:

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Date Received : 10/14/2011

Project : 054926 Lake Whetstone
Project #18008607
Job #180-4815-1

REPORT OF ANALYSIS

Date Sampled : 10/10/2011

Lab Number: 94892
Sample Id : S-4 (180-4815-4)

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Digestion ,	Digested		3050B	10/26/2011 10:15	
C/N RATIO , Ratio	1:1		CALCULATION		
Cation Exchange Capacity , meq/100g	12.4	0.100	SW-9081	10/18/2011 15:25	SNS
Neutralizing Value (%CCE) , %	<0.1	0.1	AOAC 1.1.04	10/25/2011 13:54	AYG
SALINITY , mmhos/cm	0.3		2520	11/03/2011 09:30	AEH
Sodium Adsorption Ratio , Calc	0.457		SATURATED PASTE	10/18/2011 08:00	AEH
Total Sulfur , mg/Kg	84.2	5.00	6010B	10/30/2011 14:14	JTR
Calcium , ppm	15.3	0.050	SATURATED PASTE	10/18/2011 08:00	AEH
Carbon, Total , %	0.3	0.1	LECO	10/24/2011 10:21	TDJ
Magnesium , ppm	7.23	0.050	SATURATED PASTE	10/18/2011 08:00	AEH
Total N (Inorg+Org) , %	0.2	0.1	LECO	10/24/2011 10:21	TDJ
Sodium , ppm	8.68	0.050	SATURATED PASTE	10/18/2011 08:00	AEH

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11-287-0212 **Page:** 8 of 8

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Project : 054926 Lake Whetstone
Project #18008607
Job #180-4815-1

Purchase Order :
Report Date : 11/03/2011
Date Received : 10/14/2011

REPORT OF ANALYSIS

Date Sampled : 10/10/2011

Lab Number: 94892
Sample Id : S-4 (180-4815-4)

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst

Method Reference:
Calculation from lab derived data.
Methods for Chemical Analysis , EPA-600/4-79-020.
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, p. 420.
Official Methods of Analysis of AOAC International, 17th Edition, 1998
Standard Methods for the Analysis of Water and Wastewater, 20th Ed. 1998
USEPA, SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, 3rd Ed. Current Revision
Comments:

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100 #2 180-4815

Chain of Custody Record

TestAmerica
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TestAmerica Laboratory location: Pittsburgh
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact			
Company Name: Gannett Fleming, Inc.	Client Project Manager: Jeremy Robinson	Site Contact:	Lab Contact:	COC No: 409950
Address: 207 Senate Ave	Telephone: 717 763 7211	Telephone:	Telephone:	1 of 1 COCs
City/State/Zip: Camp Hill PA 17011	Email: jsrobinson@gfnet.com	Analysis Turnaround Time (in BUS days)	Analyses	For lab use only
Phone: 717 763-7211		TAT if different from below ☐ ✓ 3 weeks ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Walk-in client ☐ Lab pickup ☐ Lab sampling ☐
Project Name: Lake Whetstone	Method of Shipment/Carrier: Fed Ex			
Project Number: 054926	Shipping/Tracking No: 8753 8103 9230			Job/SDG No:
PO #				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C / Grab=G	pH, CaCO3 Eq., CEC, Salinity, Na, Cl, SAR, Elec. Cond., TOC, C:N Ratio, TKN, Ammonia, Nitrogen, NO2-N, NO3-N, Tot. P, Ortho-P, Potassium, Sulfur, DPTA Metals, Tot.-Metals, Chlorinated Pesticides, PAH's, PCB's, Dioxins								Sample Specific Notes / Special Instructions:
S-1	10-10-11	1210			X								X		N	G			3						
S-2	↓	1440			X								X		N	G			3						
S-3		1500			X								X		N	G			3						
S-4		1320			X								X		N	G			3						

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return to Client ☑ Disposal By Lab ☐ Archive For ____ Months

Special Instructions/QC Requirements & Comments:
See Ryan Hall if questions about analysis Quote # 18008561-0
See Attached sheet from Quote

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jeremy Robinson	Gannett Fleming	10-11-11 / 10:00	[illegible]	TA PITT	10/12/11 10:00
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

11/16/2011

Chain of Custody Record

TestAmerica
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TestAmerica Laboratory location: Pittsburgh
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact			
Company Name: Gannett Fleming, Inc.	Client Project Manager: Jeremy Robinson	Site Contact:	Lab Contact:
Address: 207 Senate Ave	Telephone: 717 763 7211	Telephone:	Telephone:
City/State/Zip: Camp Hill PA 17011	Email: jsrobinson@gfnet.com		
Phone: 717 763-7211			
Project Name: Lake Whetstone	Method of Shipment/Carrier: Fed Ex		
Project Number: 054926	Shipping/Tracking No: 8753 8103 9230		
PO#			

COC No: 409950
1 of 1 COCs

Analysis Turnaround Time (In BUS days)
TAT if different from below
☑ 3 weeks
☐ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only
Walk-in client ☐
Lab pickup ☐
Lab sampling ☐
Job/SDG No:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C / Grab=G	Analyses: pH, CaCO3 Eq., CEC, Salinity, Na, Cl SAR, Elec. Cond., TOC, C:N Ratio, TKN, Ammonia-N, Nitrogen, NO2-N, NO3-N, Total P, Ortho-P, Potassium, Sulfur, DPTA Metals, Tot.-Metals, Chlorinated Pesticides, PAH's, PCBS, Dioxins	Sample Specific Notes / Special Instructions:
S-1	10-10-11	1210			X								X		N	G	3	
S-2	↓	1440			X								X		N	G	3	
S-3		1500			X								X		N	G	3	
S-4		1320			X								X		N	G	3	

18008607

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:
See Ryan Hall if questions about analysis Quote # 18008561-0
See Attached sheet from Quote

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Gannett Fleming	10-11-11 / 10:00	[signature]	TA Pitt	10/12/11 1800
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

FedEx Express — US Airbill

FedEx Tracking Number 8753 8103 9230

1 From This portion can be removed for Recipient's records.

Date 10/11/11 FedEx Tracking Number 875381039230

Sender's Name Jeremy Robinson Phone 717 763-7211

Company GANNETT FLEMING

Address 209 SENATE AVE STE 100

City CAMP HILL State PA ZIP 17011-2322

Dept./Floor/Suite/Room

2 Your Internal Billing Reference 054924.09.100406

3 To

Recipient's Name Sample Receiving 763-7058

Company Test America

Address 301 41st Drive

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Pittsburgh State PA ZIP 15238

HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

RECIPIENT: PEEL HERE

0435014690

8753 8103 9230

Form ID No.

4a Express

FedEx Next business day* shipments will be delivered on Monday unless SATURDAY Delivery is selected.

FedEx Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected. Saturday Delivery NOT available.

4b Express Freight Service To most locations. Packages over 150 lbs.

FedEx 1Day Freight Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

FedEx 2Day Freight Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

FedEx 3Day Freight Third business day.** Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

FedEx Envelope* FedEx Pak* Includes FedEx Small Pak and FedEx Large Pak. FedEx Box FedEx Tube Other

6 Special Handling and Delivery Signature Options

SATURDAY Delivery NOT available for FedEx Standard Overnight, FedEx Express Saver, FedEx 3Day Freight.

No Signature Required Package may be left without obtaining a signature for delivery.

Direct Signature Someone at recipient's address may sign for delivery. Fee applies.

Indirect Signature If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods? One box must be checked.

No Yes As per attached Shipper's Declaration. Yes in Shipper's Declaration not required.

Dry Ice Dry ice, 9, UN 1845 x kg

Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment Bill to:

Sender Acct. No. in Section 1 will be billed. Recipient Third Party Credit Card Cash/Check

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No.

Total Packages 1 Total Weight 39 lbs.

Credit Card Auth.

Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

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605

NA AGCA

PIT

Emp# 651299 LOC 711 MDTA SCFC1/A013/F5F4

Login Sample Receipt Checklist

Client: Gannett Fleming

Job Number: 180-4815-1

Login Number: 4815
List Number: 1
Creator: Gamber, Tom

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Gannett Fleming

Job Number: 180-4815-1

Login Number: 4815
List Number: 1
Creator: Sutek, Nick

List Source: TestAmerica North Canton
List Creation: 10/14/11 11:07 AM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

A.2 ALS ENVIRONMENTAL RESULTS

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

October 26, 2011

Mr. Jeremy Robinson
Gannett Fleming Inc.
207 Senate Avenue
Camp Hill, PA 17011

Certificate of Analysis

Project Name:	**2011-DREDGE MATERIAL - MD**	Workorder:	**9931863**
Purchase Order:		Workorder ID:	**Lake Whetsone 10/10/11**

Dear Mr. Robinson,

Enclosed are the analytical results for samples received by the laboratory on Monday, October 10, 2011.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Kelli Wolfgang (Project Coordinator) or Anna G Milliken (Technical Manager) at (717) 944-5541.

Please visit us at www.analyticallab.com for a listing of ALS' NELAP accreditations and Scope of Work, as well as other links to Water Quality documentation on the internet.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Anna G Milliken
Technical Manager

ALS Environmental

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SAMPLE SUMMARY

Workorder 9931863 Lake Whetsone 10/10/11 Discard Date: 11/09/2011

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
9931863001	S-1	Solid	10/10/11 12:10	10/10/11 18:10	Jeremy Robinson
9931863002	S-2	Solid	10/10/11 14:40	10/10/11 18:10	Jeremy Robinson
9931863003	S-3	Solid	10/10/11 15:00	10/10/11 18:10	Jeremy Robinson
9931863004	S-4	Solid	10/10/11 13:20	10/10/11 18:10	Jeremy Robinson

Workorder Comments:

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Standard Acronyms/Flags

J, B	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference

ALS Environmental

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State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

ANALYTICAL RESULTS

Workorder 9931863 Lake Whetsone 10/10/11

Lab ID: **9931863001** Date Collected: 10/10/2011 12:10 Matrix: Solid

Sample ID: **S-1** Date Received: 10/10/2011 18:10

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	11.5		%	0.1	SM20-2540 G			10/15/11 12:00	KAK	A
Total Solids	88.5		%	0.1	SM20-2540 G			10/15/11 12:00	KAK	A
York Lab - Not NELAC Certified										
Fecal Coliforms	23	1	MPN/gram	2	EPA 1680			10/14/11 10:48	KLG	

Sample Comments:

Anna G Milliken
Technical Manager

ALS Environmental

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ANALYTICAL RESULTS

Workorder 9931863 Lake Whetsone 10/10/11

Lab ID: **9931863002** Date Collected: 10/10/2011 14:40 Matrix: Solid

Sample ID: **S-2** Date Received: 10/10/2011 18:10

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	34.9		%	0.1	SM20-2540 G			10/15/11 12:00	KAK	A
Total Solids	65.1		%	0.1	SM20-2540 G			10/15/11 12:00	KAK	A
York Lab - Not NELAC Certified										
Fecal Coliforms	326	1	MPN/gram	3	EPA 1680			10/14/11 10:52	KLG	

Sample Comments:

Anna G Milliken
Technical Manager

ALS Environmental

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ANALYTICAL RESULTS

Workorder 9931863 Lake Whetsone 10/10/11

Lab ID: **9931863003** Date Collected: 10/10/2011 15:00 Matrix: Solid

Sample ID: **S-3** Date Received: 10/10/2011 18:10

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	45.2		%	0.1	SM20-2540 G			10/15/11 12:00	KAK	A
Total Solids	54.8		%	0.1	SM20-2540 G			10/15/11 12:00	KAK	A
York Lab - Not NELAC Certified										
Fecal Coliforms	14	1	MPN/gram	4	EPA 1680			10/14/11 10:59	KLG	

Sample Comments:

Anna G Milliken
Technical Manager

ALS Environmental

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State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

ANALYTICAL RESULTS

Workorder 9931863 Lake Whetsone 10/10/11

Lab ID: **9931863004** Date Collected: 10/10/2011 13:20 Matrix: Solid

Sample ID: **S-4** Date Received: 10/10/2011 18:10

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	16.7		%	0.1	SM20-2540 G			10/15/11 12:00	KAK	A
Total Solids	83.3		%	0.1	SM20-2540 G			10/15/11 12:00	KAK	A
York Lab - Not NELAC Certified										
Fecal Coliforms	ND	1	MPN/gram	2	EPA 1680			10/14/11 11:02	KLG	

Sample Comments:

Anna G Milliken
Technical Manager

ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

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State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

ANALYTICAL RESULTS QUALIFIERS\FLAGS

Workorder 9931863 Lake Whetsone 10/10/11

PARAMETER QUALIFIERS\FLAGS

[1] Analyte was analyzed past the 24 hour holding time.

ALS Environmental
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NELAP Certifications: NJ PA010, NY 11759, PA 22-293 DoD ELAP: A2LA 0818.01

ALS Environmental
Ship to: 34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT/SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 1
Courier:
Tracking #:
9931863

Co. Name: Gannett Fleming Inc.
Contact (Report to): Jeremy Robinson Phone: 7177607211
Address: 207 Senate Ave N-129
Camp Hill PA 17011

Bill to (if different than Report to): PO#:

Project Name/#: Lake Whetstone ALS Quote #:
TAT: ☑ Normal-Standard TAT is 10 business days. ☐ Rush-Subject to ALS approval and surcharges. Date Required: Approved By:
Email? -Y jsrobinson@gfnet.com
Fax? -Y No.:

***Container Type: PL
***Container Size:
***Preservative: NaSO4

ANALYSES/METHOD REQUESTED: Total Coliform

Enter Number of Containers Per Analysis

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Total Coliform
1	S-1		10-10-11	1210	G	SO	1X
2	S-2	Per request from		1440	G	SO	1X
3	S-3	Jeremy on 10/13/11,		1500	G	SO	1X
4	S-4	samples should		1320	G	SO	1X
5		be run for					
6		Fecal Coliform					
7		by 9221E.					
8		KW 10/13/11					

Correct containers? N N N N
Correct sample volume? N N N N
Correct preservation? N N N N
Headspace/Volatiles? Y Y Y Y
Circle appropriate Y or N.
Custody seals Present? Y Y Y Y
(if present) Seals intact? Y Y Y Y
Received on ice? Y Y Y Y
COC/Labels complete/accurate? Y Y Y Y
Container in good condition? Y Y Y Y

Cooler Temp: 5°C
Therm. ID: TH-215
No. of Coolers:
Notes:

SAMPLED BY (Please Print): Jeremy Robinson
LOGGED BY (signature): K. Snow DATE: 10/13/11 TIME: 1509
REVIEWED BY (signature): DATE: TIME:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Jeremy Robinson / Gannett Fleming	10-10-11	1810	2 [illegible]	10/10/11	1810
3			4		
5			6		
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ other
EDDs Required? ☐ If yes, format type:
SDWA Forms? → yes ☐ yes ☐ yes ☐ yes ☐
State Samples Collected In? MD ☐ NJ ☐ NY ☐ PA ☐ Other
DOD Criteria Required?

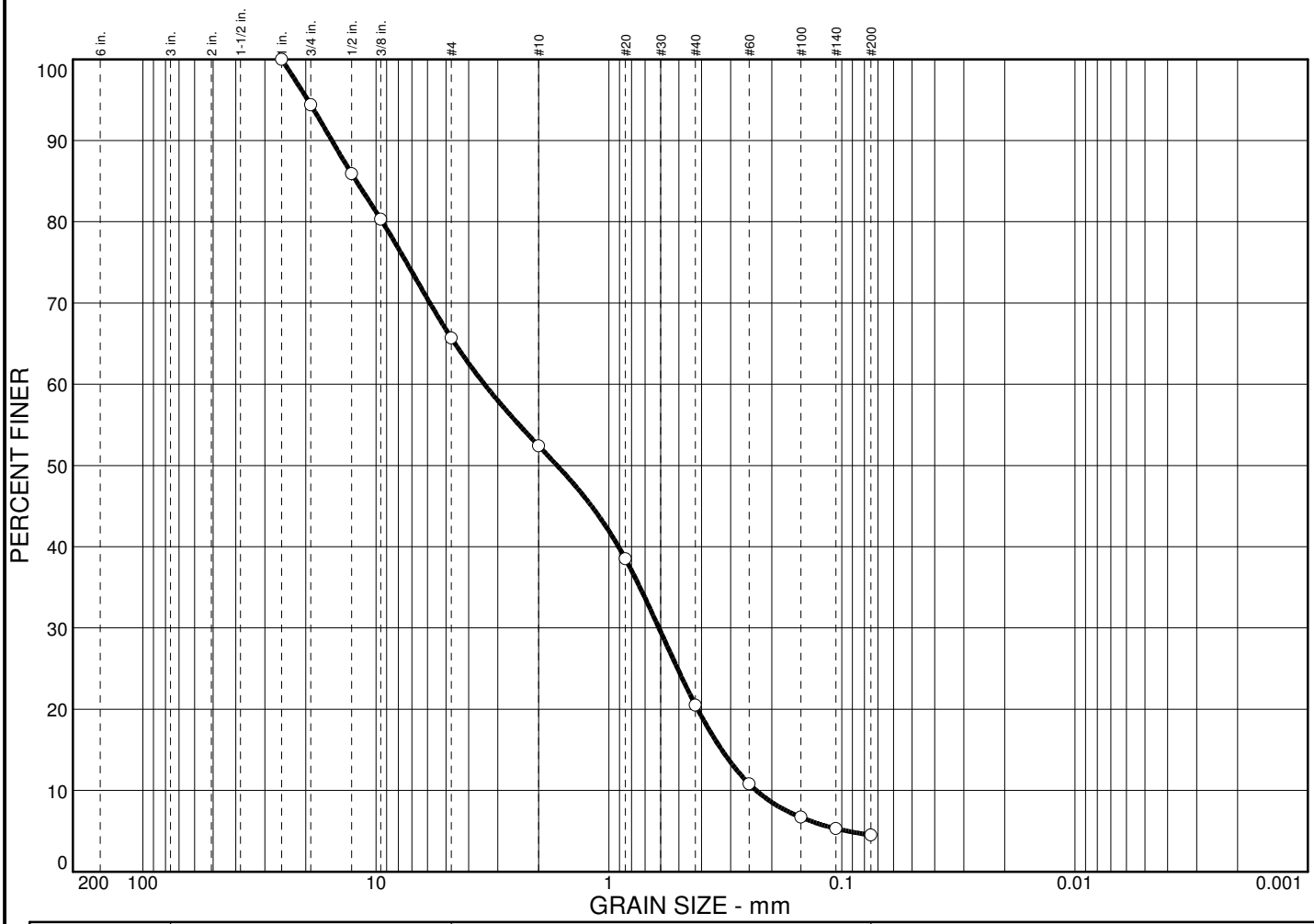
ALS FIELD SERVICES: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

* G=Grab; C=Composite
**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY
Rev 6/2011

A.3 GANNETT FLEMING, INC.
GEOTECHNICAL SOILS LABORATORY RESULTS

Particle Size Distribution Report



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	5.6	28.7	13.3	31.9	16.0	4.5	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	-----	-----	12.1	3.42	1.67	0.610	0.328	0.233	0.47	14.66

MATERIAL DESCRIPTION	USCS	AASHTO
○ Brown poorly graded SAND with gravel	SP	

Project No. 054926.000 **Client:**

Project: Lake Whetstone

○ **Source:** Boring No.: S-1 **Sample No.:** Bag **Elev./Depth:** 0'-3'

Remarks:

○ Date: October 13, 2011

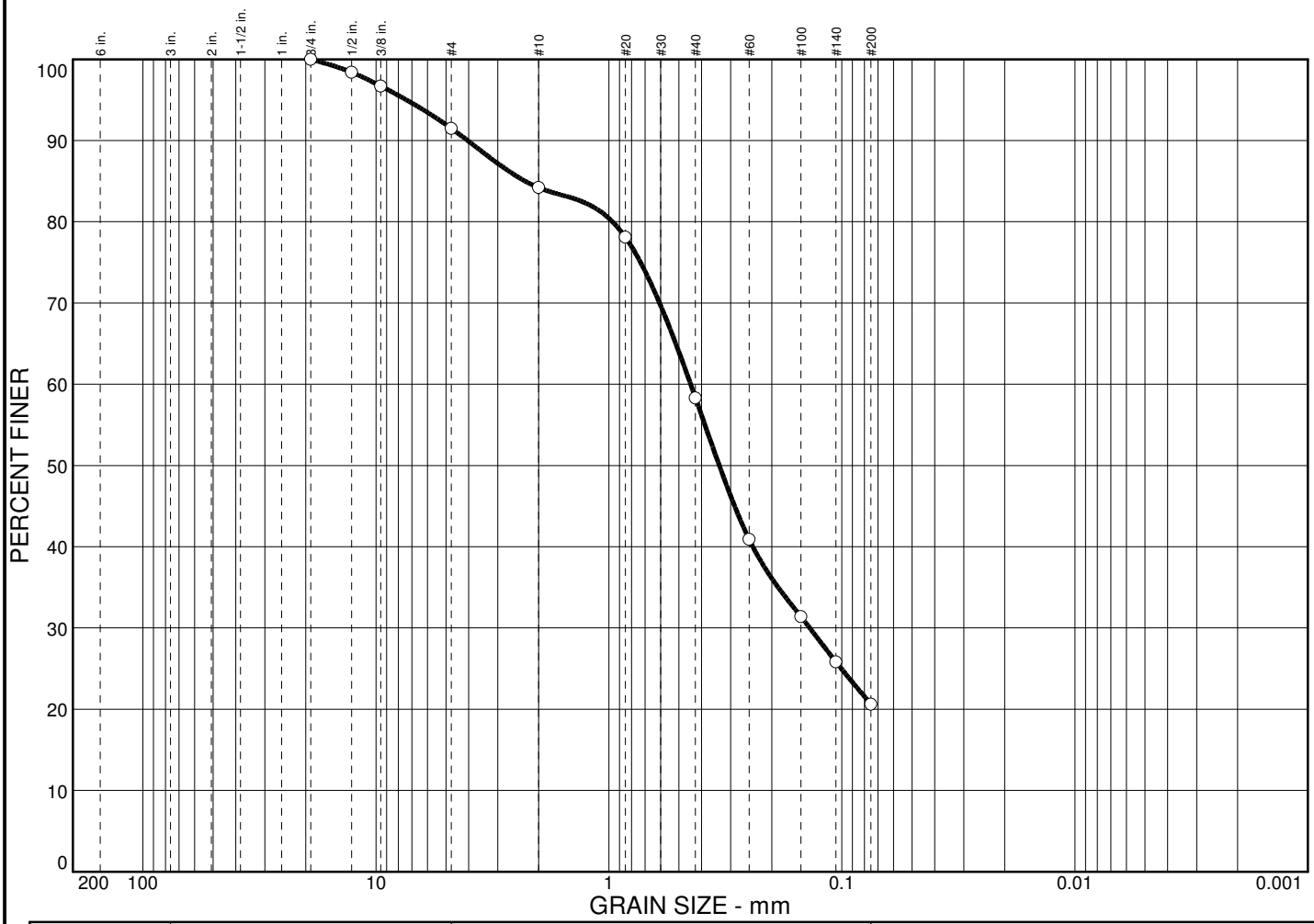
Work Order: #1

Tested By: DKN

Gannett Fleming
ENGINEERS AND PLANNERS

Scale: USCS

Particle Size Distribution Report



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	11.9	9.7	36.8	21.7	19.9	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	----	----	3.86	0.654	0.523	0.290				

MATERIAL DESCRIPTION	USCS	AASHTO
○ Gray silty SAND	SM	

Project No. 054926.000 **Client:**

Project: Lake Whetstone

○ **Source:** Boring No.: S-2 **Sample No.:** Bag **Elev./Depth:** 0'-7.5'

Remarks:

○ Date: October 13, 2011

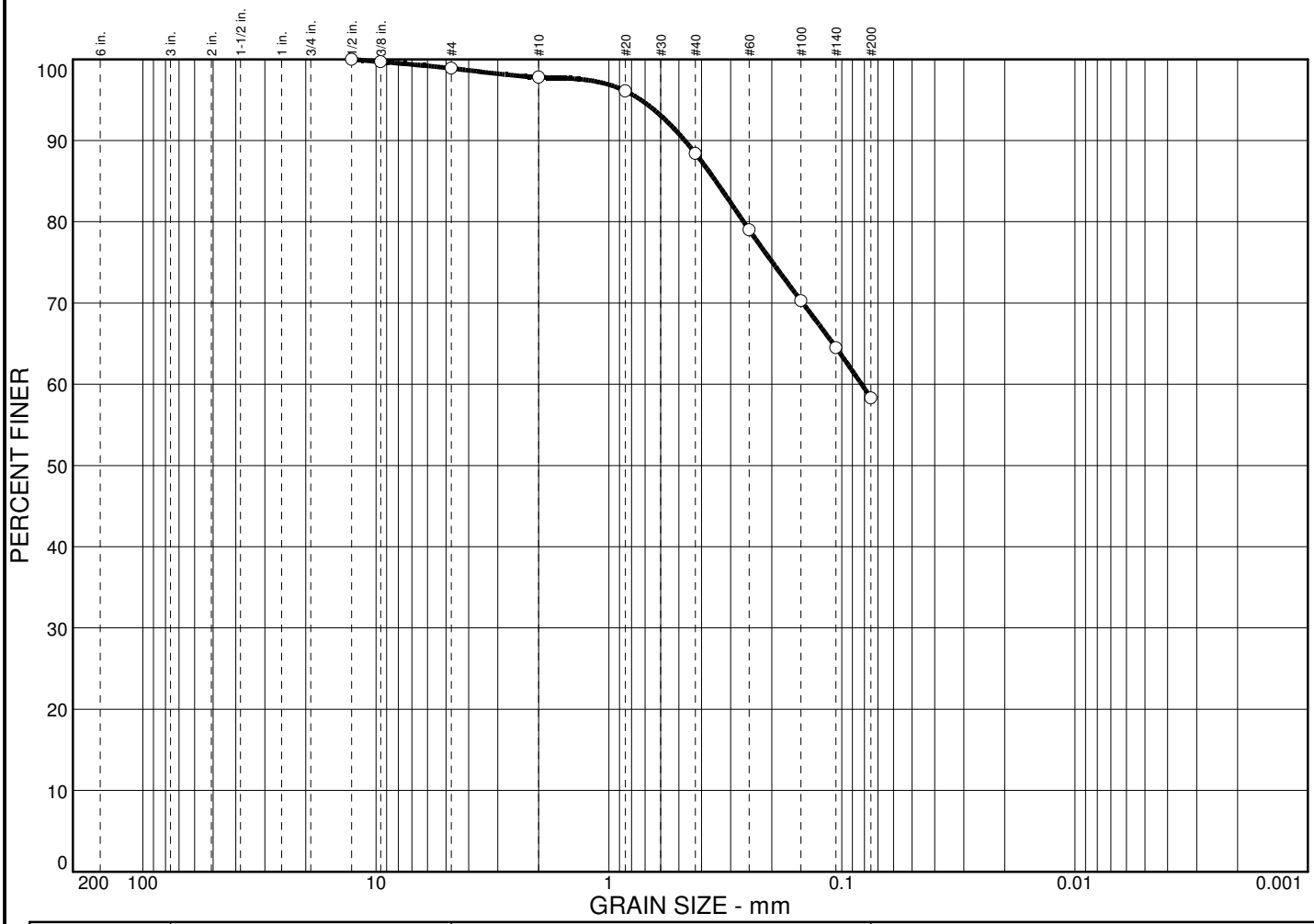
Work Order: #1

Tested By: DKN

Gannett Fleming
ENGINEERS AND PLANNERS

Scale: USCS

Particle Size Distribution Report



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	1.1	1.1	9.4	30.1	58.3	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	----	----	0.348	0.0823						

MATERIAL DESCRIPTION	USCS	AASHTO
○ Gray sandy SILT	ML	

Project No. 054926.000 **Client:**

Project: Lake Whetstone

○ **Source:** Boring No.: S-3 **Sample No.:** Bag **Elev./Depth:** 0'-7.8'

Remarks:

○ Date: October 13, 2011

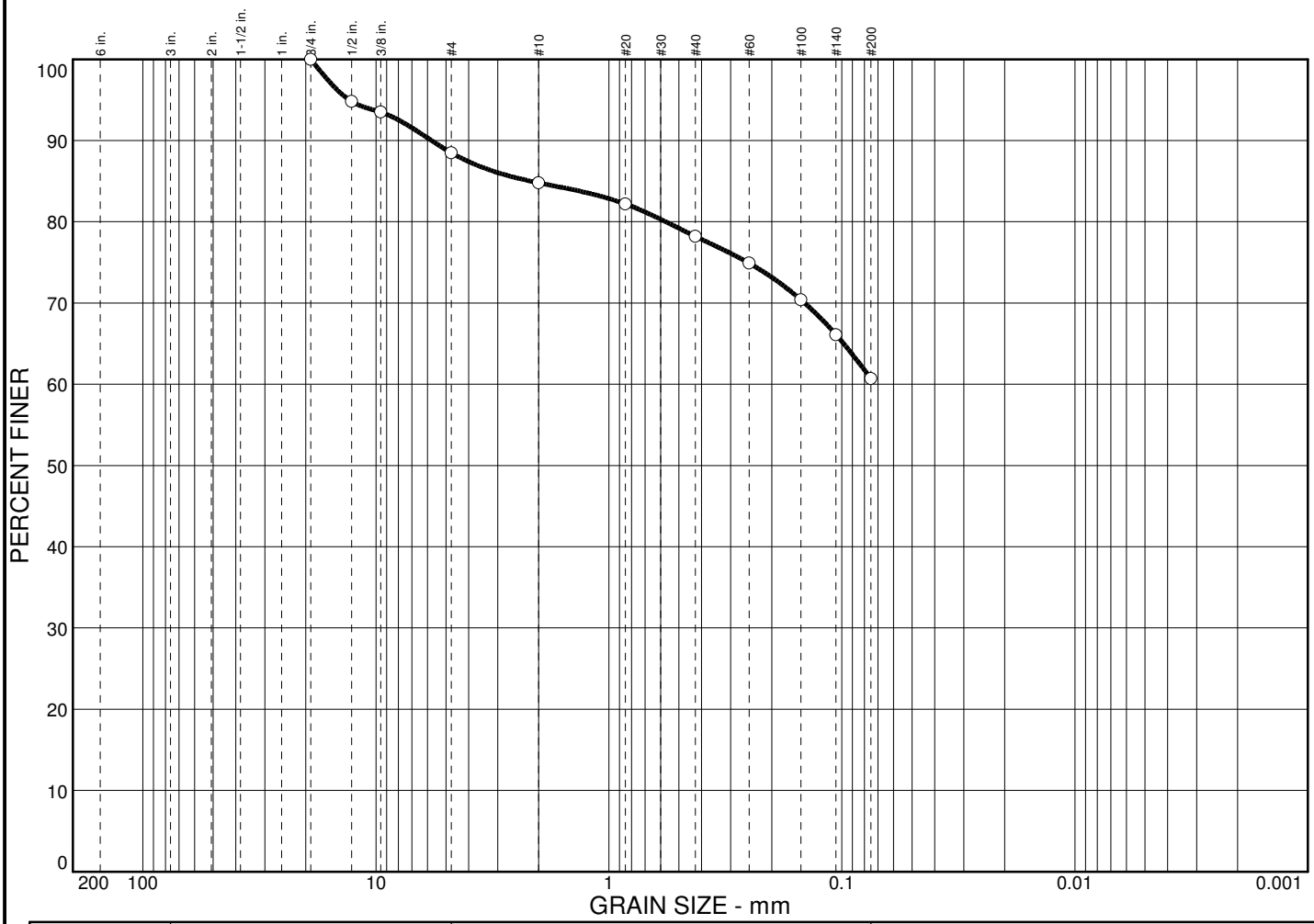
Work Order: #1

Tested By: DKN

Gannett Fleming
ENGINEERS AND PLANNERS

Scale: USCS

Particle Size Distribution Report



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	11.5	3.7	6.6	17.5	60.7	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	----	----	2.16							

MATERIAL DESCRIPTION	USCS	AASHTO
○ Brown sandy SILT	ML	

Project No. 054926.000 **Client:**

Project: Lake Whetstone

○ **Source:** Boring No.: S-4 **Sample No.:** Bag **Elev./Depth:** 0'-1.2'

Remarks:

○ Date: October 13, 2011

Work Order: #1

Tested By: DKN

Gannett Fleming
ENGINEERS AND PLANNERS

Scale: USCS