Gannett Fleming

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March 8, 2004

U.S. Army Corps of Engineers, Pittsburgh District
Attn: David Heidish
Wm. S. Moorhead Federal Building, Room 727
1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222-4186

Subject: Contract No. DACW59-02-D-0006, Task Order 006
Mahoning River Ohio Environmental Dredging Project
Hanging Bag Test - Final Report

Dear Mr. Heidish,

We are pleased to submit four (4) copies of the Final Report for the Mahoning River Ohio Environmental Dredging Project Hanging Bag Test. This final copy addresses comments provided by you on February 17, 2004.

Attachment 1 includes the summary report of the hanging bag test prepared by our sub consultant testing laboratory, Geotechnics, Inc. This report includes the findings of the polymer bench test, observations during the hanging bag test and results of the geotechnical sediment testing.

Attachment 2 includes the results of analytical testing of water samples completed by our sub consultant testing laboratory, Severn Trent Laboratories, Inc. We have also provided a narrative and summary table for your use.

If you have any questions or require additional information, please contact me at (412) 922-5575.

Very truly yours
GANNETT FLEMING, INC.

John W. Kovacs

John W. Kovacs, P.E., PMP
Project Manager

Encl.
Cc: Mark Vollmer, P.E.

March 5, 2004

Mr. John Kovacs
Gannett Fleming
Foster Plaza III, Suite 200
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Hanging Bag & Geotechnical Test Results
Mahoning River Ohio Environmental Dredging Project
U. S. Army Corps of Engineers, Pittsburgh District
Pittsburgh, Pennsylvania

Dear Mr. Kovacs,

Geotechnics has completed the Hanging Bag Test for the Mahoning River Project for the U. S. Army Corps of Engineers, Pittsburgh District. In general our Scope-of-Work included sample collection, sample preparation, polymer compatibility testing, the hanging bag test and selected geotechnical testing. The following information details the various tasks performed by Geotechnics. The geotechnical test results are discussed below and are attached.

Sample Collection

Geotechnics personnel traveled to the Mahoning River site located in Trumbull County, Warren Ohio on August 19, 2003 to collect river water and sediment samples. The sample was collected approximately 800 feet downstream of the Warren-Main Street Substation Dam at approximately River Mile 37 and was accessed from Main Avenue (County Highway 67). A total of Twelve 5-gallon buckets of river water and five 5-gallon buckets of river sediment were collected approximately 1-3 feet from the shoreline near the WCI Environmental Control Building-Outfall 061. The water sample was collected at the waters edge by submerging the buckets until they were filled. The river sediment was collected with a shovel at the rivers edge as well. Testing was conducted on these samples for the polymer bench test as well as the hanging bag test. During the bag test, the effluent water was collected for analytical testing. Upon correspondence with USACE personal, it was discovered that the samples were not collected in the desired area.

Consequently Geotechnics personnel traveled to the desired location on October 29, 2003 and collected river water and sediment samples from the rivers edge. The second sampling was collected upstream of the Girard-Liberty Street Dam near River Mile 27 as per scope of work. A total of fifteen (15) five-gallon buckets were utilized for sample containers for both the sediment and the water. Ten (10) water samples were collected at the waters edge by submerging the buckets until they were filled. The buckets, similar to five-gallon paint containers, were then sealed with snap type, clamping lids. The river sediment was collected at the same area by wading into the river and using a shovel to scoop the sediment from the river bottom. The collected sediment was placed in five (5) five-gallon buckets labeled (S1-S5) and then sealed. All of the samples were transported to our facility by truck. The following information pertains to the samples collected on October 29, 2003.

Initial Sample Preparation

The sediment sample was prepared by combining buckets 1, 2 and 3 together to have enough material to perform the hanging bag test. Initially, a water/sediment sample was prepared in a five-gallon bucket to be used for the polymer testing. The sediment was added to the river water to obtain a solid concentration that was between 130-150 grams per liter (g/L) as per the scope of work requirements. Once the material was placed in the bucket a mixer was utilized to mix the materials. Several samples were collected during the mixing from a sample port along the side of the bucket to verify the percent solids.

Polymer Testing

The polymer testing was conducted on river water and solids mixed in a five-gallon bucket simulating the potential dredged material from Mahoning River. Two products were selected from two manufacturers for the polymer testing. The first product was manufactured by Chemtall and distributed by Neo Solutions, Inc. located in Pittsburgh, Pennsylvania. The second product was manufactured by Cytec and distributed by Shereton Soft Water located in Buffalo, New York.

Several issues were considered when selecting the polymers. They included;

- **Product/ Treatment Toxicity** - Because Mahoning River is a public fishing location cationic type polymers were not seriously considered due to their high potential toxicity to fish. Cationic materials were not considered due to the negative reaction to fish gills which would most likely kill the fish. Only anionic products were tested for this phase. Anionic products are available in both powder or emulsion (liquid) forms. Both powders and emulsions must be mixed with water prior to being added to the dredged material. With the emulsion product (white liquid), surfactants are added to emulsify the product, which produces the liquid state.

- **Ease of Product Use** - The emulsions are the easiest materials to handle and can be added directly to the dredged material following mixing with water. The powders require approximately 30 minutes of preparation time (powder to water mixing) prior to being introduced into the dredged stream.

- **Rate of Dewatering** - The tests were conducted by treating the dredge stream with various dosages then pouring the material through a section of the geotube material (hanging bag) that was placed on the bottom of a funnel flask. The dewatering was observed and timed and the data is presented in a table below. The data obtained indicates the various products ability to drain the water through the bag material from the dredged material. However, it should be noted that this procedure allowed for dewatering to occur from below only, whereas, the actual hanging bag test will promote dewatering along its entire surface.

- **Water Clarity** - Turbidity tests were performed on all the samples that were passed through the bag material. In some cases a small amount of material passed through the bag, this was noted on our raw data results.

The initial testing was performed with the Neo Solutions emulsion #6450. Then Neo Solutions emulsions #6492 was tested followed by #6460. Various dosage rates were utilized to fine-tune the required amount of the polymer to be added. Two powder products, A-150 & A-130 from Shereton Soft Water were then tested. Two other Neo Solutions powder products #6955 & #6970 were tested to compare with the emulsions of similar charge and dosage. In general, the polymer test results indicate that the Neo Solutions, Inc. product #6460 applied at 60 ppm allows the dredge material to flow through the bag the fastest while the filtrate indicates the lowest turbidity of 93.9 Nephelometric Turbidity Units (NTU). See table 1.

The Hanging Bag Test

The Hanging Bag test was performed on the sample collected from behind the Girard-Liberty Street Dam on October 29, 2003 and was generally performed to the method presented in the Miratech video. The following information details the test procedure that was performed;

- A water/sediment sample was prepared and placed in the 55-gallon drum for testing. The required water/sediment ratio was determined by mathematically converting the water volume of 40 gallons to liters and then adding the appropriate soil based on dry weight to achieve the required concentration. Once the materials were placed into the drum the sample was mixed with an industrial mixer. As the material was being mixed the bottom of the drum was sounded with a metal rod to verify that all of the material was in solution. Two samples were collected during the mixing and percent solids were performed. The test results indicated the

solid concentrations were 139.0 and 144.6 g/L, which fell within the required range of 130-150 g/L. The test results are attached.

- The polymer was mixed in a five-gallon bucket prior to mixing with the water/sediment sample in the drum. The polymer was added to the drum in the appropriate ratio and allowed to mix with the water/sediment sample.

- The drum was suspended by forklift above the Hanging Bag as the mixing continued. At the appropriate time the 2" diameter valve was opened on the bottom of the drum and the material was allowed to flow into the bag.

- As the material flowed into the bag the water began to seep from the sides into the container below. The water was collected at predetermined time intervals and the total solids were determined as indicated below. The test results are attached.

Time	Total Solids
1 Minute	0.5
10 Minutes	0.3
60 Minutes	0.3
24 Hours	NA

- The bag was allowed to drain into the container for the time duration of 42 days. A small access window was cut into the bag after 1 day and a 1.5 inch diameter brass cylinder was pushed vertically into the top of the sample near the center portion of the soil. The brass cylinder was removed and a moisture content was performed. Moisture contents tests were also performed at 7, 14, 21, 28, 35 and 42 days. In general the initial moisture content was 64.35 percent dropping to 24.7 percent at the conclusion of the test. The test results are attached.

- The initial water/sediment volume was 40 gallons. Over the duration of the hanging bag test a total of 32.56 gallons of effluent water was returned to the bottom container. The return water was collected and weighed for a period of 1 day, after which, the flow from the bag was too small to measure.

- The entire sample was removed from the bag after 42 days. The bag was cut along the sides which allowed us to view the settled layers of the soil. As expected, the coarser materials had settled at the bottom of the bag. An additional observation was that the soil adjacent the sides of the bag were very dry.

- After the soil was removed from the bag, the entire sample was mixed in a pan, which included the center portion along with the drier side material.

Geotechnical Testing

The geotechnical testing program consisted of a sieve analysis, Atterberg Limit and a Standard Proctor. The sieve analysis results indicated that 100 percent passed the ¾ inch sieve and 65.21 percent passed the #200 sieve. The Atterberg Limit results showed a USCS Classification of MH (elastic silt) with a liquid limit of 59 percent, a plastic limit of 38 percent and a plasticity index of 21 percent. The Standard Proctor indicated an optimum moisture content of 24.5 percent and a maximum dry density of 89.2 pcf. All of the above referenced test results are attached.

The following table summarizes the test results and the data sheets are attached.

Test	Result
Sieve Analysis % passing ¾ inches % passing #10 sieve % passing #200 sieve Classification USCS Classification	 100.0 88.91 65.21 Brown Sandy Elastic Silt MH
Atterberg Limit (test performed on -40 material)	Liquid Limit – 59% Plastic Limit – 38% Plasticity Index – 21% USCS Symbol - MH
Standard Proctor Optimum Moisture Maximum Density	 24.5% 89.2 pcf

Summary

Geotechnics performed the Hanging Bag test on a river sediment sample that was collected on October 29, 2003 in general accordance with the Miratech video that was reviewed prior to the testing. Two polymer sources were utilized to identify the best suited additive that would allow the soil to settle in the bag and the water to flow through the bag with minimal solids. A water/sediment sample was prepared and placed into a drum for mixing with the polymer. The drum was then raised above the hanging bag and the sample was discharged into the bag. The bag was allowed to drain over a period of 42 days with samples being collected on a weekly basis for moisture contents. At the end of the 42 days the sample was removed from the bag and a standard proctor test was performed.

During the test, photographs were taken at various time intervals and are attached. If you require additional information or clarification, please call.

Sincerely Yours,
Geotechnics, Inc.

Randy O'Rourke
President

Table 1
Mahoning River Ohio Environmental Dredging Project
U. S. Army Corps of Engineers, Pittsburgh District
Pittsburgh, Pennsylvania

Distributor		Neo Solutions	Neo Solutions	Neo Solutions	Neo Solutions	Neo Solutions	Shereton Soft Water	Shereton Soft Water	Neo Solutions	Neo Solutions
Product		6450	6492	6460	6460	6460	A-150	A-130	6955	6970
Manufacturer		ChemTall	ChemTall	ChemTall	ChemTall	ChemTall	Cytec	Cytec	ChemTall	ChemTall
Charge		40%	90%	50%	50%	50%	50%	30%	50%	65%
Dosage		60 ppm	40 ppm	30 ppm	60 ppm	90 ppm	60 ppm	60 ppm	60 ppm	60 ppm
Polymer Form		Emulsion	Emulsion	Emulsion	Emulsion	Emulsion	Powder	Powder	Powder	Powder
		Time (in Seconds)								
Volume passing filter	20 ml		Note 2				:07	:05	:08	:05
	30 ml			:12					:26	
	40 ml			:26			:15	:11		:10
	50 ml	:09				:03				
	60 ml	:15		:48	:06		:26	:21		:17
	70 ml									
	80 ml	:31		1:17	:10		:39	:30		:24
	100 ml			1:46	:13	:05	:53	:42		:30
	120 ml				:16	:06	1:08	:55		:38
	140 ml				:21		1:29	1:05		:48
	150 ml				:28					
	160 ml					:11		1:21		1:00
	180 ml					:15				
Comments		Poor water clarity & cake formation. Pin floc	Charge too high. Did not flocculate the soil.	Poor water clarity & cake formation. Pin floc.	Fast Flow. Good water clarity & cake formation. Little pin floc.	Fast Flow. Good water clarity & cake formation. Some pin floc.	OK water clarity & cake formation . No pin floc.	OK water clarity & cake formation. No pin floc.	Poor water clarity & cake formation. Did not flocculate the soil.	Fast Flow. OK water clarity & cake formation. No pin floc.
Turbidity		Too High[1]	Note 2	>100 NTU[3]	93.9 NTU	>100 NTU[3]	198 NTU	147 NYU	Note 2	209 NTU

Notes:
1. Sample too cloudy, out of turbidity range.
2. Unable to perform due to non-flocculation of sample.
3. Turbidity meter unable to read above 100 NTU at time of testing. Water clarity is a visual description.

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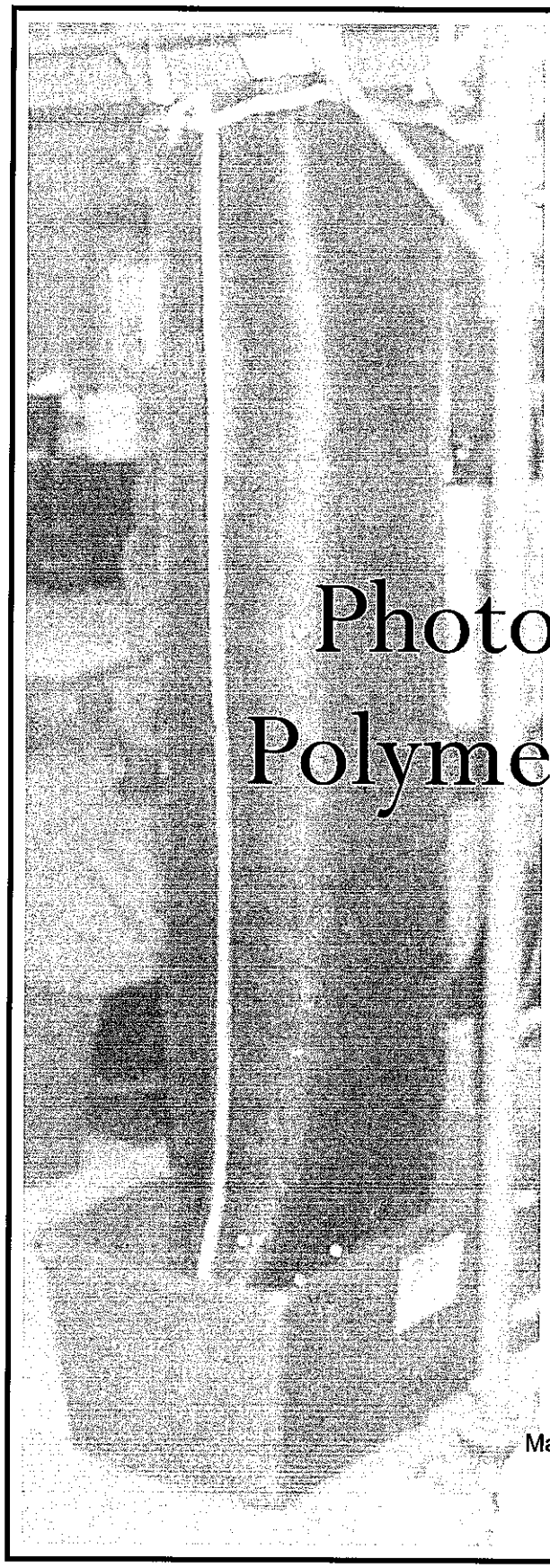
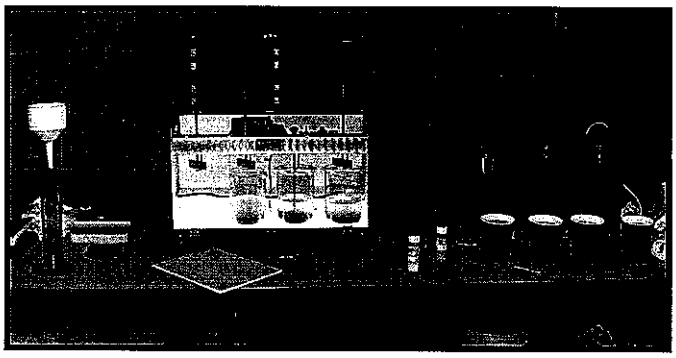
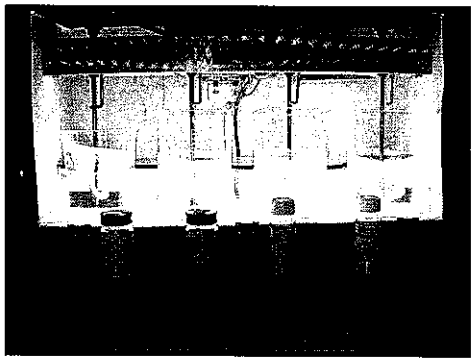


Photographs
Polymer Testing

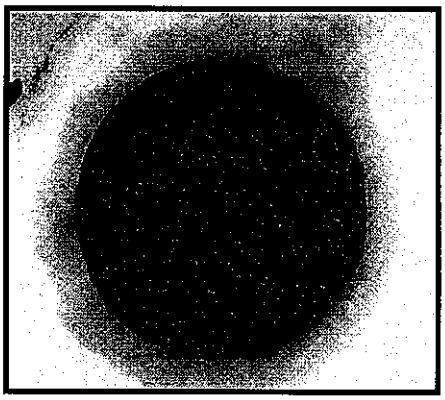
Hanging Bag Test
Mahoning River Ohio Environmental Dredging Project
U. S. Army Corps of Engineers, Pittsburgh District
Pittsburgh, Pennsylvania

Mixing Equipment Used for The Polymer Tests



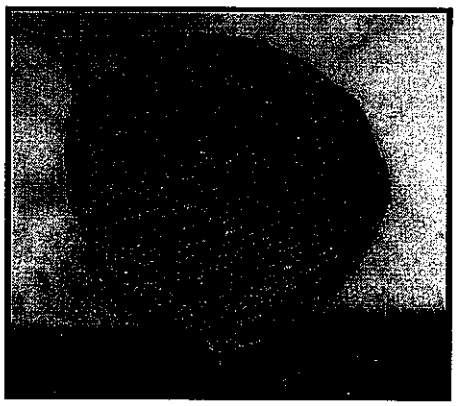


CAKE FORMATION WITH POLYMER 6460 AT DIFFERENT CONCENTRATIONS



Polymer 6460 @ 60 ppm.

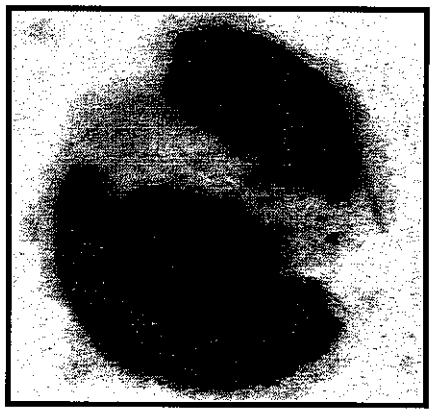
- Well formed cake.
- Water clarity, excellent
- No fines in water.
- Fast flow.
- Sample used for Hanging Bag Test.



Polymer 6460 @ 90 ppm.

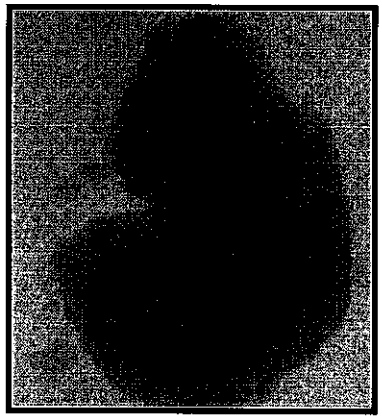
- Well formed cake.
- Water clarity, excellent
- No fines in water.
- Fast flow.

Polymers 6450, A-150, Aa-130 and 6970



Polymer 6450@ 60 ppm.

- Poorly formed cake.
- Poor water clarity.
- Pin floc abundant in supernat.
- Fast flow.

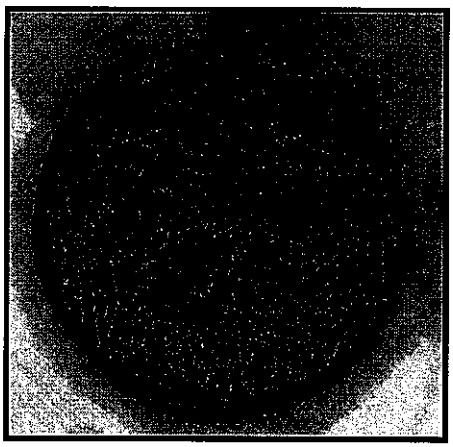


Polymer A-150 @ 60 ppm.

- Ok cake formation.
- Ok water clarity.
- No pin floc in supernat .
- Slow flow.

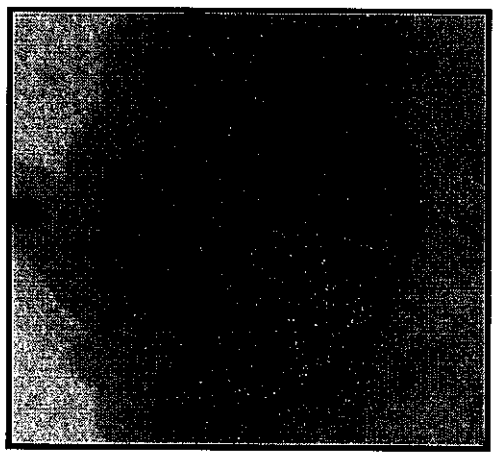
Polymer 6460@ 30 ppm.

- Poorly formed cake.
- Poor water clarity.
- Substantial pin floc in supernat.
- Slow flow.



Polymer A-130@ 60 ppm.

- Poor cake formation.
- Poor water clarity.
- Pin floc abundant in supernat.
- Fast floe.

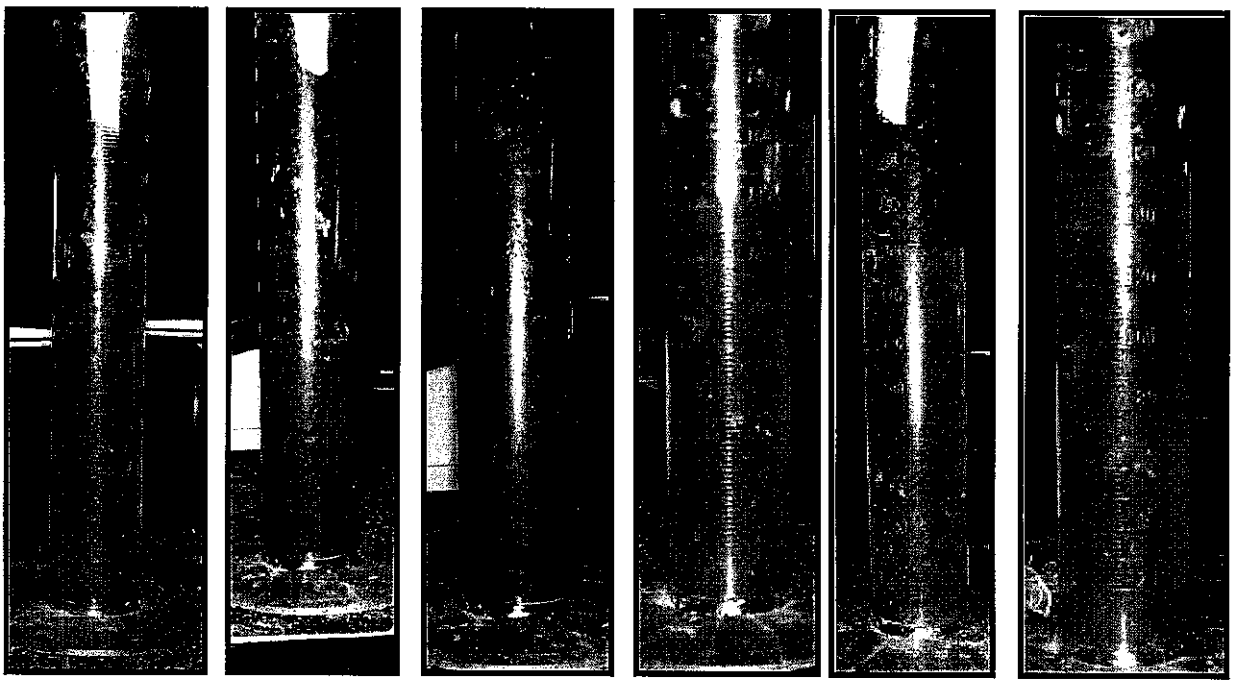


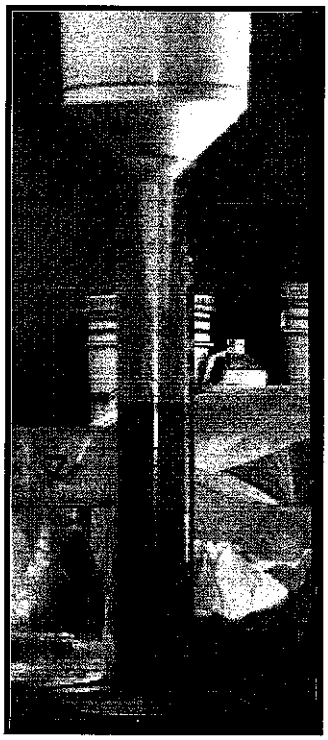
Polymer 6970 @ 60 ppm.

- Ok cake formation.
- Ok water clarity.
- No pin floc in supernat .
- Slower flow.

Water clarity of supernat samples.

6460 @ 60 ppm	6460 @ 90 ppm	6450 @ 60 ppm	A-150 @ 60 ppm	A-130 @ 60 ppm	6970 @ 60 ppm





Inside the funnel is a sample of the hanging bag material. The water in graduated cylinder passed through the bag material. At the bottom of the cylinder you can see pin floc that was not flocculated by the polymer or stopped by the bag material.

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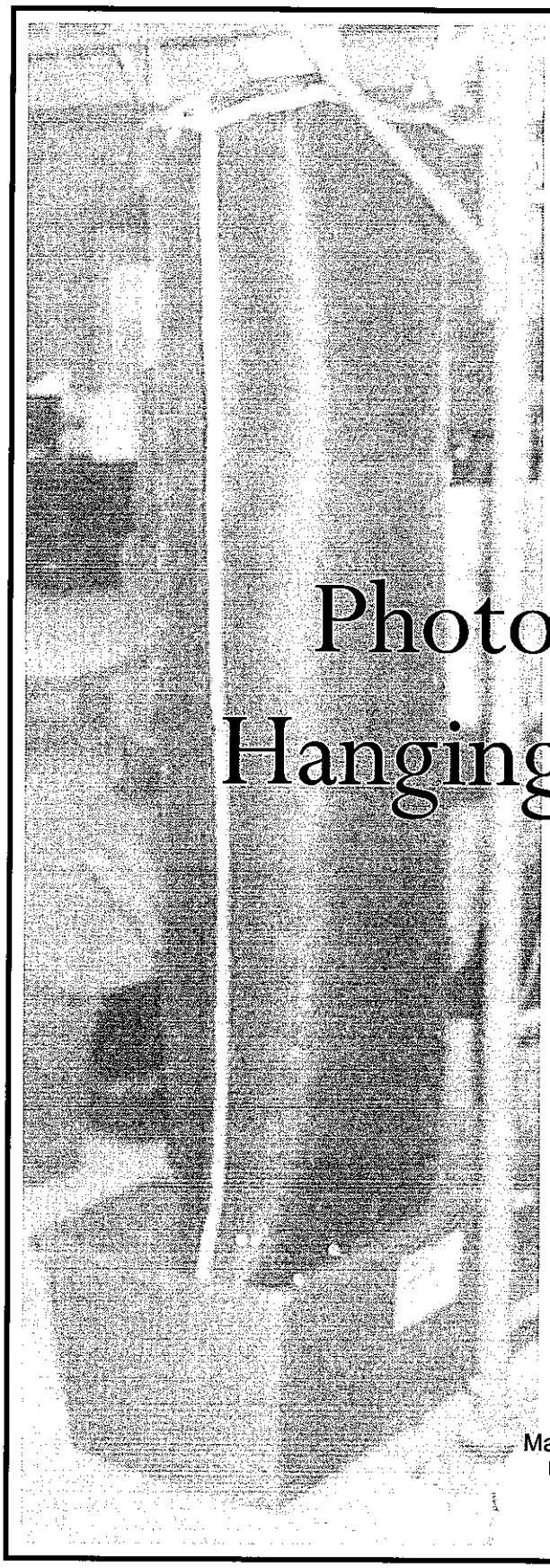

Photographs
Hanging Bag Test

Hanging Bag Test
Mahoning River Ohio Environmental Dredging Project
U. S. Army Corps of Engineers, Pittsburgh District
Pittsburgh, Pennsylvania

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Photographs
Hanging Bag Test
Mahoning River
Ohio Environmental Dredging Project
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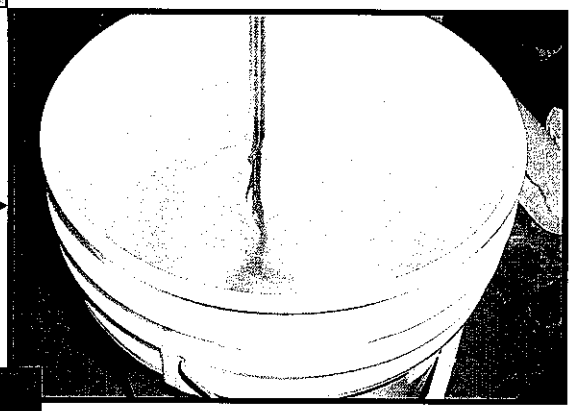
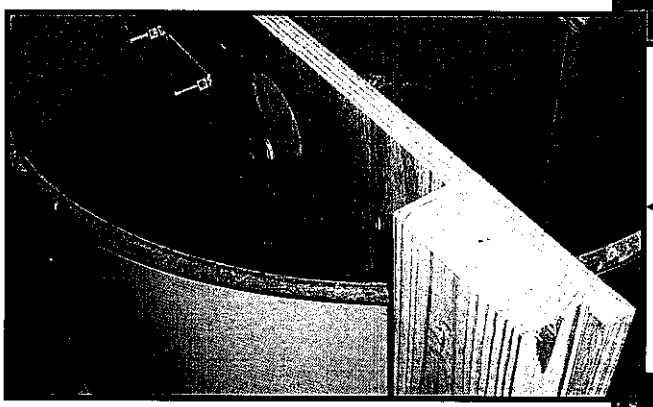
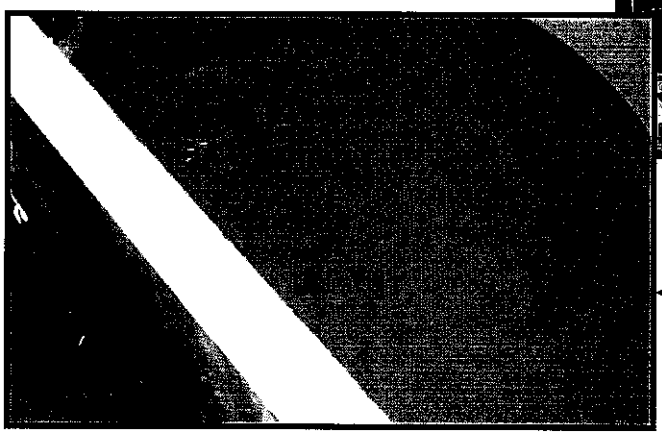
Making the polymer prior to mixing with the drum sample.





Sounding the bottom of the drum prior to adding the polymer

Adding the polymer to the sediment/water drum sample.



Mixing of the polymer and the water/sediment drum sample.

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Hanging Bag Test
Mahoning River
Ohio Environmental Dredging Project
U. S. Army Corps of Engineers
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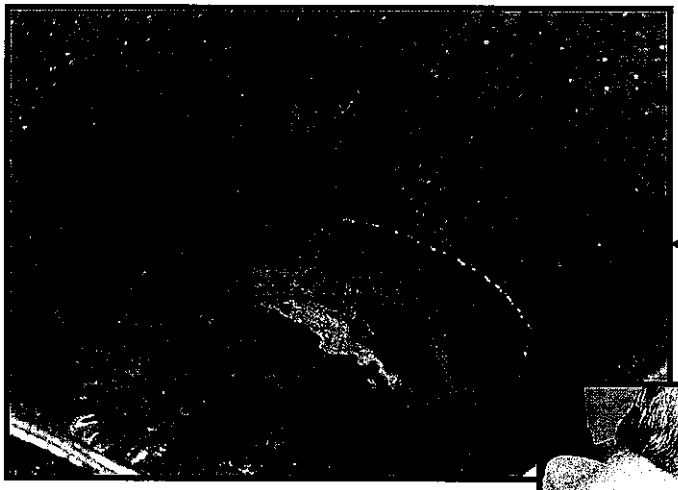
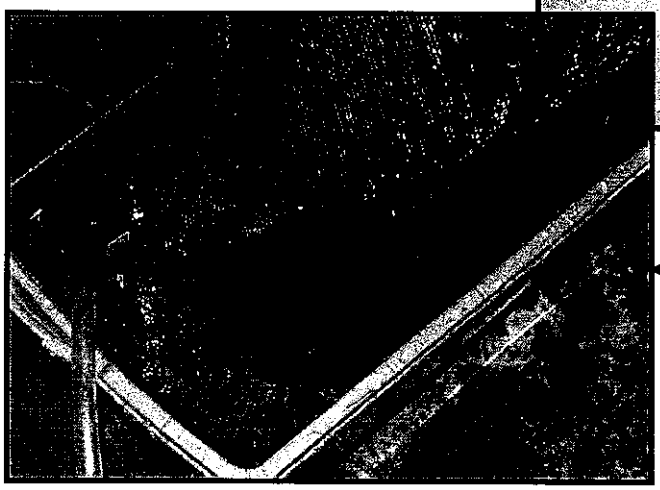
Opening of the valve that allows the water/sediment sample to flow into the hanging bag.



The water/sediment sample has drained into the hanging bag.

Collection of the bag discharge for percent solids testing.



Close-up of the effluent discharge from the hanging bag.

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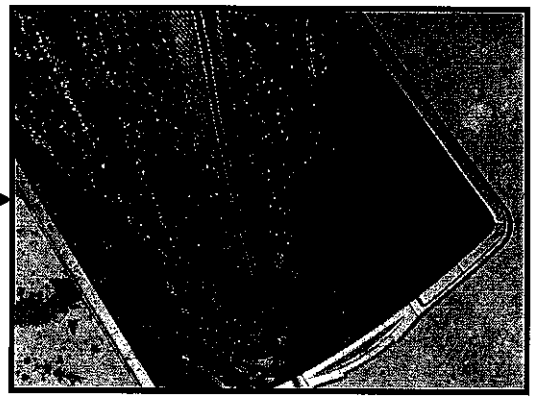
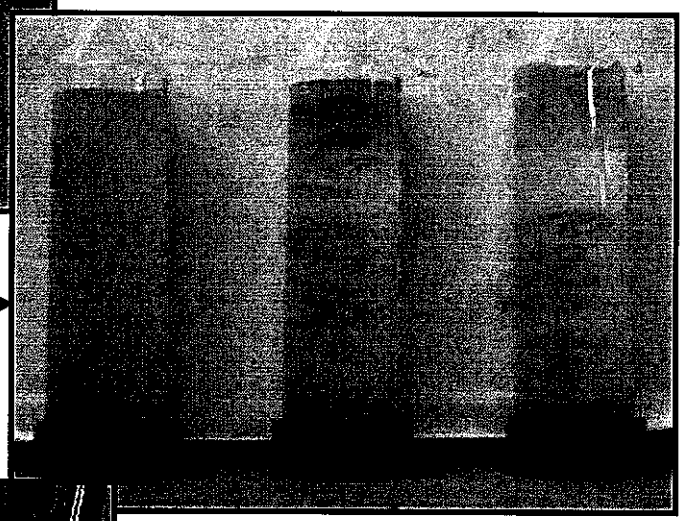
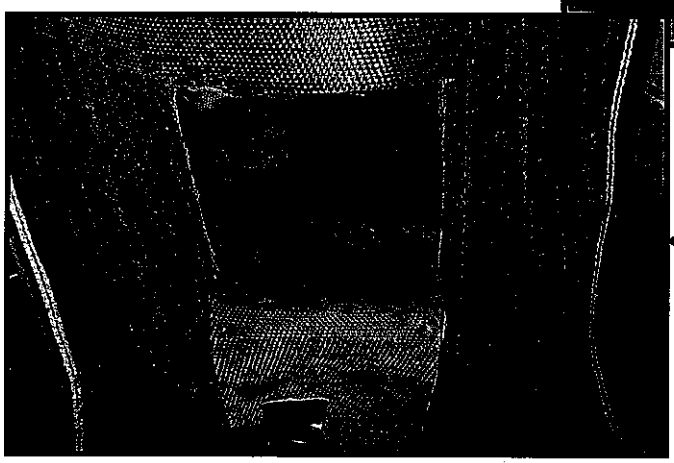


Water draining from the hanging bag into the collection container.



Collection of the bag effluent for the percent solids testing.

1 Minute **10 Minutes** **60 Minutes**



A sample window cut into the side of the hanging bag.

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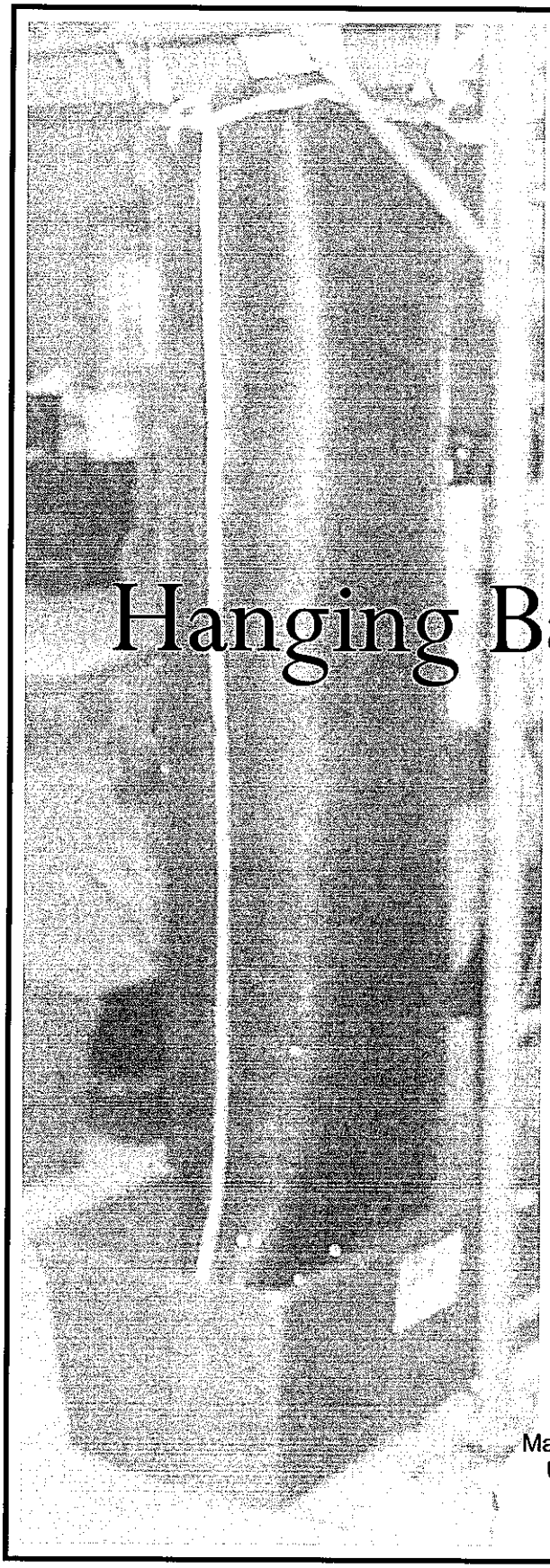

Hanging Bag Test Data

Hanging Bag Test
Mahoning River Ohio Environmental Dredging Project
U. S. Army Corps of Engineers, Pittsburgh District
Pittsburgh, Pennsylvania

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INTEGRITY IN TESTING

MOISTURE CONTENT

ASTM D 2216 (SOP-S1)

Client	GANNETT FLEMING
Client Reference	USACE/MAHONING RIVER
Project No.	2003-242-02

Lab ID	01
Boring No.	NA
Depth (ft)	NA
Sample No.	Initial
Tare Number	603
Wt. of Tare & WS (gm)	361.42
Wt. of Tare & DS (gm)	321.86
Wt. of Tare (gm)	84.56
Wt. of Water (gm)	39.56
Wt. of DS (gm)	237.3
Water Content (%)	**16.7**

Notes : *Water Content on material for polymer and bag tests.*
Composite material: 30.6 kg(23 kg fine material & 7.6 kg coarse material).

Tested By *LW* *Date* *11/10/03* *Checked By* BF *Date* 11-11-03

DCN: CT-S1 DATE 6-30-98 REVISION: 2
S:\Soil Data\2003\MahoningRiverBagTest\2003-242-02\Initial MC 2003-242-02.xls]Sheet1

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INTEGRITY IN TESTING

TOTAL SOLIDS

ASTM D2216 (Modified)
SOP S1

Client	GANNETT FLEMING
Client Reference	USACE/MAHONING RIVER
Project No.	2003-242-02

Lab ID		01
Boring No.		NA
Depth (ft)		NA
Sample No.		NA
Volume of Liquid (l)	(For g/l only)	0.5
Tare Number		1682
Wt. of Tare & WS (gm)	(For % only)	684.2
Wt. of Tare & DS (gm)		174.13
Wt. of Tare (gm)		102.11
Wt. of Water (gm)		510.07
Wt. of DS (gm)		72.02
Total Solids Content (g/l)		**144.0**
Percent Solids (%)		**12.37**

Notes: Polymer test mix: 2649.59gms. wet soil & 13.92 liters of river water.

Tested By LW *Date* 11/13/03 *Checked By* TM *Date* 11-17-03

DCN: CT-S1PS DATE 6/12/03 GEOSERVER\DATA DRIVE\Soil Data\2003\MahoningRiverBagTest\2003-242-02\[Initial %Sol 2003-242-02.xls]Sheet1

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INTEGRITY IN TESTING

TOTAL SOLIDS

ASTM D2216 (Modified)
SOP S1

Client	GANNETT FLEMING
Client Reference	USACE/MAHONING RIVER
Project No.	2003-242-02

Lab ID		02	02
Boring No.		Before adding	Before adding
Depth (ft)		polymer	polymer
Sample No.		Bag Test	Bag Test
Volume of Liquid (l)	(For g/l only)	0.5	0.5
Tare Number		687	1092
Wt. of Tare & WS (gm)	(For % only)	650.4	673
Wt. of Tare & DS (gm)		167.75	175.6
Wt. of Tare (gm)		98.24	103.3
Wt. of Water (gm)		482.65	497.4
Wt. of DS (gm)		69.51	72.3
Total Solids Content (g/l)		**139.0**	**144.6**
Percent Solids (%)		**12.59**	**12.69**

Notes: Bag test mix: 26430.9gms. wet soil & 36.8 gallons of river water.

Tested By *LW* *Date* *12/1/03* *Checked By* GU *Date* 12/1/03

DCN: CT-S1PS DATE 6/12/03 REVISION: 4 *S:\Soil Data\2003\MahoningRiverBagTest\2003-242-02\[Bag %Sol 2003-242-02.xls]Sheet1*

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INTEGRITY IN TESTING

TOTAL SOLIDS

ASTM D2216 (Modified)
SOP S1

Client	GANNETT FLEMING
Client Reference	USACE/MAHONING RIVER
Project No.	2003-242-02

Lab ID		02	02	02
Boring No.		Water Effl.	Water Effl.	Water Effl.
Depth (ft)		NA	NA	NA
Sample No.		1-Min.	10-Min.	1-Hour
Volume of Liquid (l)	(For g/l only)	0.5	0.5	0.5
Tare Number		532	518	689
Wt. of Tare & WS (gm)	(For % only)	609.1	601.7	603.5
Wt. of Tare & DS (gm)		99.53	102.59	97.45
Wt. of Tare (gm)		99.28	102.45	97.29
Wt. of Water (gm)		509.57	499.11	506.05
Wt. of DS (gm)		0.25	0.14	0.16
Total Solids Content (g/l)		**0.5**	**0.3**	**0.3**
Percent Solids (%)		**0.05**	**0.03**	**0.03**

Notes:

Tested By *LW* *Date* *12/2/03* *Checked By* JB *Date* 12-3-03

DCN: CT-S1PS DATE 6/12/03 REVISION: 4 *S:\Soil Data\2003\MahoningRiverBagTest\2003-242-02\[Effluent %Sol 2003-242-02.xls]Sheet1*

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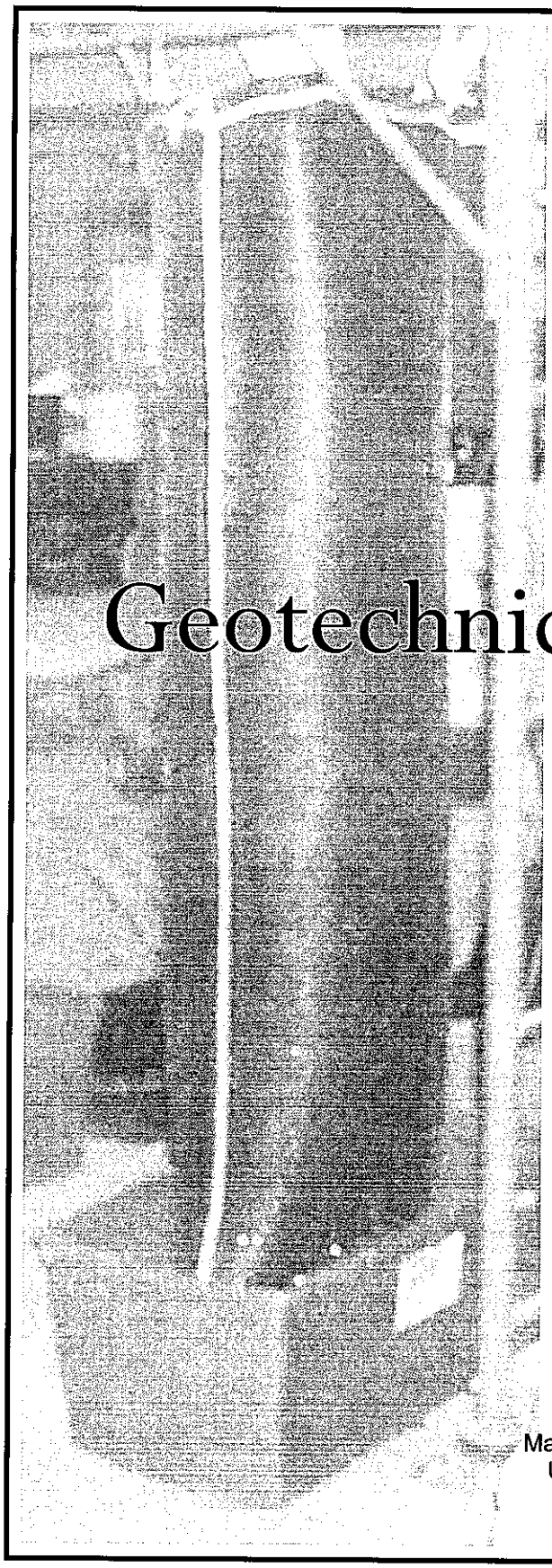
.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES



Geotechnical Test Data

Hanging Bag Test
Mahoning River Ohio Environmental Dredging Project
U. S. Army Corps of Engineers, Pittsburgh District
Pittsburgh, Pennsylvania

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INTEGRITY IN TESTING

MOISTURE CONTENT

ASTM D 2216 (SOP-S1)

Client	GANNETT FLEMING
Client Reference	USACE/MAHONING RIVER
Project No.	2003-242-02

Lab ID	03	03	03	03	03
Boring No.	Bag	Bag	Bag	Bag	Bag
Date	12/3/03	12/9/03	12/16/03	12/23/03	12/30/03
Sample No.	1-Day	7-Day	14-Day	21-Day	28-Day
Tare Number	2467	1646	2351	687	520
Wt. of Tare & WS (gm)	527.9	428.8	344.88	373.5	346.93
Wt. of Tare & DS (gm)	358.9	299.38	254.15	289.46	268.51
Wt. of Tare (gm)	96.27	91.06	96.26	98.17	95.81
Wt. of Water (gm)	169	129.42	90.73	84.04	78.42
Wt. of DS (gm)	262.63	208.32	157.89	191.29	172.7
Water Content (%)	**64.35**	**62.1**	**57.5**	**43.9**	**45.4**

Lab ID	03	03
Boring No.	Bag	Bag
Date	1/6/04	1/13/04
Sample No.	35-Day	42-Day
Tare Number	2493	2476
Wt. of Tare & WS (gm)	387.3	194.97
Wt. of Tare & DS (gm)	290.69	174.78
Wt. of Tare (gm)	97.34	93.19
Wt. of Water (gm)	96.61	20.19
Wt. of DS (gm)	193.35	81.59
Water Content (%)	**50.0**	**24.7**

Notes : Water Content on material for bag tests.

Tested By LW *Date* 12/3/03 *Checked By* JRB *Date* 1-19-04

DCN: CT-S1 DATE 6-30-98 REVISION: 2 *S:\Soil Data\2003\MahoningRiverBagTest\2003-242-02\[Bag MC 1to42day 2003-242-03.xls]Sheet1*

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INTEGRITY IN TESTING

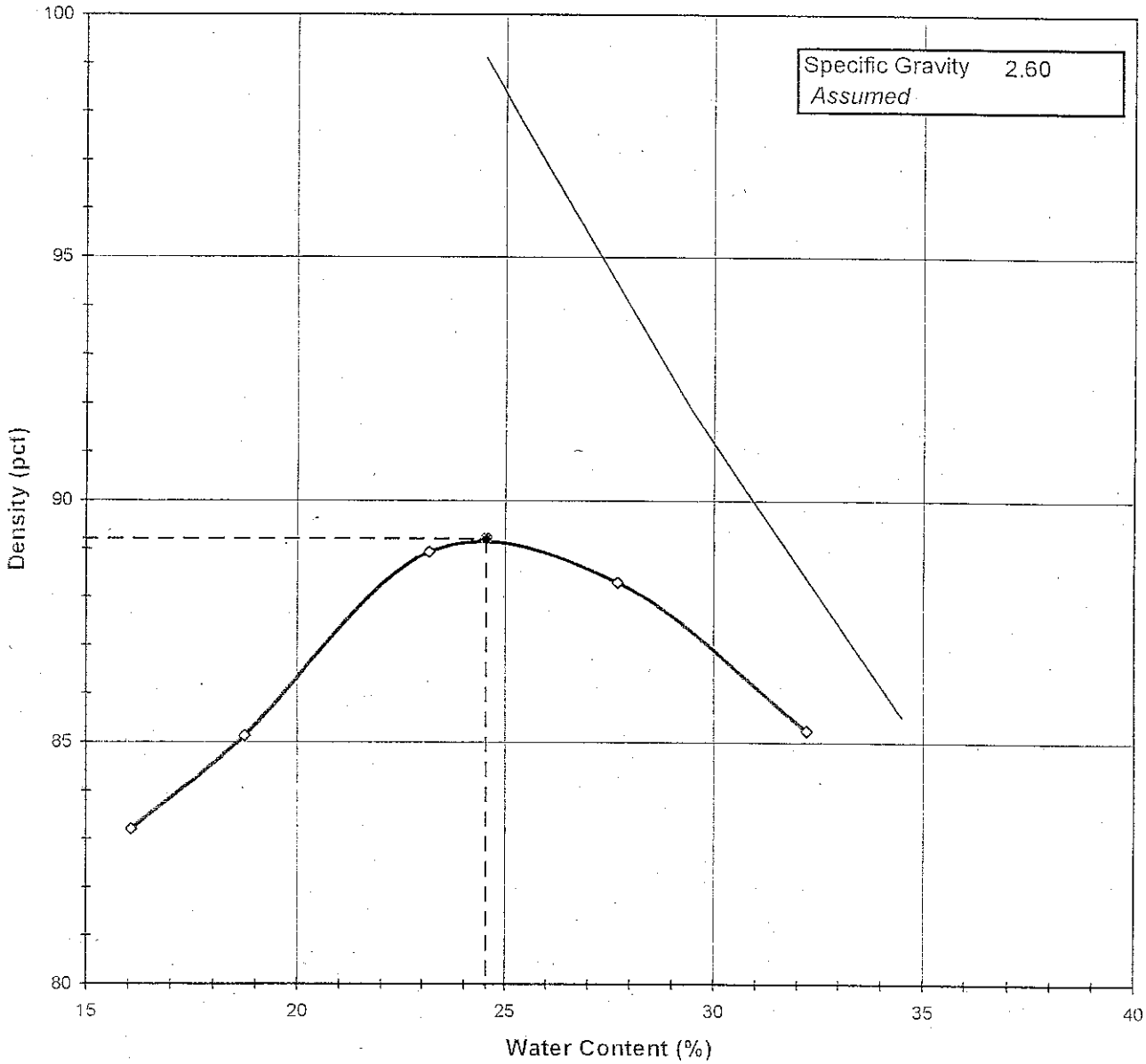
MOISTURE DENSITY RELATIONSHIP

ASTM D698-91 SOP-S12

Client	GANNETT FLEMING	Boring No.	NA
Client Reference	USACE / MAHONING RIVER	Depth (ft)	NA
Project No.	2003-242-02	Sample No.	EFFLUENT
Lab ID	2003-242-02-03	Test Method	STANDARD

Visual Description BROWN CLAY

Optimum Water Content	**24.5**
Maximum Dry Density	**89.2**



Tested By JP *Date* 01/20/04 *Checked By* *Date* 1-21-04

DCN:CT-S12 DATE:11/17/00 REVISION 4

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MOISTURE - DENSITY RELATIONSHIP

ASTM D698-91 SOP-S12

Client	GANNETT FLEMING	Boring No.	NA
Client Reference	USACE / MAHONING RIVER	Depth (ft)	NA
Project No.	2003-242-02	Sample No.	EFFLUENT
Lab ID	2003-242-02-03		

Visual Description BROWN CLAY

Total Weight of the Sample (gm)	NA
As Received Water Content(%)	NA
Assumed Specific Gravity	2.60
Percent Retained on 3/4"	NA
Percent Retained on 3/8"	NA
Percent Retained on #4	NA
Oversize Material	Not included
Procedure Used	B

TestType		STANDARD
Rammer Weight (lbs)		5.5
Rammer Drop (in)		12
Rammer Type		MECHANICAL
Machine ID	G	441
Mold ID	G	606
Mold diameter		4"
Weight of the Mold		4219
Volume of the Mold(cc)		940

Mold / Specimen

Point No.	1	2	3	4	5
Wt. of Mold & WS (gm)	5674	5742	5869	5918	5917
Wt.of Mold (gm)	4219	4219	4219	4219	4219
Wt. of WS	1455	1523	1650	1699	1698
Mold Volume (cc)	940	940	940	940	940

Moisture Content / Density

Tare Number	568	1703	609	1739	605
Wt. of Tare & WS (gm)	380.70	371.43	386.76	413.40	463.90
Wt. of Tare & DS (gm)	339.69	326.03	329.49	341.88	372.00
Wt. of Tare (gm)	84.55	83.76	82.11	83.82	86.90
Wt. of Water (gm)	41.01	45.40	57.27	71.52	91.90
Wt. of DS (gm)	255.14	242.27	247.38	258.06	285.10

Wet Density (gm/cc)	1.55	1.62	1.76	1.81	1.81
Wet Density (pcf)	96.6	101.1	109.5	112.8	112.7
Moisture Content (%)	**16.1**	**18.7**	**23.2**	**27.7**	**32.2**
Dry Density (pcf)	**83.2**	**85.1**	**88.9**	**88.3**	**85.2**

Zero Air Voids

Moisture Content (%)	24.5	29.5	34.5
Dry Unit Weight (pcf)	99.1	91.8	85.5

Tested By JP *Date* 01/20/04 *Checked By* Jcm *Date* 1-21-04

DCN:CT-S12 DATE:11/17/00 REVISION 4

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INTEGRITY IN TESTING

SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	GANNETT FLEMING	Boring No.	NA
Client Reference	USACE / MAHONING RIVER	Depth (ft)	NA
Project No.	2003-242-02	Sample No.	EFFLUENT
Lab ID	2003-242-02-03	Soil Color	**BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**

USCS Symbol ***MH, TESTED***

USCS Classification ***SANDY ELASTIC SILT***

Tested By TO Date 02/16/04 Checked By Jcm Date 2-16-04

 DCN: CT-S3C DATE 6-25-98 REVISION: 2 *C:\MSOFFICE\EXCEL\PrintQ\[W341.xls]Sheet1*

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INTEGRITY IN TESTING

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	GANNETT FLEMING	Boring No.	NA
Client Reference	USACE / MAHONING RIVER	Depth (ft)	NA
Project No.	2003-242-02	Sample No.	EFFLUENT
Lab ID	2003-242-02-03	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1003	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	900.90	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	812.00	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	97.05	Weight of Tare (gm)	NA
Weight of Water (gm)	88.90	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	714.95	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**12.4**	**Moisture Content (%)**	NA

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	714.95
Dry Weight - 3/4" Sample (gm)	248.7	Weight of minus #200 material (gm)	466.21
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	248.74
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	25.51	3.57	3.57	96.43	**96.43**
3/8"	9.50	4.28	0.60	4.17	95.83	**95.83**
#4	4.75	8.98	1.26	5.42	94.58	**94.58**
#10	2.00	40.49	5.66	11.09	88.91	**88.91**
#20	0.850	54.04	7.56	18.64	81.36	**81.36**
#40	0.425	19.67	2.75	21.40	78.60	**78.60**
#60	0.250	15.11	2.11	23.51	76.49	**76.49**
#140	0.106	55.23	7.73	31.23	68.77	**68.77**
#200	0.075	25.43	3.56	34.79	65.21	**65.21**
Pan	-	466.21	65.21	100.00	-	-

Tested By TO Date 02/16/04 Checked By Jcm Date 2-16-04

DCN: CT-S3C DATE 6-25-98 REVISION: 2

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	GANNETT FLEMING	Boring No.	NA
Client Reference	USACE / MAHONING RIVER	Depth (ft)	NA
Project No.	2003-242-02	Sample No.	EFFLUENT
Lab ID	2003-242-02-03	Soil Description	**BROWN ELASTIC SILT**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

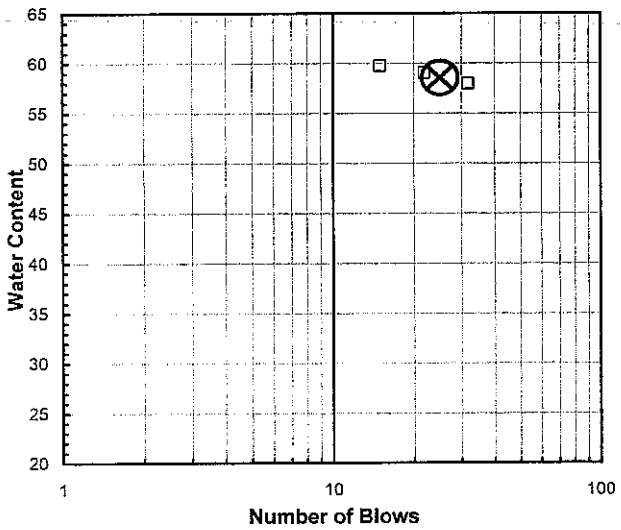
Liquid Limit Test	**1**	**2**	**3**	
				M
Tare Number	168	29	70	**U**
Wt. of Tare & WS (gm)	41.05	42.28	42.41	**L**
Wt. of Tare & DS (gm)	31.75	32.98	32.77	**T**
Wt. of Tare (gm)	15.70	17.22	16.63	**I**
Wt. of Water (gm)	9.3	9.3	9.6	**P**
Wt. of DS (gm)	16.1	15.8	16.1	**O**
				I
Moisture Content (%)	**57.9**	**59.0**	**59.7**	**N**
Number of Blows	**32**	**22**	**15**	**T**

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	251	157	
Wt. of Tare & WS (gm)	23.49	22.93	
Wt. of Tare & DS (gm)	21.73	21.12	
Wt. of Tare (gm)	17.21	16.25	
Wt. of Water (gm)	1.8	1.8	
Wt. of DS (gm)	4.5	4.9	
Moisture Content (%)	**38.9**	**37.2**	**1.8**

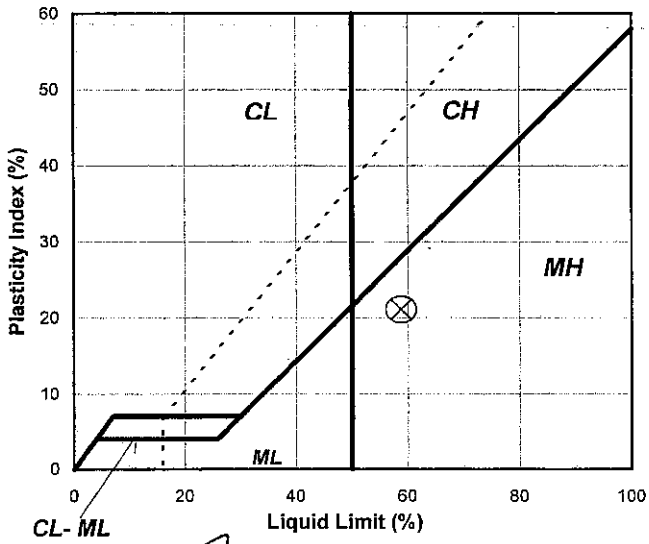
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**59**
Plastic Limit (%)	**38**
Plasticity Index (%)	**21**
USCS Symbol	**MH**

Flow Curve



Plasticity Chart



Tested By TO *Date* *02/13/04* *Checked By* Jcm *Date* 2-16-04

page 1 of 1 **DCN:** CT-S4B **DATE:** 10/08/01 **REVISION:** 2

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Mahoning River Ohio Environmental Dredging Project
Hanging Bag Test

Summary Narrative of Analytical Testing Results

Testing was completed in accordance with the scope of work for samples collected from the hanging bag effluent. Attached are the results as provided by Severn Trent Laboratories, Inc. and a summary table of the results as compared with Ohio and EPA Maximum Concentration Levels (MCLs). Two sets of analytical test were performed corresponding to sediment samples collected on August 19, 2003 and October 29, 2003. Please note that although the laboratory refers to the samples as "River Water" for the October 29th samples, all analysis was completed on water obtained from the *effluent* of the hanging bag test not directly from the river. The hanging bag test was conducted by mixing river sediment to a prescribed ratio with river water and introducing a polymer to promote flocculation. The August 19th samples were prepared with Neo Solutions polymer product #6460 at a concentration of 30 ppm, while the October 29th samples were prepared using the same product but at 60 ppm based on the results of the polymer bench test as described in Attachment 1.

Based on our review of the test results in comparison to US and Ohio EPA Maximum Concentration Level (MCL) criteria, only a few tests revealed concentrations above the acceptance limits. Aluminum and Iron tested higher than the MCLs for the August 19th samples and Manganese tested higher than the MCL for both water samples.

Mahoning Lake Sediment Dewatering Effluent
Summary of Analytical Detections

Analyte	Samples Collected August 19, 2003 Near Mahoning River Mile 37		Samples Collected October 29, 2003 Near Mahoning River Mile 27		Criteria	
	Result (mg/L)	Data Flag	Result (mg/L)	Data Flag	Ohio EPA MCL's	US EPA MCL's
GC/MS Volitiles (VOCs Method SW846 8260B)						
Acetone	0.024		ND		---	---
Benzene	ND		ND		0.005	0.005
Bromodichloromethane	ND		ND		---	---
Bromoform	ND		ND		---	---
Bromomethane	ND		ND		---	---
2-Butanone	ND		ND		---	---
Carbon disulfide	ND		ND		---	---
Carbon tetrachloride	ND		ND		0.005	0.005
Chlorobenzene	ND		ND		---	0.1
Dibromochloromethane	ND		ND		---	---
Chloroethane	ND		ND		---	---
Chloroform	ND		ND		---	---
Chloromethane	ND		ND		---	---
1,1-Dichloroethane	ND		ND		---	0.007
1,2-Dichloroethane	ND		ND		0.005	0.005
1,1-Dichloroethane	ND		ND		---	---
1,1-Dichloroethane (Total)	ND		ND		---	---
1,2-Dichloropropane	ND		ND		0.005	0.005
cis-1,3-Dichloropropene	ND		ND		---	---
trans-1,3-Dichloropropene	ND		ND		---	---
Ethylbezene	ND		ND		0.7	0.7
2-Hexanone	ND		ND		---	---
Methylene chloride	ND		ND		---	---
4-Methyl-2-pentanone	ND		ND		---	---
Styrene	ND		ND		0.1	0.1
1,1,2,2-Tetrachloroethane	ND		ND		---	---
Tetrachloroethene	ND		ND		---	---
Toluene	ND		ND		1	1
1,1,1-Trichloroethane	ND		ND		0.2	0.2
1,1,2-Trichloroethane	ND		ND		0.005	0.005
Trichloroethene	ND		ND		---	---
Vinyl Chloride	ND		ND		0.002	0.002
Xylenes (total)	ND		ND		10	10

Mahoning Lake Sediment Dewatering Effluent
Summary of Analytical Detections

Analyte	Samples Collected August 19, 2003 Near Mahoning River Mile 37		Samples Collected October 29, 2003 Near Mahoning River Mile 27		Criteria	
	Result (mg/L)	Data Flag	Result (mg/L)	Data Flag	Ohio EPA MCL's	US EPA MCL's
GC/MS Semivolatiles (PAHs Method SW846 8270C)						
Napthalene	ND		ND		---	---
Acenaphthylene	ND		ND		---	---
Acenaphthene	ND		ND		---	---
Fluorene	ND		ND		---	---
Phenanthrene	ND		ND		---	---
Anthracene	ND		ND		---	---
Fluoranthene	ND		ND		---	---
Pyrene	ND		ND		---	---
Benzo (b) anthracene	ND		ND		---	---
Chysene	ND		ND		---	---
Benzo (k) flouranthene	ND		ND		---	---
Benzo (b) flouranthene	ND		ND		---	---
Benzo (a) pyrene	ND		ND		0.0002	0.0002
Indeno (1,2,3-cd) pyrene	ND		ND		---	---
Dibenzo (a,h) anthracene	ND		ND		---	---
Benzo (ghi) perylene	ND		ND		---	---
GC Semivolatiles (Pesticides Method SW846 8081A)						
alpha - BHC	ND		ND		---	---
beta - BHC	ND		ND		---	---
delta - BHC	ND		ND		---	---
gamma - BHC (Lindane)	ND		ND		---	---
Heptachlor	ND		ND		0.0004	0.0004
Aldrin	ND		ND		---	---
Heptachlor epoxide	ND		ND		0.0002	0.0002
Endosulfan I	ND		ND		---	---
Dieldrin	ND		ND		---	---
4,4'-DDE	ND		ND		---	---
Endrin	ND		ND		0.002	0.002
Endrin ketote	ND		ND		---	---
Endrin aldehyde	ND		ND		---	---
Endosulfan II	ND		ND		---	---
4,4-DDD	ND		ND		---	---
Endosulfan sulfate	ND		ND		---	---
4,4'-DDT	ND		ND		---	---

Mahoning Lake Sediment Dewatering Effluent
Summary of Analytical Detections

Analyte	Samples Collected August 19, 2003 Near Mahoning River Mile 37		Samples Collected October 29, 2003 Near Mahoning River Mile 27		Criteria	
	Result (mg/L)	Data Flag	Result (mg/L)	Data Flag	Ohio EPA MCL's	US EPA MCL's
Methoxychlor	ND		ND		0.04	0.04
alpha-Chlordane	ND		ND		---	0.002
gamma - Chlordane	ND		ND		---	0.002
Toxaphene	ND		ND		0.003	0.003
GC Semivolatiles (PCBs Method SW846 8082)						
Aroclor 1016	ND		ND		0.0005	0.0005
Aroclor 1221	ND		ND		0.0005	0.0005
Aroclor 1232	ND		ND		0.0005	0.0005
Aroclor 1242	ND		ND		0.0005	0.0005
Aroclor 1248	ND		ND		0.0005	0.0005
Aroclor 1254	ND		ND		0.0005	0.0005
Aroclor 1260	ND		ND		0.0005	0.0005
GC Semivolatiles (Herbicides Method SW846 8151A)						
2,4-D	ND		ND		0.07	0.07
Dalapon	ND		ND		0.2	0.2
2,4-DB	ND		ND		---	---
Dicamba	ND		ND		---	---
Dichlorprop	ND		ND		---	---
Dinoseb	ND		ND		0.007	0.007
MCPA	ND		ND		---	---
MCPP	ND		ND		---	---
Pentachlorophenol	ND		ND		0.001	0.001
2,4,5-TP (Silvex)	ND		ND		0.05	0.05
Total Metals						
Silver	ND		ND		---	---
Aluminum	**0.903**		0.0803	B	0.2	0.2
Arsenic	0.0042	B	0.0029		0.05	0.01
Barium	0.0224	B	0.0524	B,J	2	2
Beryllium	ND		0.00061	B	0.004	0.004
Calcium	46.3		123.00		---	---
Cadmium	ND		0.00059	B	0.005	0.005
Cobalt	ND		ND		---	---
Chromium	0.0037	B	0.0014	B	0.1	0.1
Copper	0.0199	B	0.0227	B	---	1.3
Iron	**1.38**		0.176		0.3	0.3

Mahoning Lake Sediment Dewatering Effluent
Summary of Analytical Detections

Analyte	Samples Collected August 19, 2003 Near Mahoning River Mile 37		Samples Collected October 29, 2003 Near Mahoning River Mile 27		Criteria	
	Result (mg/L)	Data Flag	Result (mg/L)	Data Flag	Ohio EPA MCL's	US EPA MCL's
Potassium	4.49	B	4.36	B	---	---
Magnesium	23.1		16.00		---	---
Manganese	**0.118**		**0.0907**		0.05	0.05
Sodium	30.4		31.90		---	---
Nickel	0.0079	B	0.0085	B	0.1	---
Lead	0.0122		ND		0.015	0.015
Selenium	ND		0.0027	B	0.05	0.05
Thallium	ND		ND		0.002	0.002
Antimony	0.0049	B	0.0048	B	0.006	0.006
Vanadium	0.0043	B	ND		---	---
Zinc	0.0642		0.0283		5	5
Murcury	ND		0.000057	B	0.002	0.002
General Chemistry (TPH Method CFR136A 1664A SGT)						
TPH (SGT-HEM)	ND		ND		---	---

Notes

* Dash (---) indicates no available criteria for comparison
* Bold (and red) values indicate exceedance of applicable criteria
* The criteria for aluminum and iron are Secondary Criteria, and therefore are non-enforceable.
* The data flag "B" indicates an estimated result since it is less than the reporting limit
* The data flag "J" indicates that the associated method blank contains the target analyte at a reportable limit and may have caused contamination.

SEVERN TRENT STL

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ANALYTICAL REPORT

PROJECT NO. GANNETT FLEMING

Gannett Fleming Mahoning River

Lot #: C3J110152

John Kovacs

Gannett Fleming

SEVERN TRENT LABORATORIES, INC.

Carrie L. Gamber
Project Manager

November 5, 2003

SEVERN TRENT STL

ACCREDITED IN ACCORDANCE WITH nelac

NELAC REPORTING:

The format and content of the attached report meets NELAC standards and guidelines except as noted in the narrative. The table below presents a summary of the certifications held by STL Pittsburgh. Our primary accreditation authority for the Non-potable water and Solid & Hazardous waste programs is New York State DOH. A more detailed parameter list is available upon request. Please ask your project manager for this information when required.

Certifying State/Program	Certificate #	Program Types	STL Pittsburgh
NFESC	NA	NAVY	X
USACE	NA	Corps of Engineers	X
US Dept of Agriculture	(#S-46425)	Foreign Soil Import Permit	X
Arkansas	(#03-022-1)	WW HW	X X
Connecticut	(#PH-0688)	WW HW	X X
Florida – nelac	(#E83660)	WW HW	X X
Illinois – nelac	(#200005)	WW HW	X X
Kansas – nelac	(#E-10350)	WW HW	X X
Louisiana – nelac	(#93200)	WW HW	X X
New Hampshire – nelac	(#203002)	WW	X
New Jersey – nelac	(PA-005)	WW HW	X X
New York – nelac	(#11182)	WW HW	X X
North Carolina	(#434)	WW HW	X X
Ohio Vap	(#CL0063)	WW HW	X X
South Carolina	(#89014001)	WW HW	X X
Utah – nelac	(STLP)	WW HW	X X
West Virginia	(#142)	WW HW	X X
Wisconsin	998027800	WW HW	X X

The codes utilized for program types are described below:

HW Hazardous Waste certification
WW Non-potable Water and/or Wastewater certification
X Laboratory has some form of certification under the specific program. Many states certify laboratories for specific parameters or tests within a category. The information in the table indicates the lab is certified in a general category of testing. Please contact the laboratory if parameter specific certification information is required.

CASE NARRATIVE

Gannett Fleming

STL Lot # C3J110152

Sample Receiving:
STL Pittsburgh received samples for analysis on October 10, 2003. The cooler was received within the proper temperature range.

Project specific QC was not required for samples contained in this report. Where batch QC was completed on these samples, anomalous results will be discussed below.

GC/MS Volatiles:
The initial calibration analyzed had compounds outside the 15%RSD criteria. The average %RSD of all the compounds in the five-point calibration mix was less than 15%. Therefore, the average response factor was used for all compounds. See the following sheets for the compounds and the %RSDs.

The continuing calibration analyzed had compounds outside the ±15%D criteria. The average %D of all the compounds in the continuing calibration mix was less than 15%. Therefore, analysis continued and the results for the samples reported. See the following sheets for the compounds and the %Ds.

GC/MS Semivolatiles:
The reporting limits were adjusted due to the amount of sample used in the extraction procedure.

The initial calibration(s) analyzed had compounds outside the 15%RSD criteria. The average %RSD of all the compounds in the five-point calibration mix was less than 15%. Therefore, the average response factor was used for all compounds. See the following sheets for the compounds and the %RSDs.

The continuing calibration(s) analyzed had compounds outside the ±15%D criteria. The average %D of all the compounds in the continuing calibration mix was less than 15%. Therefore, analysis continued and the results for the samples reported. See the following sheets for the compounds and the %Ds.

Pesticides:
The reporting limits were adjusted due to the amount of sample used in the extraction procedure.

The continuing calibrations analyzed had compounds outside the ±15%D criteria. The average %D of all the compounds in the continuing calibration mix was less than 15%. Therefore, analysis continued and the results for the samples reported. See the following sheets for the compounds and the %Ds.

CASE NARRATIVE

Gannett Fleming

STL Lot # C3J110152

PCBs:
The reporting limits were adjusted due to the amount of sample used in the extraction procedure.

The continuing calibration analyzed had compounds outside the ±15%D criteria. The average %D of all the compounds in the continuing calibration mix was less than 15%. Therefore, analysis continued and the results for the samples reported. See the following sheets for the compounds and the %Ds.

Herbicides:
The reporting limits were adjusted due to the amount of sample used in the extraction procedure.

The initial calibration analyzed had compounds outside the 15%RSD criteria. The average %RSD of all the compounds in the five-point calibration mix was less than 15%. Therefore, the average response factor was used for all compounds. See the following sheets for the compounds and the %RSDs.

The continuing calibration analyzed had compounds outside the ±15%D criteria. The average %D of all the compounds in the continuing calibration mix was less than 15%. Therefore, analysis continued and the results for the samples reported. See the following sheets for the compounds and the %Ds.

Metals:
The matrix spike and matrix spike duplicate were outside control limits for aluminum.

The matrix spike duplicate was outside control limits for iron.

General Chemistry:
The reporting limit for TPH was adjusted due to the amount of sample used in the extraction procedure.

Data File: \\QPITPA02\d\chem\hp3.i\30929p.b/2A30929P.D
Report Date: 09/29/2003

INITIAL CALIBRATION REPORT

Instrument ID: hp3.i
Lab File ID: 2A30929P.D
Analysis Type: WATER

Injection Date: 29-SEP-2003 19:33
Lab Sample ID: vstd5
Method File: \\QPITPA02\d\chem\hp3.i\30929p.b

COMPOUND	%RSD
Xylenes (total)	16.3
1,2-Dichloroethene (total)	9.1
Dichlorodifluoromethane	4.7
Chloromethane	4.5
Vinyl Chloride	3.0
Bromomethane	8.1
Chloroethane	14.9
Trichlorofluoromethane	50.4
1,1-Dichloroethene	4.2
1,1,2-trichloro-1,2,2-trifluoro	5.8
Acetone	6.1
Carbon Disulfide	4.9
Acetonitrile	29.7
Methyl Acetate	6.4
Methylene Chloride	8.0
trans-1,2-Dichloroethene	11.7
Methyl tert-butyl ether	17.1
1,1-Dichloroethane	4.8
2,2-Dichloropropane	22.2
cis-1,2-dichloroethene	9.9
2-Butanone	23.8
Bromochloromethane	2.8
Chloroform	3.9
1,1,1-Trichloroethane	17.4
Dibromofluoromethane	3.7
Cyclohexane	25.2
Carbon Tetrachloride	15.5
1,1-Dichloropropene	19.7
1,2-Dichloroethane-d4	6.3
Benzene	8.7
1,2-Dichloroethane	9.6
Trichloroethene	13.7
Methyl Cyclohexane	19.1
1,2-Dichloropropane	11.5
Dibromomethane	8.2
Bromodichloromethane	8.9
cis-1,3-Dichloropropene	24.0
4-Methyl-2-Pentanone	27.4
Toluene-d8	7.4

Data File: \\QPITPA02\d\chem\hp3.i\30929p.b/2A30929P.D
Report Date: 09/29/2003

INITIAL CALIBRATION REPORT

Instrument ID: hp3.i
Lab File ID: 2A30929P.D
Analysis Type: WATER

Injection Date: 29-SEP-2003 19:33
Lab Sample ID: vstd5
Method File: \\QPITPA02\d\chem\hp3.i\30929p.b

COMPOUND	%RSD
Toluene	9.9
trans-1,3-Dichloropropene	22.6
1,1,2-Trichloroethane	6.7
Tetrachloroethene	11.1
1,3-Dichloropropane	13.0
2-Hexanone	31.5
Dibromochloromethane	9.9
1,2-Dibromoethane	10.8
Chlorobenzene	4.7
1,1,1,2-Tetrachloroethane	9.6
Ethylbenzene	13.1
m + p-Xylene	14.3
Xylene-o	21.1
Styrene	18.7
Bromoform	13.0
Isopropylbenzene	20.5
Bromofluorobenzene	7.7
Bromobenzene	8.4
1,1,2,2-Tetrachloroethane	6.4
1,2,3-Trichloropropane	7.0
n-Propylbenzene	14.3
2-Chlorotoluene	7.5
1,3,5-Trimethylbenzene	14.3
4-Chlorotoluene	8.5
tert-Butylbenzene	17.7
1,2,4-Trimethylbenzene	11.8
sec-Butylbenzene	13.6
1,3-Dichlorobenzene	5.1
4-Isopropyltoluene	13.4
1,4-Dichlorobenzene	3.9
n-Butylbenzene	20.2
1,2-Dichlorobenzene	8.7
1,2-Dibromo-3-chloropropane	16.0
1,2,4-Trichlorobenzene	26.7
Hexachlorobutadiene	13.8
Naphthalene	31.5
1,2,3-Trichlorobenzene	18.0

The average of all %RSD's in the initial calibration is 13.2

Data File: \\QPITPA02\d\chem\hp3.i\3101903d.b/1C31019.D
Report Date: 10/19/2003

CONTINUING CALIBRATION REPORT

Instrument ID: hp3.i
Lab File ID: 1C31019.D
Analysis Type: WATER

Injection Date: 19-OCT-2003 09:41
Lab Sample ID: vstd50
Method File: \\QPITPA02\d\chem\hp3.i\3101903d.b\8260

COMPOUND	%D
Xylenes (total)	14.2
1,2-Dichloroethene (total)	14.7
Dichlorodifluoromethane	15.1
Chloromethane	16.4
Vinyl Chloride	4.7
Bromomethane	10.5
Chloroethane	22.7
Trichlorofluoromethane	2.0
1,1-Dichloroethene	14.4
1,1,2-trichloro-1,2,2-trifluoro	16.0
Acetone	18.5
Carbon Disulfide	22.5
Acetonitrile	21.2
Methyl Acetate	18.6
Methylene Chloride	21.8
trans-1,2-Dichloroethene	19.0
Methyl tert-butyl ether	10.9
1,1-Dichloroethane	14.7
2,2-Dichloropropane	17.3
cis-1,2-dichloroethene	10.3
2-Butanone	12.2
Bromochloromethane	12.5
Chloroform	12.7
1,1,1-Trichloroethane	12.7
Dibromofluoromethane	2.3
Cyclohexane	1.4
Carbon Tetrachloride	9.2
1,1-Dichloropropene	9.8
1,2-Dichloroethane-d4	6.1
Benzene	12.0
1,2-Dichloroethane	4.4
Trichloroethene	13.1
Methyl Cyclohexane	3.9
1,2-Dichloropropane	10.7
Dibromomethane	5.0
Bromodichloromethane	14.7
cis-1,3-Dichloropropene	8.5
4-Methyl-2-Pentanone	29.3
Toluene-d8	4.1

Data File: \\QPITPA02\d\chem\hp3.i\3101903d.b/1C31019.D
Report Date: 10/19/2003

CONTINUING CALIBRATION REPORT

Instrument ID: hp3.i
Lab File ID: 1C31019.D
Analysis Type: WATER

Injection Date: 19-OCT-2003 09:41
Lab Sample ID: vstd50
Method File: \\QPITPA02\d\chem\hp3.i\3101903d

COMPOUND	%D
Toluene	9.6
trans-1,3-Dichloropropene	2.1
1,1,2-Trichloroethane	1.1
Tetrachloroethene	9.5
1,3-Dichloropropane	4.4
2-Hexanone	17.7
Dibromochloromethane	3.6
1,2-Dibromoethane	5.8
Chlorobenzene	13.9
1,1,1,2-Tetrachloroethane	12.9
Ethylbenzene	11.4
m + p-Xylene	14.4
Xylene-o	13.9
Styrene	14.0
Bromoform	4.5
Isopropylbenzene	7.1
Bromofluorobenzene	4.1
Bromobenzene	10.4
1,1,2,2-Tetrachloroethane	3.0
1,2,3-Trichloropropane	8.4
n-Propylbenzene	6.1
2-Chlorotoluene	9.5
1,3,5-Trimethylbenzene	10.3
4-Chlorotoluene	13.1
tert-Butylbenzene	6.4
1,2,4-Trimethylbenzene	11.0
sec-Butylbenzene	6.6
1,3-Dichlorobenzene	12.3
4-Isopropyltoluene	4.2
1,4-Dichlorobenzene	10.4
n-Butylbenzene	5.3
1,2-Dichlorobenzene	9.5
1,2-Dibromo-3-chloropropane	21.8
1,2,4-Trichlorobenzene	33.8
Hexachlorobutadiene	7.4
Naphthalene	67.1
1,2,3-Trichlorobenzene	58.7

The average of %D's in the continuing calibration is 12.6

Data File: \\QPITPA02\D\chem\721.i\d100503.b/D1005CC1.D
Report Date: 10/05/2003

INITIAL CALIBRATION REPORT

Instrument ID: 721.i
Lab File ID: D1005CC1.D
Analysis Type: NONE

Injection Date: 05-OCT-2003 10:14
Lab Sample ID: sstd050
Method File: \\QPITPA02\D\chem\721.i\d100503.b

COMPOUND	%RSD
Benzo(a)Anthracene	2.1
3,3'-Dichlorobenzidine	2.0
Chrysene	2.8
bis(2-ethylhexyl)Phthalate	2.4
Di-n-octylphthalate	4.4
Benzo(b)fluoranthene	8.8
Benzo(k)fluoranthene	13.4
7,12-dimethylbenz[a]anthracen	4.0
Benzo(a)pyrene	2.2
Indeno(1,2,3-cd)pyrene	7.1
Dibenz(a,h)anthracene	1.7
Benzo(g,h,i)perylene	3.2

The average of all %RSD's in the initial calibration is 4.0

Data File: \\QPITPA02\D\chem\721.i\d100503.b/D1005CC1.D
Report Date: 10/05/2003

INITIAL CALIBRATION REPORT

Instrument ID: 721.i
Lab File ID: D1005CC1.D
Analysis Type: NONE

Injection Date: 05-OCT-2003 10:14
Lab Sample ID: sstd050
Method File: \\QPITPA02\D\chem\721.i\d100503.b\8270f.

COMPOUND	%RSD
Pyridine	3.4
N-Nitrosodimethylamine	1.8
Methyl methanesulfonate	1.7
2-Fluorophenol	2.6
Benzaldehyde	29.2
Phenol-d5	1.0
Phenol	3.9
Aniline	1.9
bis(2-Chloroethyl)ether	1.8
2-Chlorophenol-d4	1.1
2-Chlorophenol	2.7
1,3-Dichlorobenzene	3.0
1,4-Dichlorobenzene	3.7
Benzyl Alcohol	1.3
1,2-Dichlorobenzene-d4	5.4
1,2-Dichlorobenzene	5.7
2-Methylphenol	2.9
2,2'-oxybis(1-Chloropropane)	1.7
Acetophenone	1.8
4-Methylphenol	4.2
N-Nitroso-di-n-propylamine	2.3
Hexachloroethane	4.3
Nitrobenzene-d5	2.2
Nitrobenzene	3.4
Isophorone	2.4
2-Nitrophenol	2.5
2,4-Dimethylphenol	3.6
bis(2-Chloroethoxy)methane	3.4
Benzoic Acid	4.9
2,4-Dichlorophenol	4.6
1,2,4-Trichlorobenzene	3.6
Naphthalene	5.9
4-Chloroaniline	4.4
Hexachlorobutadiene	3.4
Caprolactam	2.7
4-Chloro-3-Methylphenol	2.5
2-Methylnaphthalene	5.4
1-Methylnaphthalene	5.6
Hexachlorocyclopentadiene	2.7

Data File: \\QPITPA02\D\chem\721.i\d100503.b/D1005CC1.D
Report Date: 10/05/2003

INITIAL CALIBRATION REPORT

Instrument ID: 721.i
Lab File ID: D1005CC1.D
Analysis Type: NONE

Injection Date: 05-OCT-2003 10:14
Lab Sample ID: sstd050
Method File: \\QPITPA02\D\chem\721.i\d100503.b

COMPOUND	%RSD
2,4,6-Trichlorophenol	3.0
2,4,5-Trichlorophenol	4.1
2-Fluorobiphenyl	6.5
1,1'-Biphenyl	5.4
2-Chloronaphthalene	6.0
2-Nitroaniline	2.1
Dimethylphthalate	3.5
2,6-Dinitrotoluene	4.6
Acenaphthylene	7.2
3-Nitroaniline	1.8
Acenaphthene	5.0
2,4-Dinitrophenol	6.2
4-Nitrophenol	1.3
Dibenzofuran	5.1
2,4-Dinitrotoluene	1.5
2,3,5,6-Tetrachlorophenol	1.8
2-Naphthylamine	5.1
2,3,4,6-Tetrachlorophenol	3.8
Diethylphthalate	3.8
4-Chlorophenyl-phenylether	5.8
Fluorene	6.6
4-Nitroaniline	1.1
4,6-Dinitro-2-methylphenol	3.1
N-Nitrosodiphenylamine (1)	3.6
1,2-Diphenylhydrazine	4.1
2,4,6-Tribromophenol	2.4
4-Bromophenyl-phenylether	4.0
Hexachlorobenzene	3.1
Atrazine	1.9
Pentachlorophenol	6.1
Phenanthrene	4.2
Anthracene	5.7
Carbazole	3.0
Di-n-Butylphthalate	3.9
Fluoranthene	3.7
Benzidine	8.7
Pyrene	3.2
Terphenyl-d14	3.7
Butylbenzylphthalate	1.9

Data File: \\QPITPA02\d\chem\721.i\d102503.b/D1025CCC.D
Report Date: 10/25/2003

CONTINUING CALIBRATION REPORT

Instrument ID: 721.i
Lab File ID: D1025CCC.D
Analysis Type: NONE

Injection Date: 25-OCT-2003 12:10
Lab Sample ID: sstd050
Method File: \\QPITPA02\d\chem\721.i\d102503.b

8270c

COMPOUND	%D
Benzo(a)Anthracene	6.5
3,3'-Dichlorobenzidine	10.5
Chrysene	6.3
bis(2-ethylhexyl)Phthalate	6.2
Di-n-octylphthalate	4.1
Benzo(b)fluoranthene	14.7
Benzo(k)fluoranthene	6.3
7,12-dimethylbenz[a]anthracen	3.8
Benzo(a)pyrene	4.7
Indeno(1,2,3-cd)pyrene	7.1
Dibenz(a,h)anthracene	4.4
Benzo(g,h,i)perylene	5.5

The average of %D's in the continuing calibration is 5.7

Data File: \\QPITPA02\d\chem\721.i\d102503.b/D1025CCC.D
Report Date: 10/25/2003

CONTINUING CALIBRATION REPORT

Instrument ID: 721.i
Lab File ID: D1025CCC.D
Analysis Type: NONE

Injection Date: 25-OCT-2003 12:10
Lab Sample ID: sstd050
Method File: \\QPITPA02\d\chem\721.i\d102503.b\8270f.

COMPOUND	%D
Pyridine	11.0
N-Nitrosodimethylamine	1.4
Methyl methanesulfonate	4.5
2-Fluorophenol	11.1
Benzaldehyde	50.3
Phenol-d5	15.2
Aniline	15.4
Phenol	3.4
bis(2-Chloroethyl)ether	2.0
2-Chlorophenol-d4	12.9
2-Chlorophenol	1.7
1,3-Dichlorobenzene	2.2
1,4-Dichlorobenzene	2.1
Benzyl Alcohol	9.9
1,2-Dichlorobenzene-d4	0.7
1,2-Dichlorobenzene	0.1
2-Methylphenol	4.6
2,2'-oxybis(1-Chloropropane)	7.5
Acetophenone	15.6
4-Methylphenol	5.0
N-Nitroso-di-n-propylamine	0.7
Hexachloroethane	1.8
Nitrobenzene-d5	1.8
Nitrobenzene	1.3
Isophorone	1.6
2-Nitrophenol	4.7
2,4-Dimethylphenol	1.2
bis(2-Chloroethoxy)methane	0.6
Benzoic Acid	7.8
2,4-Dichlorophenol	1.6
1,2,4-Trichlorobenzene	3.4
Naphthalene	0.3
4-Chloroaniline	1.6
Hexachlorobutadiene	1.5
Caprolactam	18.1
4-Chloro-3-Methylphenol	2.4
2-Methylnaphthalene	2.7
1-Methylnaphthalene	1.4
Hexachlorocyclopentadiene	22.6

Data File: \\QPITPA02\d\chem\721.i\d102503.b/D1025CCC.D
Report Date: 10/25/2003

CONTINUING CALIBRATION REPORT

Instrument ID: 721.i
Lab File ID: D1025CCC.D
Analysis Type: NONE

Injection Date: 25-OCT-2003 12:10
Lab Sample ID: sstd050
Method File: \\QPITPA02\d\chem\721.i\d102503.b

COMPOUND	%D
2,4,6-Trichlorophenol	2.5
2,4,5-Trichlorophenol	2.4
2-Fluorobiphenyl	0.8
1,1'-Biphenyl	15.2
2-Chloronaphthalene	0.7
2-Nitroaniline	1.9
Dimethylphthalate	1.2
2,6-Dinitrotoluene	2.5
Acenaphthylene	0.1
3-Nitroaniline	5.5
Acenaphthene	0.1
2,4-Dinitrophenol	10.8
4-Nitrophenol	4.1
Dibenzofuran	0.8
2,4-Dinitrotoluene	5.2
2,3,5,6-Tetrachlorophenol	2.3
2-Naphthylamine	24.3
2,3,4,6-Tetrachlorophenol	8.3
Diethylphthalate	1.2
Fluorene	0.2
4-Chlorophenyl-phenylether	0.8
4-Nitroaniline	5.0
4,6-Dinitro-2-methylphenol	6.5
N-Nitrosodiphenylamine (1)	4.7
1,2-Diphenylhydrazine	0.5
2,4,6-Tribromophenol	21.0
4-Bromophenyl-phenylether	1.5
Hexachlorobenzene	1.6
Atrazine	1.0
Pentachlorophenol	9.8
Phenanthrene	3.4
Anthracene	1.7
Carbazole	3.6
Di-n-Butylphthalate	2.7
Fluoranthene	1.6
Benzidine	10.9
Pyrene	3.8
Terphenyl-d14	3.6
Butylbenzylphthalate	6.6

Report Date : 20-Oct-2003 13:23

STL Pittsburgh

INITIAL CALIBRATION DATA

Start Cal Date : 18-OCT-2003 11:35
End Cal Date : 18-OCT-2003 13:47
Quant Method : ESTD
Origin : Disabled
Target Version : 4.04
Integrator : Falcon
Method file : \\qpitpa02\d\chem\gc8.i\10173.b\LONGH.m
Cal Date : 20-Oct-2003 13:22 hallr
Curve Type : Average

Calibration File Names:
Level 1: \\qpitpa02\d\chem\gc8.i\August\O1030729.D
Level 2: \\qpitpa02\d\chem\gc8.i\August\O1030730.D
Level 3: \\qpitpa02\d\chem\gc8.i\August\O1030731.D
Level 4: \\qpitpa02\d\chem\gc8.i\August\O1030732.D
Level 5: \\qpitpa02\d\chem\gc8.i\August\O1030733.D

Compound	0.00500 Level 1	0.01000 Level 2	0.02500 Level 3	0.05000 Level 4	0.10000 Level 5	RRF	% RSD	
1 DALAPON	743909	694909	641868	597358	596676	654944	9.775	
3 MCPP	18840	15615	12807	10864	9790	13583	27.085	<-
4 DICAMBA	3925849	3845023	3683106	3598202	3734735	3757383	3.456	
5 MCPA	26747	22979	19483	16542	14984	20147	23.761	<-
6 DICHLOROPROP	1067500	1016321	928101	893829	922655	965681	7.567	
7 2,4-D	781280	764659	741563	737382	779235	760824	2.704	
8 PENTACHLOROPHENOL	14469549	15060338	14686372	15152820	15266392	14927094	2.250	
9 2,4,5-TP(SILVEX)	5657905	5686190	5552180	5684299	5731929	5662501	1.186	
10 2,4,5-T	3623909	3699048	3634834	3678791	4018152	3730947	4.382	
11 DINOSEB	4725237	4693386	4460551	4304449	4300866	4496898	4.551	
12 2,4-DB	1734645	1750782	1619503	1572320	1644231	1664296	4.586	
$ 2 DCAA	877324	861435	813760	787482	820112	832023	4.406	

Ave=8.0

Data File: \\qpitpa02\d\chem\gc8.i\August\01030794.D
Report Date: 20-Oct-2003 13:18

STL Pittsburgh

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc8.i
Lab File ID: 01030794.D
Analysis Type:
Lab Sample ID: MH8151
Method: \\qpitpa02\d\chem\gc8.i\August\LONGH.m

Injection Date: 19-OCT-2003 23:17
Init. Cal. Date(s): 18-OCT-2003 18-OCT-2003
Init. Cal. Times: 11:35 13:47
Quant Type: ESTD

	COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D	
	1 DALAPON	654944	611071	0.010	-6.7	15.0	
$	2 DCAA	832023	766876	0.010	-7.8	15.0	
	3 MCPP	13583	10978	0.010	-19.2	15.0	<-
	4 DICAMBA	3757383	3616827	0.010	-3.7	15.0	
	5 MCPA	20147	17523	0.010	-13.0	15.0	
	6 DICHLOROPROP	965681	885082	0.010	-8.3	15.0	
	7 2,4-D	760824	668424	0.010	-12.1	15.0	
	8 PENTACHLOROPHENOL	14927094	15445536	0.010	3.5	15.0	
	9 2,4,5-TP(SILVEX)	5662501	5551734	0.010	-2.0	15.0	
	10 2,4,5-T	3730947	3402109	0.010	-8.8	15.0	
	11 DINOSEB	4496898	4268937	0.010	-5.1	15.0	
	12 2,4-DB	1664296	1465148	0.010	-12.0	15.0	

Ave= 8.5

7E
689080
D6608

STL Pittsburgh

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc8.i
Lab File ID: 01030608.D
Analysis Type:
Lab Sample ID: ML1660
Method: \\qpitpa02\d\chem\gc8.i\09063.b\PCBA.m

Injection Date: 16-OCT-2003 15:00
Init. Cal. Date(s): 06-SEP-2003 06-SEP-2003
Init. Cal. Times: 09:07 12:08
Quant Type: ESTD

COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D	
20 Aroclor-1016(1)	150741	177000	0.010	17.4	15.0	<-
(2)	248387	272155	0.010	9.6	15.0	
(3)	107768	119335	0.010	10.7	15.0	
(4)	150578	167980	0.010	11.6	15.0	
(5)	101451	113475	0.010	11.9	15.0	
$ 1 Tetrachloro-m-xylene	4969236	5575300	0.000	12.2	15.0	
$ 34 Decachlorobiphenyl	2047409	2239800	0.010	9.4	15.0	
36 Aroclor-1260(1)	194165	214840	0.010	10.6	15.0	
(2)	206619	226975	0.010	9.9	15.0	
(3)	199208	219160	0.010	10.0	15.0	
(4)	375381	399625	0.010	6.5	15.0	
(5)	176488	192755	0.010	9.2	15.0	

AVE=108

7E HP5890 4G
RTX-50

Data File: \\Qpitpa02\D\chem\gc4.i\G10153.b\G103264.d
Report Date: 17-Oct-2003 10:17

STL Pittsburgh

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc4.i
Lab File ID: G103264.d
Analysis Type:
Lab Sample ID: MHIGHA
Method: \\Qpitpa02\D\chem\gc4.i\G10153.b\8081A.m

Injection Date: 16-OCT-2003 20:11
Init. Cal. Date(s): 15-OCT-2003 15-OCT-2003
Init. Cal. Times: 15:34 20:56
Quant Type: ESTD

COMPOUND	RRF	RFO	MIN RRF	%D	MAX %D	
$ 2 Tetrachloro-m-xylene	3733782	3171120	0.000	-15.1	15.0	<-
5 alpha-BHC	5552788	5031860	0.010	-9.4	15.0	
6 gamma-BHC (Lindane)	5364370	4803320	0.010	-10.5	15.0	
9 Heptachlor	4161146	3554440	0.010	-14.6	15.0	
17 Endosulfan I	4723210	4300820	0.010	-8.9	15.0	
21 Dieldrin	4811634	4410240	0.010	-8.3	15.0	
22 Endrin	3263772	3117600	0.010	-4.5	15.0	
24 4,4'-DDD	3228640	3054960	0.010	-5.4	15.0	
26 4,4'-DDT	3058462	2800460	0.010	-8.4	15.0	
29 Methoxychlor	1047434	982800	0.010	-6.2	15.0	
$ 32 Decachlorobiphenyl	1713872	1503840	0.010	-12.3	15.0	

Avg. 7.0

7E HP5890 4G
RTX-50

Data File: \\Qpitpa02\D\chem\gc4.i\G10153.b\G103265.d
Report Date: 17-Oct-2003 10:17

STL Pittsburgh

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc4.i
Lab File ID: G103265.d
Analysis Type:
Lab Sample ID: MHIGHB
Method: \\Qpitpa02\D\chem\gc4.i\G10153.b\8081A.m

Injection Date: 16-OCT-2003 20:41
Init. Cal. Date(s): 15-OCT-2003 15-OCT-2003
Init. Cal. Times: 15:34 20:56
Quant Type: ESTD

COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D
8 beta-BHC	2708180	2461860	0.010	-9.1	15.0
10 delta-BHC	5285922	5105860	0.010	-3.4	15.0
11 Aldrin	4238742	4008200	0.010	-5.4	15.0
14 Heptachlor epoxide	5083352	4696320	0.010	-7.6	15.0
15 gamma-Chlordane	4974472	4590260	0.010	-7.7	15.0
16 alpha-Chlordane	5035998	4750920	0.010	-5.7	15.0
19 4,4'-DDE	4863548	4724160	0.010	-2.9	15.0
25 Endosulfan II	3521000	3468220	0.010	-1.5	15.0
27 Endrin aldehyde	2636282	2557500	0.010	-3.0	15.0
28 Endosulfan sulfate	2929426	2867520	0.010	-2.1	15.0
31 Endrin ketone	2725536	2643460	0.010	-3.0	15.0

Avg 7.0

METHODS SUMMARY

C3J110152

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Chlorinated Herbicides by GC	SW846 8151A	SW846 8151A
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 7470A
N-Hexane Ext. Material, Silica Gel Treated-1664A	CFR136A 1664A S	EPA 1664A
Organochlorine Pesticides	SW846 8081A	SW846 3510C
PCBs by SW-846 8082	SW846 8082	SW846 3510C
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A
Volatile Organics by GC/MS	SW846 8260B	SW846 5030

References:

CFR136A "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

C3J110152

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
F2C9V	001	RIVER WATER	10/08/03	15:35

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Geotechnics
INTEGRITY IN TESTING

October 10, 2003

Carrie L. Gamber
Severn Trent laboratories
450 William Pitt Way
Pittsburgh, PA 15238

Dear Carrie:

Geotechnics is sending one sample of river water to be tested per STL's analytical testing record and the Army Corps of Engineers specification sheet, enclosed. Sampling toke place on October 8, 2003 around 3:00 PM.

Sincerely,
GEOTECHNICS, Inc.

Larry Wetzel
Project Coordinator

Received by
Megan Hall 10/10/03
1535

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

➢ ASTM D 4718, D698-91, Moisture Density Relationship - Day 42 only.

There will also be a treatability test performed on the effluent water collected. All analyses will be conducted by a USACE and State certified analytical laboratory, in accordance with designated methods and criteria. The following analyses are required: total recoverable petroleum hydrocarbons (TRPH) (USEPA Method 418.1); Target Analyte List Metals, including antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, and zinc (SW-846 Method 6010B); mercury (SW-846 7470); volatile organic compounds (VOC) (SW-846 Method 8260); herbicides (SW-846 Method 8151); pesticides (SW-846 Method 8081); PCB's (SW-846 Method 8082); and Polyaromatic hydrocarbon (PAH) (SW-846 Method 8270). When ? Microbac

Barb. Hone

All test samples shall be disposed of in accordance to applicable Local, State and Federal rules and regulations. ? is Method 418.1 → 1664A ?

2.1.4 Task 4 Prepare Letter Report

The Letter Report shall include a general description of the samples, sampling and testing procedures, hanging bag test results and effluent water treatability test results. Representative electronic photographs of the test in progress shall be included.

3.0 DELIVERY SCHEDULE

The Contractor shall submit the following within the specified times:

a. Within 7 calendar days after Notice to Proceed, submit one draft copy of the Project Specific Quality Control Plan and Letter Sampling Plan.

b. Within 3 calendar days after the Corp's review comments on the QCP and Letter Sampling Plan are received, submit final plans.

c. Within 7 calendar days after submission of final QCP and Letter Sampling Plan, begin sampling and testing.

d. Within 30 days calendar days after the submission of final QCP and Letter Sampling Plan, submit four copies of the Draft Letter Report.

e. Within 7 calendar days of comment resolution submit four paper copies of Final Letter Report and one electronic copy in Word format.

The time required by the Pittsburgh District to review submissions is anticipated to be within 14 calendar days.

5.0 INFORMATION FURNISHED BY THE GOVERNMENT

The following items will be supplied to the contractor by the Government and shall become the contractor's property:

GANNETT FLEMING

Client Sample ID: RIVER WATER

GC/MS Volatiles

Lot-Sample #...: C3J110152-001
Date Sampled...: 10/08/03
Prep Date.....: 10/19/03
Prep Batch #...: 3292129
Dilution Factor: 1

Work Order #...: F2C9V1A8
Date Received..: 10/10/03
Analysis Date..: 10/19/03
Analysis Time..: 11:05

Matrix.....: WATER
MS Run #.....: 3292029

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**24**	**20**	**ug/L**
Benzene	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
2-Butanone	ND	5.0	ug/L
Carbon disulfide	ND	5.0	ug/L
Carbon tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,2-Dichloroethene (total)	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
2-Hexanone	ND	5.0	ug/L
Methylene chloride	ND	5.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
Tetrachloroethene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
Trichloroethene	ND	5.0	ug/L
Vinyl chloride	ND	5.0	ug/L
Xylenes (total)	ND	15	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	104	(77 - 120)
Toluene-d8	99	(78 - 111)
4-Bromofluorobenzene	93	(80 - 114)
Dibromofluoromethane	95	(78 - 110)

GANNETT FLEMING

Client Sample ID: RIVER WATER

GC/MS Semivolatiles

Lot-Sample #...: C3J110152-001
Date Sampled...: 10/08/03
Prep Date.....: 10/14/03
Prep Batch #...: 3288127
Dilution Factor: 0.96

Work Order #...: F2C9V1A4
Date Received..: 10/10/03
Analysis Date..: 10/25/03
Analysis Time..: 16:45

Matrix.....: WATER
MS Run #.....:

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	ND	9.6	ug/L
Acenaphthylene	ND	9.6	ug/L
Acenaphthene	ND	9.6	ug/L
Fluorene	ND	9.6	ug/L
Phenanthrene	ND	9.6	ug/L
Anthracene	ND	9.6	ug/L
Fluoranthene	ND	9.6	ug/L
Pyrene	ND	9.6	ug/L
Benzo(a)anthracene	ND	9.6	ug/L
Chrysene	ND	9.6	ug/L
Benzo(b)fluoranthene	ND	9.6	ug/L
Benzo(k)fluoranthene	ND	9.6	ug/L
Benzo(a)pyrene	ND	9.6	ug/L
Indeno(1,2,3-cd)pyrene	ND	9.6	ug/L
Dibenzo(a,h)anthracene	ND	9.6	ug/L
Benzo(ghi)perylene	ND	9.6	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	69	(21 - 122)
2-Fluorobiphenyl	58	(30 - 110)
2-Fluorophenol	48	(13 - 110)
Nitrobenzene-d5	58	(32 - 112)
Phenol-d5	52	(10 - 113)
Terphenyl-d14	24	(10 - 144)

GANNETT FLEMING

Client Sample ID: RIVER WATER

GC Semivolatiles

Lot-Sample #...: C3J110152-001
Date Sampled...: 10/08/03
Prep Date.....: 10/13/03
Prep Batch #...: 3286637
Dilution Factor: 0.95

Work Order #...: F2C9V1A5
Date Received..: 10/10/03
Analysis Date..: 10/16/03
Analysis Time..: 17:16

Matrix.....: WATER
MS Run #.....:

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha-BHC	ND	0.048	ug/L
beta-BHC	ND	0.048	ug/L
delta-BHC	ND	0.048	ug/L
gamma-BHC (Lindane)	ND	0.048	ug/L
Heptachlor	ND	0.048	ug/L
Aldrin	ND	0.048	ug/L
Heptachlor epoxide	ND	0.048	ug/L
Endosulfan I	ND	0.048	ug/L
Dieldrin	ND	0.048	ug/L
4,4'-DDE	ND	0.048	ug/L
Endrin	ND	0.048	ug/L
Endrin ketone	ND	0.048	ug/L
Endrin aldehyde	ND	0.048	ug/L
Endosulfan II	ND	0.048	ug/L
4,4'-DDD	ND	0.048	ug/L
Endosulfan sulfate	ND	0.048	ug/L
4,4'-DDT	ND	0.048	ug/L
Methoxychlor	ND	0.095	ug/L
alpha-Chlordane	ND	0.048	ug/L
gamma-Chlordane	ND	0.048	ug/L
Toxaphene	ND	1.9	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	83	(39 - 130)
Decachlorobiphenyl	95	(10 - 147)

GANNETT FLEMING

Client Sample ID: RIVER WATER

GC Semivolatiles

Lot-Sample #...: C3J110152-001
Date Sampled...: 10/08/03
Prep Date.....: 10/13/03
Prep Batch #...: 3286639
Dilution Factor: 0.95

Work Order #...: F2C9V1A6
Date Received..: 10/10/03
Analysis Date..: 10/16/03
Analysis Time..: 08:16

Method.....: SW846 8082

Matrix.....: WATER
MS Run #.....:

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	0.95	ug/L
Aroclor 1221	ND	0.95	ug/L
Aroclor 1232	ND	0.95	ug/L
Aroclor 1242	ND	0.95	ug/L
Aroclor 1248	ND	0.95	ug/L
Aroclor 1254	ND	0.95	ug/L
Aroclor 1260	ND	0.95	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	76	(45 - 120)
Decachlorobiphenyl	87	(24 - 128)

GANNETT FLEMING

Client Sample ID: RIVER WATER

GC Semivolatiles

Lot-Sample #...: C3J110152-001
Date Sampled...: 10/08/03
Prep Date.....: 10/14/03
Prep Batch #...: 3287646
Dilution Factor: 0.95

Work Order #...: F2C9V1AA
Date Received..: 10/10/03
Analysis Date..: 10/20/03
Analysis Time..: 05:20

Matrix.....: WATER
MS Run #.....:

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	3.8	ug/L
Dalapon	ND	1.9	ug/L
2,4-DB	ND	3.8	ug/L
Dicamba	ND	1.9	ug/L
Dichlorprop	ND	3.8	ug/L
Dinoseb	ND	0.57	ug/L
MCPA	ND	380	ug/L
MCPP	ND	380	ug/L
Pentachlorophenol	ND	0.95	ug/L
2,4,5-TP (Silvex)	ND	0.95	ug/L
2,4,5-T	ND	0.95	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	71	(53 - 119)

GANNETT FLEMING

Client Sample ID: RIVER WATER

TOTAL Metals

Lot-Sample #...: C3J110152-001 Matrix.....: WATER
Date Sampled...: 10/08/03 Date Received..: 10/10/03

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3288488						
Silver	ND	5.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AD
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Aluminum	903	200	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AE
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Arsenic	4.2 B	10.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AF
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Barium	22.4 B	200	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AG
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Beryllium	ND	4.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AH
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Calcium	46300	5000	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AJ
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Cadmium	ND	5.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AK
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Cobalt	ND	50.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AL
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Chromium	3.7 B	5.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AM
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Copper	19.9 B	25.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AN
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Iron	1380	100	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AP
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Potassium	4490 B	5000	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AQ
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	

(Continued on next page)

GANNETT FLEMING

Client Sample ID: RIVER WATER

TOTAL Metals

Matrix.....: WATER

Lot-Sample #...: C3J110152-001

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Magnesium	23100	5000	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AR
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Manganese	118	15.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AT
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Sodium	30400	5000	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AU
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Nickel	7.9 B	40.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AV
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Lead	12.1	3.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AW
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Selenium	ND	5.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1AX
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Thallium	ND	10.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1A0
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Antimony	4.9 B	10.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1A1
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Vanadium	4.3 B	50.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1A2
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Zinc	64.2	20.0	ug/L	SW846 6010B	10/16-10/27/03	F2C9V1A3
		Dilution Factor: 1		Analysis Time..: 12:21	MS Run #.....: 3288260	
Prep Batch #...: 3294124						
Mercury	ND	0.20	ug/L	SW846 7470A	10/21/03	F2C9V1AC
		Dilution Factor: 1		Analysis Time..: 09:15	MS Run #.....: 3294018	

NOTE(S):

B Estimated result. Result is less than RL.

GANNETT FLEMING

Client Sample ID: RIVER WATER

General Chemistry

Lot-Sample #...: C3J110152-001 Work Order #...: F2C9V Matrix.....: WATER
Date Sampled...: 10/08/03 Date Received..: 10/10/03

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
TPH (SGT-HEM)	ND	4.7	mg/L	CFR136A 1664A SGT	10/23/03	3296107

Dilution Factor: 0.94 Analysis Time..: 00:00 MS Run #.....:

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: C3J110152
MB Lot-Sample #: C3J190000-129

Work Order #...: F2XVM1AA

Matrix.....: WATER

Prep Date.....: 10/19/03

Analysis Time..: 10:33

Analysis Date..: 10/19/03
Dilution Factor: 1

Prep Batch #...: 3292129

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/L	SW846 8260B
Benzene	ND	5.0	ug/L	SW846 8260B
Bromodichloromethane	ND	5.0	ug/L	SW846 8260B
Bromoform	ND	5.0	ug/L	SW846 8260B
Bromomethane	ND	5.0	ug/L	SW846 8260B
2-Butanone	ND	5.0	ug/L	SW846 8260B
Carbon disulfide	ND	5.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/L	SW846 8260B
Chlorobenzene	ND	5.0	ug/L	SW846 8260B
Dibromochloromethane	ND	5.0	ug/L	SW846 8260B
Chloroethane	ND	5.0	ug/L	SW846 8260B
Chloroform	ND	5.0	ug/L	SW846 8260B
Chloromethane	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	5.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
Ethylbenzene	ND	5.0	ug/L	SW846 8260B
2-Hexanone	ND	5.0	ug/L	SW846 8260B
Methylene chloride	ND	5.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
Styrene	ND	5.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	SW846 8260B
Tetrachloroethene	ND	5.0	ug/L	SW846 8260B
Toluene	ND	5.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/L	SW846 8260B
Trichloroethene	ND	5.0	ug/L	SW846 8260B
Vinyl chloride	ND	5.0	ug/L	SW846 8260B
Xylenes (total)	ND	15	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	107	(77 - 120)
Toluene-d8	104	(78 - 111)
4-Bromofluorobenzene	109	(80 - 114)
Dibromofluoromethane	98	(78 - 110)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: C3J110152 Work Order #...: F2XVM1AA Matrix.....: WATER

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: C3J110152
MB Lot-Sample #: C3J150000-127

Work Order #...: F2JXL1AA

Matrix.....: WATER

Prep Date.....: 10/14/03

Analysis Time..: 15:22

Analysis Date..: 10/25/03
Dilution Factor: 1

Prep Batch #...: 3288127

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Naphthalene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acenaphthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	82	(21 - 122)
2-Fluorobiphenyl	74	(30 - 110)
2-Fluorophenol	63	(13 - 110)
Nitrobenzene-d5	67	(32 - 112)
Phenol-d5	67	(10 - 113)
Terphenyl-d14	70	(10 - 144)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: C3J110152
MB Lot-Sample #: C3J130000-637

Work Order #...: F2F8A1AA
Prep Date.....: 10/13/03
Prep Batch #...: 3286637

Matrix.....: WATER
Analysis Time..: 17:45

Analysis Date..: 10/16/03
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
alpha-BHC	ND	0.050	ug/L	SW846 8081A
beta-BHC	ND	0.050	ug/L	SW846 8081A
delta-BHC	ND	0.050	ug/L	SW846 8081A
gamma-BHC (Lindane)	ND	0.050	ug/L	SW846 8081A
Heptachlor	ND	0.050	ug/L	SW846 8081A
Aldrin	ND	0.050	ug/L	SW846 8081A
Heptachlor epoxide	ND	0.050	ug/L	SW846 8081A
Endosulfan I	ND	0.050	ug/L	SW846 8081A
Dieldrin	ND	0.050	ug/L	SW846 8081A
4,4'-DDE	ND	0.050	ug/L	SW846 8081A
Endrin	ND	0.050	ug/L	SW846 8081A
Endrin ketone	ND	0.050	ug/L	SW846 8081A
Endrin aldehyde	ND	0.050	ug/L	SW846 8081A
Endosulfan II	ND	0.050	ug/L	SW846 8081A
4,4'-DDD	ND	0.050	ug/L	SW846 8081A
Endosulfan sulfate	ND	0.050	ug/L	SW846 8081A
4,4'-DDT	ND	0.050	ug/L	SW846 8081A
Methoxychlor	ND	0.10	ug/L	SW846 8081A
alpha-Chlordane	ND	0.050	ug/L	SW846 8081A
gamma-Chlordane	ND	0.050	ug/L	SW846 8081A
Toxaphene	ND	2.0	ug/L	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	101	(39 - 130)
Decachlorobiphenyl	104	(10 - 147)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: C3J110152
MB Lot-Sample #: C3J130000-639
Analysis Date..: 10/16/03
Dilution Factor: 1

Work Order #...: F2F8E1AA
Prep Date.....: 10/13/03
Prep Batch #...: 3286639

Matrix.....: WATER
Analysis Time..: 13:19

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	1.0	ug/L	SW846 8082
Aroclor 1221	ND	1.0	ug/L	SW846 8082
Aroclor 1232	ND	1.0	ug/L	SW846 8082
Aroclor 1242	ND	1.0	ug/L	SW846 8082
Aroclor 1248	ND	1.0	ug/L	SW846 8082
Aroclor 1254	ND	1.0	ug/L	SW846 8082
Aroclor 1260	ND	1.0	ug/L	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	103	(45 - 120)
Decachlorobiphenyl	100	(24 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: C3J110152 Work Order #...: F2JPT1AA Matrix.....: WATER
MB Lot-Sample #: C3J140000-646

Prep Date.....: 10/14/03 Analysis Time..: 00:00
Analysis Date..: 10/20/03 Prep Batch #...: 3287646
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-D	ND	4.0	ug/L	SW846 8151A
Dalapon	ND	2.0	ug/L	SW846 8151A
2,4-DB	ND	4.0	ug/L	SW846 8151A
Dicamba	ND	2.0	ug/L	SW846 8151A
Dichlorprop	ND	4.0	ug/L	SW846 8151A
Dinoseb	ND	0.60	ug/L	SW846 8151A
MCPA	ND	400	ug/L	SW846 8151A
MCPP	ND	400	ug/L	SW846 8151A
Pentachlorophenol	ND	1.0	ug/L	SW846 8151A
2,4,5-TP (Silvex)	ND	1.0	ug/L	SW846 8151A
2,4,5-T	ND	1.0	ug/L	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	59	(53 - 119)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: C3J110152 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: C3J150000-488 Prep Batch #...: 3288488						
Silver	ND	5.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AA
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Aluminum	ND	200	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AC
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Arsenic	ND	10.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AD
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Barium	ND	200	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AE
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Beryllium	ND	4.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AF
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Calcium	ND	5000	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AG
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Cadmium	ND	5.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AH
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Cobalt	ND	50.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AJ
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Chromium	ND	5.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AK
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Copper	ND	25.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AL
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Iron	ND	100	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AM
		Dilution Factor: 1				
		Analysis Time..: 12:10				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: C3J110152 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Potassium	ND	5000	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AN
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Magnesium	ND	5000	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AP
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Manganese	ND	15.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AQ
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Sodium	ND	5000	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AR
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Nickel	ND	40.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AT
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Lead	ND	3.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AU
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Selenium	ND	5.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AV
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Thallium	ND	10.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AW
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Antimony	ND	10.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1AX
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Vanadium	ND	50.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1A0
		Dilution Factor: 1				
		Analysis Time..: 12:10				
Zinc	ND	20.0	ug/L	SW846 6010B	10/16-10/27/03	F2LFR1A1
		Dilution Factor: 1				
		Analysis Time..: 12:10				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #....: C3J110152 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: C3J210000-124 Prep Batch #...: 3294124						
Mercury	ND	0.20	ug/L	SW846 7470A	10/21/03	F218L1AA
		Dilution Factor: 1				
		Analysis Time..: 09:02				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: C3J110152 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
TPH (SGT-HEM)		Work Order #: F270W1AA		MB Lot-Sample #:	C3J230000-107	
	ND	5.0	mg/L	CFR136A 1664A SGT	10/23/03	3296107
		Dilution Factor: 1				
		Analysis Time..: 00:00				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C3J110152 Work Order #...: F2XVM1AC Matrix.....: WATER
LCS Lot-Sample#: C3J190000-129
Prep Date.....: 10/19/03 Analysis Date..: 10/19/03
Prep Batch #...: 3292129 Analysis Time..: 13:43
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**98**	**(79 - 116)**	**SW846 8260B**
Chlorobenzene	**95**	**(81 - 115)**	**SW846 8260B**
1,1-Dichloroethene	**88**	**(65 - 119)**	**SW846 8260B**
Toluene	**99**	**(76 - 119)**	**SW846 8260B**
Trichloroethene	**101**	**(80 - 122)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	102	(77 - 120)
Toluene-d8	98	(78 - 111)
4-Bromofluorobenzene	96	(80 - 114)
Dibromofluoromethane	94	(78 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: C3J110152 Work Order #...: F2JXL1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: C3J150000-127 F2JXL1AD-LCSD
Prep Date.....: 10/14/03 Analysis Date..: 10/25/03
Prep Batch #...: 3288127 Analysis Time..: 15:50
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	68	(10 - 131)			SW846 8270C
	66	(10 - 131)	2.4	(0-43)	SW846 8270C
2-Chlorophenol	74	(19 - 124)			SW846 8270C
	72	(19 - 124)	2.2	(0-43)	SW846 8270C
Acenaphthene	77	(39 - 118)			SW846 8270C
	77	(39 - 118)	0.090	(0-35)	SW846 8270C
1,4-Dichlorobenzene	73	(28 - 110)			SW846 8270C
	72	(28 - 110)	0.72	(0-36)	SW846 8270C
N-Nitrosodi-n-propyl-amine	78	(30 - 115)			SW846 8270C
	78	(30 - 115)	0.29	(0-36)	SW846 8270C
1,2,4-Trichloro-benzene	75	(31 - 110)			SW846 8270C
	73	(31 - 110)	2.5	(0-37)	SW846 8270C
Pyrene	79	(46 - 130)			SW846 8270C
	77	(46 - 130)	2.7	(0-31)	SW846 8270C
4-Chloro-3-methylphenol	77	(29 - 124)			SW846 8270C
	75	(29 - 124)	2.2	(0-55)	SW846 8270C
4-Nitrophenol	81	(19 - 144)			SW846 8270C
	79	(19 - 144)	2.9	(0-34)	SW846 8270C
2,4-Dinitrotoluene	78	(47 - 131)			SW846 8270C
	78	(47 - 131)	1.0	(0-32)	SW846 8270C
Pentachlorophenol	84	(10 - 140)			SW846 8270C
	82	(10 - 140)	2.6	(0-56)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	88	(21 - 122)
	85	(21 - 122)
2-Fluorobiphenyl	78	(30 - 110)
	77	(30 - 110)
2-Fluorophenol	67	(13 - 110)
	66	(13 - 110)
Nitrobenzene-d5	71	(32 - 112)
	69	(32 - 112)
Phenol-d5	71	(10 - 113)
	69	(10 - 113)
Terphenyl-d14	73	(10 - 144)

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: C3J110152 Work Order #...: F2JXL1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: C3J150000-127 F2JXL1AD-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
	71	(10 - 144)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: C3J110152 Work Order #...: F2F8A1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: C3J130000-637 F2F8A1AD-LCSD
Prep Date.....: 10/13/03 Analysis Date..: 10/16/03
Prep Batch #...: 3286637 Analysis Time..: 18:14
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
gamma-BHC (Lindane)	96	(49 - 137)			SW846 8081A
	98	(49 - 137)	1.7	(0-22)	SW846 8081A
Heptachlor	94	(57 - 124)			SW846 8081A
	96	(57 - 124)	1.7	(0-32)	SW846 8081A
Aldrin	96	(62 - 120)			SW846 8081A
	98	(62 - 120)	2.0	(0-33)	SW846 8081A
Dieldrin	94	(68 - 130)			SW846 8081A
	95	(68 - 130)	1.7	(0-37)	SW846 8081A
Endrin	97	(46 - 137)			SW846 8081A
	97	(46 - 137)	0.70	(0-40)	SW846 8081A
4,4'-DDT	90	(60 - 140)			SW846 8081A
	92	(60 - 140)	2.4	(0-50)	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	100	(39 - 130)
	101	(39 - 130)
Decachlorobiphenyl	100	(10 - 147)
	102	(10 - 147)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: C3J110152 Work Order #...: F2F8E1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: C3J130000-639 F2F8E1AD-LCSD
Prep Date.....: 10/13/03 Analysis Date..: 10/16/03
Prep Batch #...: 3286639 Analysis Time..: 13:39
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**94**	**(61 - 118)**			**SW846 8082**
	97	**(61 - 118)**	**3.3**	**(0-20)**	**SW846 8082**
Aroclor 1260	**94**	**(61 - 124)**			**SW846 8082**
	98	**(61 - 124)**	**4.5**	**(0-27)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	96	(45 - 120)
	100	(45 - 120)
Decachlorobiphenyl	96	(24 - 128)
	103	(24 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: C3J110152 Work Order #...: F2JPT1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: C3J140000-646 F2JPT1AD-LCSD
Prep Date.....: 10/14/03 Analysis Date..: 10/20/03
Prep Batch #...: 3287646 Analysis Time..: 00:00
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-D	79	(46 - 124)			SW846 8151A
	73	(46 - 124)	7.8	(0-20)	SW846 8151A
2,4,5-TP (Silvex)	88	(53 - 127)			SW846 8151A
	85	(53 - 127)	3.7	(0-20)	SW846 8151A
2,4,5-T	82	(40 - 126)			SW846 8151A
	76	(40 - 126)	7.6	(0-20)	SW846 8151A
Pentachlorophenol	88	(30 - 125)			SW846 8151A
	87	(30 - 125)	1.7	(0-30)	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	92	(53 - 119)
	93	(53 - 119)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3J110152 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: C3J150000-488 Prep Batch #...: 3288488					
Silver	103	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1A2
		Dilution Factor: 1	Analysis Time..: 12:15		
Aluminum	101	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1A3
		Dilution Factor: 1	Analysis Time..: 12:15		
Arsenic	100	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1A4
		Dilution Factor: 1	Analysis Time..: 12:15		
Barium	102	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1A5
		Dilution Factor: 1	Analysis Time..: 12:15		
Beryllium	103	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1A6
		Dilution Factor: 1	Analysis Time..: 12:15		
Calcium	104	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1A7
		Dilution Factor: 1	Analysis Time..: 12:15		
Cadmium	100	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1A8
		Dilution Factor: 1	Analysis Time..: 12:15		
Cobalt	99	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1A9
		Dilution Factor: 1	Analysis Time..: 12:15		
Chromium	102	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CA
		Dilution Factor: 1	Analysis Time..: 12:15		
Copper	104	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CC
		Dilution Factor: 1	Analysis Time..: 12:15		
Iron	106	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CD
		Dilution Factor: 1	Analysis Time..: 12:15		
Potassium	104	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CE
		Dilution Factor: 1	Analysis Time..: 12:15		
Magnesium	104	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CF
		Dilution Factor: 1	Analysis Time..: 12:15		
Manganese	100	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CG
		Dilution Factor: 1	Analysis Time..: 12:15		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3J110152 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Sodium	107	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CH
		Dilution Factor: 1	Analysis Time..: 12:15		
Nickel	99	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CJ
		Dilution Factor: 1	Analysis Time..: 12:15		
Lead	100	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CK
		Dilution Factor: 1	Analysis Time..: 12:15		
Selenium	101	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CL
		Dilution Factor: 1	Analysis Time..: 12:15		
Thallium	101	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CM
		Dilution Factor: 1	Analysis Time..: 12:15		
Antimony	101	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CN
		Dilution Factor: 1	Analysis Time..: 12:15		
Vanadium	102	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CP
		Dilution Factor: 1	Analysis Time..: 12:15		
Zinc	98	(80 - 120)	SW846 6010B	10/16-10/27/03	F2LFR1CQ
		Dilution Factor: 1	Analysis Time..: 12:15		

LCS Lot-Sample#: C3J210000-124 Prep Batch #...: 3294124

Mercury	104	(80 - 120)	SW846 7470A	10/21/03	F218L1AC
		Dilution Factor: 1	Analysis Time..: 09:04		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: C3J110152 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
TPH (SGT-HEM)		WO#:F270W1AC-LCS/F270W1AD-LCSD				LCS Lot-Sample#: C3J230000-107	
	70	(64 - 132)			CFR136A 1664A SGT	10/23/03	3296107
	68	(64 - 132)	2.9	(0-28)	CFR136A 1664A SGT	10/23/03	3296107

Dilution Factor: 1 Analysis Time..: 00:00

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C3J110152
MS Lot-Sample #: C3J150253-003
Date Sampled...: 10/14/03
Prep Date.....: 10/19/03
Prep Batch #...: 3292129
Dilution Factor: 1

Work Order #...: F2LE01CC-MS
F2LE01CD-MSD
Date Received..: 10/15/03
Analysis Date..: 10/19/03
Analysis Time..: 12:39

Matrix.....: WATER
MS Run #.....: 3292029

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	98	(73 - 123)			SW846 8260B
	92	(73 - 123)	6.0	(0-20)	SW846 8260B
Chlorobenzene	96	(70 - 122)			SW846 8260B
	90	(70 - 122)	6.6	(0-20)	SW846 8260B
1,1-Dichloroethene	93	(57 - 138)			SW846 8260B
	84	(57 - 138)	9.4	(0-20)	SW846 8260B
Toluene	101	(67 - 129)			SW846 8260B
	95	(67 - 129)	6.5	(0-20)	SW846 8260B
Trichloroethene	105	(58 - 141)			SW846 8260B
	99	(58 - 141)	5.8	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	104	(77 - 120)
	100	(77 - 120)
Toluene-d8	99	(78 - 111)
	97	(78 - 111)
4-Bromofluorobenzene	99	(80 - 114)
	96	(80 - 114)
Dibromofluoromethane	96	(78 - 110)
	93	(78 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3J110152 Matrix.....: WATER
Date Sampled...: 10/08/03 Date Received..: 10/10/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: C3J110152-001 Prep Batch #...: 3288488							
Silver	105	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1A9
	105	(75 - 125)	0.85	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CA
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Aluminum	128 N	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CC
	134 N	(75 - 125)	3.4	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CD
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Arsenic	102	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CE
	101	(75 - 125)	1.3	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CF
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Barium	103	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CG
	102	(75 - 125)	1.0	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CH
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Beryllium	104	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CJ
	103	(75 - 125)	0.50	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CK
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Calcium	106	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CL
	104	(75 - 125)	0.84	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CM
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Cadmium	100	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CN
	100	(75 - 125)	0.60	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CP
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3J110152 Matrix.....: WATER
Date Sampled...: 10/08/03 Date Received..: 10/10/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Cobalt	100	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CQ
	99	(75 - 125)	0.98	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CR
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Chromium	103	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CT
	102	(75 - 125)	0.62	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CU
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Copper	107	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CV
	106	(75 - 125)	0.69	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1CW
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Iron	119	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1CX
	130 N	(75 - 125)	4.3	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1C0
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Potassium	109	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1C1
	107	(75 - 125)	2.1	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1C2
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Magnesium	107	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1C3
	106	(75 - 125)	0.87	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1C4
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Manganese	102	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1C5
	101	(75 - 125)	0.80	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1C6
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3J110152 Matrix.....: WATER
Date Sampled...: 10/08/03 Date Received..: 10/10/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Sodium	111	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1C7
	109	(75 - 125)	1.1	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1C8
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Nickel	99	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1C9
	98	(75 - 125)	1.2	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1DA
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Lead	100	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1DC
	99	(75 - 125)	1.0	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1DD
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Selenium	101	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1DE
	101	(75 - 125)	0.82	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1DF
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Thallium	101	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1DG
	100	(75 - 125)	0.77	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1DH
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Antimony	103	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1DJ
	102	(75 - 125)	0.44	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1DK
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					
Vanadium	103	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1DL
	102	(75 - 125)	0.95	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1DM
		Dilution Factor: 1					
		Analysis Time..: 12:32					
		MS Run #.....: 3288260					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3J110152 Matrix.....: WATER
Date Sampled...: 10/08/03 Date Received..: 10/10/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	98	(75 - 125)			SW846 6010B	10/16-10/27/03	F2C9V1DN
	97	(75 - 125)	0.84	(0-20)	SW846 6010B	10/16-10/27/03	F2C9V1DP

Dilution Factor: 1
Analysis Time..: 12:32
MS Run #.....: 3288260

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3J110152 Matrix.....: WATER
Date Sampled...: 10/10/03 Date Received..: 10/11/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: C3J110137-002 Prep Batch #...: 3294124							
Mercury	104	(75 - 125)			SW846 7470A	10/21/03	F2C6W1CP
	105	(75 - 125)	0.95	(0-20)	SW846 7470A	10/21/03	F2C6W1CQ

Dilution Factor: 1
Analysis Time..: 09:10
MS Run #.....: 3294018

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL

STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238

Tel: 412 820 8380 Fax: 412 820 2080
www.stl-inc.com

ANALYTICAL REPORT

PROJECT NO. GANNETT FLEMING

Gannett Fleming Mahoning River

Lot #: C3L040291

John Kovacs

Gannett Fleming

SEVERN TRENT LABORATORIES, INC.

Carrie L. Gamber
Project Manager

December 26, 2003

SEVERN TRENT STL

ACCREDITED IN ACCORDANCE WITH nelac

NELAC REPORTING:

The format and content of the attached report meets NELAC standards and guidelines except as noted in the narrative. The table below presents a summary of the certifications held by STL Pittsburgh. Our primary accreditation authority for the Non-potable water and Solid & Hazardous waste programs is New York State DOH. A more detailed parameter list is available upon request. Please ask your project manager for this information when required.

Certifying State/Program	Certificate #	Program Types	STL Pittsburgh
NFESC	NA	NAVY	X
USACE	NA	Corps of Engineers	X
US Dept of Agriculture	(#S-46425)	Foreign Soil Import Permit	X
Arkansas	(#88-0222)	WW HW	X X
Connecticut	(#PH-0688)	WW HW	X X
Florida – nelac	(#E87660)	WW HW	X X
Illinois – nelac	(#200005)	WW HW	X X
Kansas – nelac	(#E-10350)	WW HW	X X
Louisiana – nelac	(#93200)	WW HW	X X
New Hampshire – nelac	(#203002)	WW	X
New Jersey – nelac	(PA-005)	WW HW	X X
New York – nelac	(#11182)	WW HW	X X
North Carolina	(#434)	WW HW	X X
Ohio Vap	(#CL0065)	WW HW	X X
South Carolina	(#89014001)	WW HW	X X
Utah – nelac	(STLP)	WW HW	X X
West Virginia	(#142)	WW HW	X X
Wisconsin	998027800	WW HW	X X

The codes utilized for program types are described below:

HW Hazardous Waste certification
WW Non-potable Water and/or Wastewater certification
X Laboratory has some form of certification under the specific program. Many states certify laboratories for specific parameters or tests within a category. The information in the table indicates the lab is certified in a general category of testing. Please contact the laboratory if parameter specific certification information is required.

CASE NARRATIVE

Gannett Fleming

STL Lot # C3L040291

Sample Receiving:
STL Pittsburgh received samples for analysis on December 4, 2003. The cooler was received within the proper temperature range.

The laboratory received sample TRIP BLANK that was not listed on the chain of custody. The sample was logged in for VOA analysis.

If project specific QC was not required for samples contained in this report, when batch QC was completed on these samples, anomalous results will be discussed below.

GC/MS Volatiles:
All non-CCC compounds that have >15% RSD were evaluated to see if a better curve could be drawn using a quadratic curve. All compounds <30% RSD will use and average response factor curve if no visible improvement is accomplished using a quadratic curve. The curve plot is provided for any compound that required a "best-fit" evaluation. Please refer to the curve plot for any compound that required a "best-fit" evaluation.

The CCAL had the following compounds >25%: acetone 46.1%, 2-butanone 31.0% and 2-hexanone 29.4%. These %D's are all within the expected range for these compounds.

GC/MS Semivolatiles:
The reporting limits were adjusted due to the amount of sample used in the extraction procedure.

All non-CCC compounds that have >15% RSD were evaluated to see if a better curve could be drawn using a quadratic curve. All compounds <30% RSD will use and average response factor curve if no visible improvement is accomplished using a quadratic curve. The curve plot is provided for any compound that required a "best-fit" evaluation. Please refer to the curve plot for any compound that required a "best-fit" evaluation.

Pesticides:
The reporting limits were adjusted due to the amount of sample used in the extraction procedure.

The continuing calibration(s) analyzed had compounds outside the ±15%D criteria. The average %D of all the compounds in the continuing calibration mix was less than 15%. Therefore, analysis continued and the results for the samples reported. See the following sheets for the compounds and the %Ds.

PCBs:
The reporting limits were adjusted due to the amount of sample used in the extraction procedure.

CASE NARRATIVE

Gannett Fleming

STL Lot # C3L040291

Herbicides:
The reporting limits were adjusted due to the amount of sample used in the extraction procedure.

The continuing calibration(s) analyzed had compounds outside the ±15%D criteria. The average %D of all the compounds in the continuing calibration mix was less than 15%. Therefore, analysis continued and the results for the samples reported. See the following sheets for the compounds and the %Ds.

Metals:
The method blanks had analytes detected at concentrations between the MDL and the reporting limit. The results were flagged with a "B" qualifier. Any sample associated with a method blank that had the same analyte detected had the result flagged with a "J" qualifier.

General Chemistry:
The reporting limit for TPH was adjusted due to the amount of sample used in the extraction procedure.

7EHP5890 2C
RTX-5C

Data File: \\Qpitpa02\D\chem\gc2.i\C12173.b\C123276.d
Report Date: 18-Dec-2003 15:42

STL Pittsburgh

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc2.i
Lab File ID: C123276.d
Analysis Type:
Lab Sample ID: MEDA
Method: \\Qpitpa02\D\chem\gc2.i\C12173.b\8081A.m

Injection Date: 18-DEC-2003 08:18
Init. Cal. Date(s): 17-DEC-2003 17-DEC-2003
Init. Cal. Times: 12:53 20:39
Quant Type: ESTD

COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D	
$ 2 Tetrachloro-m-xylene	4355514	4582400	0.000	5.2	15.0	
5 alpha-BHC	5337640	5880480	0.010	10.2	15.0	
6 gamma-BHC (Lindane)	4830090	5311880	0.010	10.0	15.0	
9 Heptachlor	3689442	4147640	0.010	12.4	15.0	
17 Endosulfan I	4247676	4606000	0.010	8.4	15.0	
21 Dieldrin	4621980	5083560	0.010	10.0	15.0	
22 Endrin	3391228	3782000	0.010	11.5	15.0	
24 4,4'-DDD	3589782	4021040	0.010	12.0	15.0	
26 4,4'-DDT	2751838	3168040	0.010	15.1	15.0	<-
29 Methoxychlor	953103	1133840	0.010	19.0	15.0	<-
$ 32 Decachlorobiphenyl	1788434	2055120	0.010	14.9	15.0	

Avg 7.8 7.7
JP 12/22/03

Data File: \\Qpitpa02\D\chem\gc2.i\C12173.b\C123277.d
Report Date: 18-Dec-2003 15:42

7E HP5890 2C
RTX-CO

STL Pittsburgh

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc2.i
Lab File ID: C123277.d
Analysis Type:
Lab Sample ID: MEDB
Method: \\Qpitpa02\D\chem\gc2.i\C12173.b\8081A.m

Injection Date: 18-DEC-2003 08:47
Init. Cal. Date(s): 17-DEC-2003 17-DEC-2003
Init. Cal. Times: 12:53 20:39
Quant Type: ESTD

COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D
8 beta-BHC	2788486	2882240	0.010	3.4	15.0
10 delta-BHC	5474178	5772400	0.010	5.4	15.0
11 Aldrin	4240786	4434840	0.010	4.6	15.0
14 Heptachlor epoxide	4578308	4811320	0.010	5.1	15.0
15 gamma-Chlordane	4667960	4859080	0.010	4.1	15.0
16 alpha-Chlordane	4827138	4936880	0.010	2.3	15.0
19 4,4'-DDE	5050954	5289760	0.010	4.7	15.0
25 Endosulfan II	3695160	3844160	0.010	4.0	15.0
27 Endrin aldehyde	2874940	3051120	0.010	6.1	15.0
28 Endosulfan sulfate	3137698	3370040	0.010	7.4	15.0
31 Endrin ketone	2786186	3022560	0.010	8.5	15.0

Avg ~~7.8~~ 7.7
JD 12/22/03

Data File: \\Qpitpa02\D\chem\gc2.i\C12173.b\C123278.d
Report Date: 18-Dec-2003 15:42

7E HP5890 2C
RTX-50

STL Pittsburgh

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc2.i
Lab File ID: C123278.d
Analysis Type:
Lab Sample ID: MAPPX1
Method: \\Qpitpa02\D\chem\gc2.i\C12173.b\8081A.m

Injection Date: 18-DEC-2003 09:16
Init. Cal. Date(s): 17-DEC-2003 17-DEC-2003
Init. Cal. Times: 12:53 20:39
Quant Type: ESTD

COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D
3 Diallate(1)	145557	145060	0.010	-0.3	15.0
(2)	32105	33454	0.010	4.2	15.0
13 Isodrin	3491108	3761920	0.010	7.8	15.0
75 2,4'-DDE	3299960	3517360	0.010	6.6	15.0
77 2,4'-DDD	2911788	3159280	0.010	8.5	15.0
78 CHLOROBENZILATE	394632	408436	0.010	3.5	15.0
76 2,4'-DDT	2698006	2904400	0.010	7.6	15.0

Avg ~~7.8~~ 7.7
JD 12/22/03

Data File: \\qpitpa02\d\chem\gc12.i\12093.b\W1230306.D
Report Date: 10-Dec-2003 12:03

7E
HP89012W
D13608

STL Pittsburgh

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc12.i
Lab File ID: W1230306.D
Analysis Type:
Lab Sample ID: M8151
Method: \\qpitpa02\d\chem\gc12.i\12093.b\LONGH.m

Injection Date: 10-DEC-2003 07:33
Init. Cal. Date(s): 02-DEC-2003 02-DEC-2003
Init. Cal. Times: 19:30 21:34
Quant Type: ESTD

	COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D	
	1 DALAPON	4088140	4478314	0.010	9.5	15.0	
$	2 DCAA	17076741	19053290	0.010	11.6	15.0	
	3 MCPP	22648	24458	0.010	8.0	15.0	
	4 DICAMBA	22774110	25587882	0.010	12.4	15.0	
	5 MCPA	38156	39740	0.010	4.2	15.0	
	6 DICHLOROPROP	6300366	7155212	0.010	13.6	15.0	
	7 2,4-D	8343427	9256792	0.010	10.9	15.0	
	8 PENTACHLOROPHENOL	83217397	98021241	0.010	17.8	15.0	<-
	9 2,4,5-TP(SILVEX)	34867181	40475972	0.010	16.1	15.0	<-
	10 2,4,5-T	35994893	40485166	0.010	12.5	15.0	
	11 DINOSEB	25180944	27912992	0.010	10.8	15.0	
	12 2,4-DB	5138864	5635917	0.010	9.7	15.0	

HVE = 11.42

METHODS SUMMARY

C3L040291

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Chlorinated Herbicides by GC	SW846 8151A	SW846 8151A
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 7470A
N-Hexane Ext. Material, Silica Gel Treated-1664A	CFR136A 1664A S	EPA 1664A
Organochlorine Pesticides	SW846 8081A	SW846 3510C
PCBs by SW-846 8082	SW846 8082	SW846 3510C
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A
Volatile Organics by GC/MS	SW846 8260B	SW846 5030

References:

CFR136A "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

C3L040291

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
F5151	001	BAG EFFLUENT 1	12/04/03	14:00
F5158	002	BAG EFFLUENT 2	12/04/03	14:00
F516A	003	BAG EFFLUENT 3	12/04/03	14:00
F516C	004	BAG EFFLUENT 4	12/04/03	14:00
F516F	005	BAG EFFLUENT 5	12/04/03	14:00
F516H	006	BAG EFFLUENT 6	12/04/03	14:00
F516L	007	TRIP BLANK	12/04/03	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: Gannett Fleming	Project Manager: John Kovacs	Date: 12/4/03	Chain of Custody Number: 149142
Address: Foster Plaza III, 601 Holiday Drive	Telephone Number (Area Code)/Fax Number: 412-922-5575	Lab Number:	Page 1 of 1
City: Pittsburgh; State: PA; Zip Code: 15220	Site Contact: Larry Wetzel	Lab Contact: Carrie Gamber	
Project Name and Location (State): Mahoning River Dredging Project	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 54728			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
Bag Effluent 1 water	12/4/03	2:00pm													
2															
3															
4															
5															
6															

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

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

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other AS QUOTED

QC Requirements (Specify):

1. Relinquished By: Larry Wetzel Geotechnics	Date: 12/4/03	Time: 3:35	1. Received By: Leann Hall	Date: 12-4-03	Time: 1535
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

GANNETT FLEMING

Client Sample ID: BAG EFFLUENT 1

TOTAL Metals

Lot-Sample #...: C3L040291-001
Date Sampled...: 12/04/03 Date Received..: 12/04/03 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3344126						
Silver	0.58 B	5.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AC
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Aluminum	80.3 B	200	ug/L	SW846 6010B	12/10-12/15/03	F51511AD
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Arsenic	2.9 B	10.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AE
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Barium	52.4 B,J	200	ug/L	SW846 6010B	12/10-12/15/03	F51511AF
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Beryllium	0.61 B,J	4.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AG
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Calcium	123000	5000	ug/L	SW846 6010B	12/10-12/15/03	F51511AH
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Cadmium	0.59 B	5.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AJ
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Cobalt	ND	50.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AK
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Chromium	1.4 B	5.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AL
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Copper	22.7 B	25.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AM
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Iron	176	100	ug/L	SW846 6010B	12/10-12/15/03	F51511AN
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Potassium	4360 B	5000	ug/L	SW846 6010B	12/10-12/15/03	F51511AP
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	

(Continued on next page)

GANNETT FLEMING

Client Sample ID: BAG EFFLUENT 1

TOTAL Metals

Lot-Sample #...: C3L040291-001

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Magnesium	16000	5000	ug/L	SW846 6010B	12/10-12/15/03	F51511AQ
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Manganese	90.7	15.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AR
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Sodium	31900	5000	ug/L	SW846 6010B	12/10-12/15/03	F51511AT
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Nickel	8.5 B	40.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AU
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Lead	ND	3.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AV
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Selenium	2.7 B	5.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AW
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Thallium	ND	10.0	ug/L	SW846 6010B	12/10-12/15/03	F51511AX
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Antimony	4.8 B	10.0	ug/L	SW846 6010B	12/10-12/15/03	F51511A0
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Vanadium	ND	50.0	ug/L	SW846 6010B	12/10-12/15/03	F51511A1
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Zinc	28.3	20.0	ug/L	SW846 6010B	12/10-12/15/03	F51511A2
		Dilution Factor: 1		Analysis Time..: 17:07	MS Run #.....: 3344027	
Prep Batch #...: 3344129						
Mercury	0.057 B	0.20	ug/L	SW846 7470A	12/10/03	F51511AA
		Dilution Factor: 1		Analysis Time..: 15:32	MS Run #.....: 3344030	

NOTE(S):

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

GANNETT FLEMING

Client Sample ID: BAG EFFLUENT 2

GC/MS Semivolatiles

Lot-Sample #...: C3L040291-002
Date Sampled...: 12/04/03
Prep Date.....: 12/05/03
Prep Batch #...: 3339194
Dilution Factor: 0.96

Work Order #...: F51581AA
Date Received..: 12/04/03
Analysis Date..: 12/09/03
Analysis Time..: 11:28

Matrix.....: WATER
MS Run #.....:

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	ND	9.6	ug/L
Acenaphthylene	ND	9.6	ug/L
Acenaphthene	ND	9.6	ug/L
Fluorene	ND	9.6	ug/L
Phenanthrene	ND	9.6	ug/L
Anthracene	ND	9.6	ug/L
Fluoranthene	ND	9.6	ug/L
Pyrene	ND	9.6	ug/L
Benzo(a)anthracene	ND	9.6	ug/L
Chrysene	ND	9.6	ug/L
Benzo(b)fluoranthene	ND	9.6	ug/L
Benzo(k)fluoranthene	ND	9.6	ug/L
Benzo(a)pyrene	ND	9.6	ug/L
Indeno(1,2,3-cd)pyrene	ND	9.6	ug/L
Dibenzo(a,h)anthracene	ND	9.6	ug/L
Benzo(ghi)perylene	ND	9.6	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	77	(21 - 122)
2-Fluorobiphenyl	61	(30 - 110)
2-Fluorophenol	59	(13 - 110)
Nitrobenzene-d5	65	(32 - 112)
Phenol-d5	62	(10 - 113)
Terphenyl-d14	54	(10 - 144)

GANNETT FLEMING

Client Sample ID: BAG EFFLUENT 3

GC Semivolatiles

Lot-Sample #...: C3L040291-003
Date Sampled...: 12/04/03
Prep Date.....: 12/05/03
Prep Batch #...: 3339288
Dilution Factor: 0.95

Work Order #...: F516A1AA
Date Received..: 12/04/03
Analysis Date..: 12/18/03
Analysis Time..: 02:29

Matrix.....: WATER
MS Run #.....: 3339119

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha-BHC	ND	0.048	ug/L
beta-BHC	ND	0.048	ug/L
delta-BHC	ND	0.048	ug/L
gamma-BHC (Lindane)	ND	0.048	ug/L
Heptachlor	ND	0.048	ug/L
Aldrin	ND	0.048	ug/L
Heptachlor epoxide	ND	0.048	ug/L
Endosulfan I	ND	0.048	ug/L
Dieldrin	ND	0.048	ug/L
4,4'-DDE	ND	0.048	ug/L
Endrin	ND	0.048	ug/L
Endrin ketone	ND	0.048	ug/L
Endrin aldehyde	ND	0.048	ug/L
Endosulfan II	ND	0.048	ug/L
4,4'-DDD	ND	0.048	ug/L
Endosulfan sulfate	ND	0.048	ug/L
4,4'-DDT	ND	0.048	ug/L
Methoxychlor	ND	0.095	ug/L
alpha-Chlordane	ND	0.048	ug/L
gamma-Chlordane	ND	0.048	ug/L
Toxaphene	ND	1.9	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	81	(39 - 130)
Decachlorobiphenyl	92	(10 - 147)

GANNETT FLEMING

Client Sample ID: BAG EFFLUENT 3

GC Semivolatiles

Lot-Sample #...:	C3L040291-003	Work Order #...:	F516A1AC	Matrix.....:	WATER
Date Sampled...:	12/04/03	Date Received..:	12/04/03	MS Run #.....:	3339122
Prep Date.....:	12/05/03	Analysis Date..:	12/16/03		
Prep Batch #...:	3339301	Analysis Time..:	04:42		
Dilution Factor:	0.95				
		Method.....:	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	0.95	ug/L
Aroclor 1221	ND	0.95	ug/L
Aroclor 1232	ND	0.95	ug/L
Aroclor 1242	ND	0.95	ug/L
Aroclor 1248	ND	0.95	ug/L
Aroclor 1254	ND	0.95	ug/L
Aroclor 1260	ND	0.95	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	78	(45 - 120)
Decachlorobiphenyl	83	(24 - 128)

GANNETT FLEMING

Client Sample ID: BAG EFFLUENT 4

General Chemistry

Lot-Sample #...: C3L040291-004 Work Order #...: F516C Matrix.....: WATER
Date Sampled...: 12/04/03 Date Received..: 12/04/03

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
TPH (SGT-HEM)	ND	4.8	mg/L	CFR136A 1664A SGT	12/10/03	3344133

Dilution Factor: 0.95 Analysis Time..: 00:00 MS Run #.....: 3344034

GANNETT FLEMING

Client Sample ID: BAG EFFLUENT 5

GC/MS Volatiles

Lot-Sample #...: C3L040291-005
Date Sampled...: 12/04/03
Prep Date.....: 12/05/03
Prep Batch #...: 3339133
Dilution Factor: 1

Work Order #...: F516F1AA
Date Received..: 12/04/03
Analysis Date..: 12/05/03
Analysis Time..: 15:42

Method.....: SW846 8260B

Matrix.....: WATER
MS Run #.....: 3339050

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	20	ug/L
Benzene	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
2-Butanone	ND	5.0	ug/L
Carbon disulfide	ND	5.0	ug/L
Carbon tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,2-Dichloroethene (total)	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
2-Hexanone	ND	5.0	ug/L
Methylene chloride	ND	5.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
Tetrachloroethene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
Trichloroethene	ND	5.0	ug/L
Vinyl chloride	ND	5.0	ug/L
Xylenes (total)	ND	15	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	113	(77 - 120)
Toluene-d8	94	(78 - 111)
4-Bromofluorobenzene	94	(80 - 114)
Dibromofluoromethane	106	(78 - 110)

GANNETT FLEMING

Client Sample ID: BAG EFFLUENT 6

GC Semivolatiles

Lot-Sample #...: C3L040291-006
Date Sampled...: 12/04/03
Prep Date.....: 12/05/03
Prep Batch #...: 3339595
Dilution Factor: 0.97

Work Order #...: F516H1AA
Date Received..: 12/04/03
Analysis Date..: 12/10/03
Analysis Time..: 06:00

Matrix.....: WATER
MS Run #.....: 3339265

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	3.9	ug/L
Dalapon	ND	1.9	ug/L
2,4-DB	ND	3.9	ug/L
Dicamba	ND	1.9	ug/L
Dichlorprop	ND	3.9	ug/L
Dinoseb	ND	0.58	ug/L
MCPA	ND	390	ug/L
MCPP	ND	390	ug/L
Pentachlorophenol	ND	0.97	ug/L
2,4,5-TP (Silvex)	ND	0.97	ug/L
2,4,5-T	ND	0.97	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	92	(53 - 119)

GANNETT FLEMING

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: C3L040291-007
Date Sampled...: 12/04/03
Prep Date.....: 12/05/03
Prep Batch #...: 3339133
Dilution Factor: 1

Work Order #...: F516L1AA
Date Received..: 12/04/03
Analysis Date..: 12/05/03
Analysis Time..: 16:07

Matrix.....: WATER
MS Run #.....: 3339050

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	20	ug/L
Benzene	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
2-Butanone	ND	5.0	ug/L
Carbon disulfide	ND	5.0	ug/L
Carbon tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,2-Dichloroethene (total)	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
2-Hexanone	ND	5.0	ug/L
Methylene chloride	ND	5.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
Tetrachloroethene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
Trichloroethene	ND	5.0	ug/L
Vinyl chloride	ND	5.0	ug/L
Xylenes (total)	ND	15	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	108	(77 - 120)
Toluene-d8	96	(78 - 111)
4-Bromofluorobenzene	94	(80 - 114)
Dibromofluoromethane	103	(78 - 110)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: C3L040291 **Work Order #...:** F52981AA **Matrix.....:** WATER
MB Lot-Sample #: C3L050000-133

Prep Date.....: 12/05/03 **Analysis Time..:** 06:01
Analysis Date..: 12/05/03 **Prep Batch #...:** 3339133
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/L	SW846 8260B
Benzene	ND	5.0	ug/L	SW846 8260B
Bromodichloromethane	ND	5.0	ug/L	SW846 8260B
Bromoform	ND	5.0	ug/L	SW846 8260B
Bromomethane	ND	5.0	ug/L	SW846 8260B
2-Butanone	ND	5.0	ug/L	SW846 8260B
Carbon disulfide	ND	5.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/L	SW846 8260B
Chlorobenzene	ND	5.0	ug/L	SW846 8260B
Dibromochloromethane	ND	5.0	ug/L	SW846 8260B
Chloroethane	ND	5.0	ug/L	SW846 8260B
Chloroform	ND	5.0	ug/L	SW846 8260B
Chloromethane	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	5.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
Ethylbenzene	ND	5.0	ug/L	SW846 8260B
2-Hexanone	ND	5.0	ug/L	SW846 8260B
Methylene chloride	ND	5.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
Styrene	ND	5.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	SW846 8260B
Tetrachloroethene	ND	5.0	ug/L	SW846 8260B
Toluene	ND	5.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/L	SW846 8260B
Trichloroethene	ND	5.0	ug/L	SW846 8260B
Vinyl chloride	ND	5.0	ug/L	SW846 8260B
Xylenes (total)	ND	15	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	102	(77 - 120)
Toluene-d8	90	(78 - 111)
4-Bromofluorobenzene	83	(80 - 114)
Dibromofluoromethane	97	(78 - 110)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: C3L040291 Work Order #...: F52981AA Matrix.....: WATER

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: C3L040291
MB Lot-Sample #: C3L050000-194
Work Order #...: F53KN1AA
Matrix.....: WATER
Prep Date.....: 12/05/03
Analysis Time..: 20:17
Analysis Date..: 12/08/03
Prep Batch #...: 3339194
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Naphthalene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Acenaphthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Dibenzo(a,h)anthracene	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	73	(21 - 122)
2-Fluorobiphenyl	64	(30 - 110)
2-Fluorophenol	61	(13 - 110)
Nitrobenzene-d5	65	(32 - 112)
Phenol-d5	59	(10 - 113)
Terphenyl-d14	73	(10 - 144)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: C3L040291
MB Lot-Sample #: C3L050000-288

Work Order #...: F532D1AA

Matrix.....: WATER

Prep Date.....: 12/05/03

Analysis Time..: 07:20

Analysis Date..: 12/18/03
Prep Batch #...: 3339288

Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
alpha-BHC	ND	0.050	ug/L	SW846 8081A
beta-BHC	ND	0.050	ug/L	SW846 8081A
delta-BHC	ND	0.050	ug/L	SW846 8081A
gamma-BHC (Lindane)	ND	0.050	ug/L	SW846 8081A
Heptachlor	ND	0.050	ug/L	SW846 8081A
Aldrin	ND	0.050	ug/L	SW846 8081A
Heptachlor epoxide	ND	0.050	ug/L	SW846 8081A
Endosulfan I	ND	0.050	ug/L	SW846 8081A
Dieldrin	ND	0.050	ug/L	SW846 8081A
4,4'-DDE	ND	0.050	ug/L	SW846 8081A
Endrin	ND	0.050	ug/L	SW846 8081A
Endrin ketone	ND	0.050	ug/L	SW846 8081A
Endrin aldehyde	ND	0.050	ug/L	SW846 8081A
Endosulfan II	ND	0.050	ug/L	SW846 8081A
4,4'-DDD	ND	0.050	ug/L	SW846 8081A
Endosulfan sulfate	ND	0.050	ug/L	SW846 8081A
4,4'-DDT	ND	0.050	ug/L	SW846 8081A
Methoxychlor	ND	0.10	ug/L	SW846 8081A
alpha-Chlordane	ND	0.050	ug/L	SW846 8081A
gamma-Chlordane	ND	0.050	ug/L	SW846 8081A
Toxaphene	ND	2.0	ug/L	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	89	(39 - 130)
Decachlorobiphenyl	100	(10 - 147)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: C3L040291
MB Lot-Sample #: C3L050000-301
Work Order #...: F533W1AA
Matrix.....: WATER
Prep Date.....: 12/05/03
Analysis Time..: 05:02
Analysis Date..: 12/16/03
Prep Batch #...: 3339301
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	1.0	ug/L	SW846 8082
Aroclor 1221	ND	1.0	ug/L	SW846 8082
Aroclor 1232	ND	1.0	ug/L	SW846 8082
Aroclor 1242	ND	1.0	ug/L	SW846 8082
Aroclor 1248	ND	1.0	ug/L	SW846 8082
Aroclor 1254	ND	1.0	ug/L	SW846 8082
Aroclor 1260	ND	1.0	ug/L	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	88	(45 - 120)
Decachlorobiphenyl	87	(24 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: C3L040291 **Work Order #...:** F55RW1AA **Matrix.....:** WATER
MB Lot-Sample #: C3L050000-595

Prep Date.....: 12/05/03 **Analysis Time..:** 06:32
Analysis Date..: 12/10/03 **Prep Batch #...:** 3339595
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-D	ND	4.0	ug/L	SW846 8151A
Dalapon	ND	2.0	ug/L	SW846 8151A
2,4-DB	ND	4.0	ug/L	SW846 8151A
Dicamba	ND	2.0	ug/L	SW846 8151A
Dichlorprop	ND	4.0	ug/L	SW846 8151A
Dinoseb	ND	0.60	ug/L	SW846 8151A
MCPA	ND	400	ug/L	SW846 8151A
MCPP	ND	400	ug/L	SW846 8151A
Pentachlorophenol	ND	1.0	ug/L	SW846 8151A
2,4,5-TP (Silvex)	ND	1.0	ug/L	SW846 8151A
2,4,5-T	ND	1.0	ug/L	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	91	(53 - 119)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: C3L040291 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: C3L100000-126 Prep Batch #...: 3344126						
Silver	ND	5.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AA
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Aluminum	ND	200	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AC
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Arsenic	ND	10.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AD
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Barium	0.55 B	200	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AE
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Beryllium	0.68 B	4.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AF
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Calcium	ND	5000	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AG
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Cadmium	ND	5.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AH
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Cobalt	ND	50.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AJ
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Chromium	ND	5.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AK
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Copper	ND	25.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AL
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Iron	ND	100	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AM
		Dilution Factor: 1				
		Analysis Time..: 16:56				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: C3L040291 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Potassium	ND	5000	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AN
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Magnesium	ND	5000	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AP
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Manganese	ND	15.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AQ
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Sodium	ND	5000	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AR
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Nickel	ND	40.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AT
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Lead	ND	3.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AU
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Selenium	ND	5.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AV
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Thallium	ND	10.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AW
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Antimony	ND	10.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11AX
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Vanadium	ND	50.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11A0
		Dilution Factor: 1				
		Analysis Time..: 16:56				
Zinc	ND	20.0	ug/L	SW846 6010B	12/10-12/15/03	F6CE11A1
		Dilution Factor: 1				
		Analysis Time..: 16:56				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: C3L040291 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: C3L100000-129 **Prep Batch #...:** 3344129						
Mercury	ND	0.20	ug/L	SW846 7470A	12/10/03	F6CE91AA
		Dilution Factor: 1				
		Analysis Time..: 15:28				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: C3L040291 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
TPH (SGT-HEM)		Work Order #: F6CFH1AA		MB Lot-Sample #:	C3L100000-133	
	ND	5.0	mg/L	CFR136A 1664A SGT	12/10/03	3344133
		Dilution Factor: 1				
		Analysis Time..: 00:00				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: C3L040291 Work Order #...: F52981AC Matrix.....: WATER
LCS Lot-Sample#: C3L050000-133
Prep Date.....: 12/05/03 Analysis Date..: 12/05/03
Prep Batch #...: 3339133 Analysis Time..: 07:59
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**101**	**(79 - 116)**	**SW846 8260B**
Chlorobenzene	**99**	**(81 - 115)**	**SW846 8260B**
1,1-Dichloroethene	**101**	**(65 - 119)**	**SW846 8260B**
Toluene	**95**	**(76 - 119)**	**SW846 8260B**
Trichloroethene	**101**	**(80 - 122)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	103	(77 - 120)
Toluene-d8	92	(78 - 111)
4-Bromofluorobenzene	95	(80 - 114)
Dibromofluoromethane	101	(78 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: C3L040291
LCS Lot-Sample#: C3L050000-194
Prep Date.....: 12/05/03
Prep Batch #...: 3339194
Dilution Factor: 1

Work Order #...: F53KN1AC-LCS
F53KN1AD-LCSD
Analysis Date..: 12/08/03
Analysis Time..: 20:47

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	60	(10 - 131)			SW846 8270C
	66	(10 - 131)	9.1	(0-43)	SW846 8270C
2-Chlorophenol	60	(19 - 124)			SW846 8270C
	67	(19 - 124)	10	(0-43)	SW846 8270C
Acenaphthene	63	(39 - 118)			SW846 8270C
	68	(39 - 118)	7.6	(0-35)	SW846 8270C
1,4-Dichlorobenzene	55	(28 - 110)			SW846 8270C
	63	(28 - 110)	13	(0-36)	SW846 8270C
N-Nitrosodi-n-propyl-amine	56	(30 - 115)			SW846 8270C
	58	(30 - 115)	3.5	(0-36)	SW846 8270C
1,2,4-Trichloro-benzene	59	(31 - 110)			SW846 8270C
	67	(31 - 110)	12	(0-37)	SW846 8270C
Pyrene	78	(46 - 130)			SW846 8270C
	77	(46 - 130)	0.77	(0-31)	SW846 8270C
4-Chloro-3-methylphenol	65	(29 - 124)			SW846 8270C
	67	(29 - 124)	2.0	(0-55)	SW846 8270C
4-Nitrophenol	79	(19 - 144)			SW846 8270C
	81	(19 - 144)	2.5	(0-34)	SW846 8270C
2,4-Dinitrotoluene	73	(47 - 131)			SW846 8270C
	73	(47 - 131)	0.27	(0-32)	SW846 8270C
Pentachlorophenol	90	(10 - 140)			SW846 8270C
	80	(10 - 140)	11	(0-56)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	74	(21 - 122)
	71	(21 - 122)
2-Fluorobiphenyl	65	(30 - 110)
	68	(30 - 110)
2-Fluorophenol	53	(13 - 110)
	59	(13 - 110)
Nitrobenzene-d5	63	(32 - 112)
	67	(32 - 112)
Phenol-d5	57	(10 - 113)
	63	(10 - 113)
Terphenyl-d14	74	(10 - 144)

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: C3L040291 Work Order #...: F53KN1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: C3L050000-194 F53KN1AD-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
	69	(10 - 144)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: C3L040291 Work Order #...: F532D1AC Matrix.....: WATER
LCS Lot-Sample#: C3L050000-288
Prep Date.....: 12/05/03 Analysis Date..: 12/18/03
Prep Batch #...: 3339288 Analysis Time..: 07:49
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
gamma-BHC (Lindane)	**93**	**(49 - 137)**	**SW846 8081A**
Heptachlor	**94**	**(57 - 124)**	**SW846 8081A**
Aldrin	**88**	**(62 - 120)**	**SW846 8081A**
Dieldrin	**98**	**(68 - 130)**	**SW846 8081A**
Endrin	**97**	**(46 - 137)**	**SW846 8081A**
4,4'-DDT	**102**	**(60 - 140)**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	90	(39 - 130)
Decachlorobiphenyl	96	(10 - 147)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: C3L040291 Work Order #...: F533W1AC Matrix.....: WATER
LCS Lot-Sample#: C3L050000-301
Prep Date.....: 12/05/03 Analysis Date..: 12/16/03
Prep Batch #...: 3339301 Analysis Time..: 05:22
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Aroclor 1016	**79**	**(61 - 118)**	**SW846 8082**
Aroclor 1260	**79**	**(61 - 124)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	80	(45 - 120)
Decachlorobiphenyl	84	(24 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: C3L040291 Work Order #...: F55RW1AC Matrix.....: WATER
LCS Lot-Sample#: C3L050000-595
Prep Date.....: 12/05/03 Analysis Date..: 12/10/03
Prep Batch #...: 3339595 Analysis Time..: 07:03
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2,4-D	**72**	**(46 - 124)**	**SW846 8151A**
2,4,5-TP (Silvex)	**91**	**(53 - 127)**	**SW846 8151A**
2,4,5-T	**82**	**(40 - 126)**	**SW846 8151A**
Pentachlorophenol	**102**	**(30 - 125)**	**SW846 8151A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	91	(53 - 119)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3L040291 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: C3L100000-126 Prep Batch #...: 3344126					
Silver	103	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11A2
		Dilution Factor: 1	Analysis Time..: 17:02		
Aluminum	101	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11A3
		Dilution Factor: 1	Analysis Time..: 17:02		
Arsenic	99	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11A4
		Dilution Factor: 1	Analysis Time..: 17:02		
Barium	102	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11A5
		Dilution Factor: 1	Analysis Time..: 17:02		
Beryllium	104	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11A6
		Dilution Factor: 1	Analysis Time..: 17:02		
Calcium	102	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11A7
		Dilution Factor: 1	Analysis Time..: 17:02		
Cadmium	100	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11A8
		Dilution Factor: 1	Analysis Time..: 17:02		
Cobalt	98	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11A9
		Dilution Factor: 1	Analysis Time..: 17:02		
Chromium	102	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CA
		Dilution Factor: 1	Analysis Time..: 17:02		
Copper	104	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CC
		Dilution Factor: 1	Analysis Time..: 17:02		
Iron	103	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CD
		Dilution Factor: 1	Analysis Time..: 17:02		
Potassium	98	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CE
		Dilution Factor: 1	Analysis Time..: 17:02		
Magnesium	102	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CF
		Dilution Factor: 1	Analysis Time..: 17:02		
Manganese	98	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CG
		Dilution Factor: 1	Analysis Time..: 17:02		

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3L040291 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Sodium	106	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CH
		Dilution Factor: 1	Analysis Time..: 17:02		
Nickel	99	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CJ
		Dilution Factor: 1	Analysis Time..: 17:02		
Lead	98	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CK
		Dilution Factor: 1	Analysis Time..: 17:02		
Selenium	99	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CL
		Dilution Factor: 1	Analysis Time..: 17:02		
Thallium	99	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CM
		Dilution Factor: 1	Analysis Time..: 17:02		
Antimony	99	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CN
		Dilution Factor: 1	Analysis Time..: 17:02		
Vanadium	101	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CP
		Dilution Factor: 1	Analysis Time..: 17:02		
Zinc	98	(80 - 120)	SW846 6010B	12/10-12/15/03	F6CE11CQ
		Dilution Factor: 1	Analysis Time..: 17:02		

LCS Lot-Sample#: C3L100000-129 **Prep Batch #...:** 3344129

Mercury	101	(80 - 120)	SW846 7470A	12/10/03	F6CE91AC
		Dilution Factor: 1	Analysis Time..: 15:30		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: C3L040291 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
TPH (SGT-HEM)		Work Order #: F6CFH1AC	LCS Lot-Sample#: C3L100000-133		
	69	(64 - 132)	CFR136A 1664A SGT	12/10/03	3344133
		Dilution Factor: 1	Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...:	C3L040291	Work Order #...:	F52X71AU-MS	Matrix.....:	WATER
MS Lot-Sample #:	C3L040394-004		F52X71AV-MSD		
Date Sampled...:	12/03/03	Date Received..:	12/04/03	MS Run #.....:	3339050
Prep Date.....:	12/05/03	Analysis Date..:	12/05/03		
Prep Batch #...:	3339133	Analysis Time..:	08:23		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**99**	**(73 - 123)**			**SW846 8260B**
	94	**(73 - 123)**	**5.3**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**99**	**(70 - 122)**			**SW846 8260B**
	91	**(70 - 122)**	**8.5**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethene	**98**	**(57 - 138)**			**SW846 8260B**
	94	**(57 - 138)**	**4.2**	**(0-20)**	**SW846 8260B**
Toluene	**99**	**(67 - 129)**			**SW846 8260B**
	91	**(67 - 129)**	**8.0**	**(0-20)**	**SW846 8260B**
Trichloroethene	**102**	**(58 - 141)**			**SW846 8260B**
	94	**(58 - 141)**	**8.6**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	96	(77 - 120)
	96	(77 - 120)
Toluene-d8	95	(78 - 111)
	92	(78 - 111)
4-Bromofluorobenzene	95	(80 - 114)
	92	(80 - 114)
Dibromofluoromethane	98	(78 - 110)
	98	(78 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: C3L040291
MS Lot-Sample #: C3L040371-005
Date Sampled...: 12/03/03
Prep Date.....: 12/05/03
Prep Batch #...: 3339288
Dilution Factor: 0.99

Work Order #...: F52RM1D6-MS
F52RM1D7-MSD
Date Received..: 12/04/03
Analysis Date..: 12/18/03
Analysis Time..: 01:01

Matrix.....: WATER
MS Run #.....: 3339119

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
gamma-BHC (Lindane)	83	(30 - 148)			SW846 8081A
	83	(30 - 148)	0.82	(0-22)	SW846 8081A
Heptachlor	89	(25 - 135)			SW846 8081A
	88	(25 - 135)	1.9	(0-32)	SW846 8081A
Aldrin	83	(19 - 131)			SW846 8081A
	82	(19 - 131)	1.1	(0-33)	SW846 8081A
Dieldrin	89	(35 - 141)			SW846 8081A
	90	(35 - 141)	0.72	(0-37)	SW846 8081A
Endrin	91	(28 - 148)			SW846 8081A
	89	(28 - 148)	1.8	(0-40)	SW846 8081A
4,4'-DDT	97	(24 - 145)			SW846 8081A
	97	(24 - 145)	0.85	(0-50)	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	85	(39 - 130)
	82	(39 - 130)
Decachlorobiphenyl	92	(10 - 147)
	92	(10 - 147)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: C3L040291 Work Order #...: F52RM1ED-MS Matrix.....: WATER
MS Lot-Sample #: C3L040371-005 F52RM1EE-MSD
Date Sampled...: 12/03/03 Date Received..: 12/04/03 MS Run #.....: 3339122
Prep Date.....: 12/05/03 Analysis Date..: 12/16/03
Prep Batch #...: 3339301 Analysis Time..: 03:41
Dilution Factor: 0.98

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**80**	**(56 - 119)**			**SW846 8082**
	81 p	**(56 - 119)**	**21**	**(0-20)**	**SW846 8082**
Aroclor 1260	**80**	**(31 - 138)**			**SW846 8082**
	81	**(31 - 138)**	**21**	**(0-27)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	82	(45 - 120)
	84	(45 - 120)
Decachlorobiphenyl	84	(24 - 128)
	85	(24 - 128)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: C3L040291
MS Lot-Sample #: C3L040371-005
Date Sampled...: 12/03/03
Prep Date.....: 12/05/03
Prep Batch #...: 3339595
Dilution Factor: 0.97

Work Order #...: F52RM1D8-MS
F52RM1D9-MSD
Date Received..: 12/04/03
Analysis Date..: 12/10/03
Analysis Time..: 04:27

Matrix.....: WATER
MS Run #.....: 3339265

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-D	71	(37 - 140)			SW846 8151A
	76	(37 - 140)	7.7	(0-20)	SW846 8151A
2,4,5-TP (Silvex)	91	(53 - 126)			SW846 8151A
	96	(53 - 126)	5.9	(0-20)	SW846 8151A
2,4,5-T	80	(40 - 110)			SW846 8151A
	85	(40 - 110)	6.2	(0-20)	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	92	(53 - 119)
	97	(53 - 119)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3L040291 **Matrix.....:** WATER
Date Sampled...: 12/04/03 **Date Received..:** 12/04/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: C3L040291-001 **Prep Batch #...:** 3344126							
Silver	100	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511A3
	102	(75 - 125)	1.4	(0-20)	SW846 6010B	12/10-12/15/03	F51511A4
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Aluminum	100	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511A5
	102	(75 - 125)	1.9	(0-20)	SW846 6010B	12/10-12/15/03	F51511A6
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Arsenic	98	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511A7
	99	(75 - 125)	1.4	(0-20)	SW846 6010B	12/10-12/15/03	F51511A8
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Barium	100	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511A9
	102	(75 - 125)	1.3	(0-20)	SW846 6010B	12/10-12/15/03	F51511CA
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Beryllium	101	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CC
	102	(75 - 125)	1.4	(0-20)	SW846 6010B	12/10-12/15/03	F51511CD
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Calcium	93	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CE
	103	(75 - 125)	2.8	(0-20)	SW846 6010B	12/10-12/15/03	F51511CF
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Cadmium	95	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CG
	97	(75 - 125)	1.8	(0-20)	SW846 6010B	12/10-12/15/03	F51511CH
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3L040291 **Matrix.....:** WATER
Date Sampled...: 12/04/03 **Date Received..:** 12/04/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Cobalt	95	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CJ
	96	(75 - 125)	1.3	(0-20)	SW846 6010B	12/10-12/15/03	F51511CK
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Chromium	99	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CL
	101	(75 - 125)	1.4	(0-20)	SW846 6010B	12/10-12/15/03	F51511CM
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Copper	104	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CN
	106	(75 - 125)	1.4	(0-20)	SW846 6010B	12/10-12/15/03	F51511CP
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Iron	100	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CQ
	102	(75 - 125)	1.4	(0-20)	SW846 6010B	12/10-12/15/03	F51511CR
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Potassium	100	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CT
	101	(75 - 125)	1.7	(0-20)	SW846 6010B	12/10-12/15/03	F51511CU
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Magnesium	99	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CV
	102	(75 - 125)	2.5	(0-20)	SW846 6010B	12/10-12/15/03	F51511CW
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Manganese	96	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511CX
	98	(75 - 125)	1.8	(0-20)	SW846 6010B	12/10-12/15/03	F51511C0
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3L040291 Matrix.....: WATER
Date Sampled...: 12/04/03 Date Received..: 12/04/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Sodium	103	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511C1
	106	(75 - 125)	2.2	(0-20)	SW846 6010B	12/10-12/15/03	F51511C2
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Nickel	96	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511C3
	97	(75 - 125)	1.4	(0-20)	SW846 6010B	12/10-12/15/03	F51511C4
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Lead	95	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511C5
	97	(75 - 125)	1.8	(0-20)	SW846 6010B	12/10-12/15/03	F51511C6
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Selenium	96	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511C7
	98	(75 - 125)	2.2	(0-20)	SW846 6010B	12/10-12/15/03	F51511C8
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Thallium	96	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511C9
	98	(75 - 125)	1.7	(0-20)	SW846 6010B	12/10-12/15/03	F51511DA
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Antimony	98	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511DC
	100	(75 - 125)	1.8	(0-20)	SW846 6010B	12/10-12/15/03	F51511DD
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					
Vanadium	99	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511DE
	100	(75 - 125)	1.5	(0-20)	SW846 6010B	12/10-12/15/03	F51511DF
		Dilution Factor: 1					
		Analysis Time..: 17:18					
		MS Run #.....: 3344027					

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3L040291 **Matrix.....:** WATER
Date Sampled...: 12/04/03 **Date Received..:** 12/04/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	94	(75 - 125)			SW846 6010B	12/10-12/15/03	F51511DG
	96	(75 - 125)	1.8	(0-20)	SW846 6010B	12/10-12/15/03	F51511DH

Dilution Factor: 1
Analysis Time..: 17:18
MS Run #.....: 3344027

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: C3L040291 Matrix.....: WATER
Date Sampled...: 12/04/03 Date Received..: 12/06/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: C3L060160-003 Prep Batch #...: 3344129							
Mercury	112	(75 - 125)			SW846 7470A	12/10/03	F56JQ1AU
	102	(75 - 125)	9.3	(0-20)	SW846 7470A	12/10/03	F56JQ1AV

Dilution Factor: 1
Analysis Time..: 15:48
MS Run #.....: 3344030

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: C3L040291 Matrix.....: WATER
Date Sampled...: 11/19/03 Date Received..: 11/20/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
TPH (SGT-HEM)		WO#:	F48XH1A2-MS/F48XH1A3-MSD			MS Lot-Sample #:	C3K200209-007
	70	(64 - 132)			CFR136A 1664A SGT	12/10/03	3344133
	73	(64 - 132)	3.5	(0-28)	CFR136A 1664A SGT	12/10/03	3344133

Dilution Factor: 1
Analysis Time..: 00:00
MS Run #.....: 3344034

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.