SEPTEMBER 2010 ANNUAL GROUNDWATER SAMPLING EVENT
Owen Farm Borrow Pit
Solid Waste Demonstration Project
Plymouth, North Carolina
S&ME Project No. 1040-01-537

Prepared for:

Geo-Specialty Chemicals
P.O. Box 68
Plymouth, NC 27962

Prepared by:

S&ME, Inc.
3201 Spring Forest Road
Raleigh, North Carolina 27616

October 11, 2010

S&ME

October 11, 2010

Mr. Donald Herndon
Solid Waste Section
NCDENR- DWM
401 Oberlin Road, Suite 150
Raleigh, North Carolina 27605

Reference: September 2010 Annual Groundwater Sampling Event
Owen Farm Borrow Pit - Solid Waste Demonstration Project
Plymouth, North Carolina
S&ME Project No. 1040-01-537

Dear Mr. Herndon:

S&ME, Inc. (S&ME), on behalf of Geo-Specialty Chemicals (GSC), is pleased to provide you with the September 2010 sampling report as required under the conditions of the Solid Waste Demonstration Project which GSC is performing with the North Carolina Department of Environment and Natural Resources - Division of Waste Management (NCDENR-DWM). This report presents analytical results of groundwater samples collected from selected monitor wells located at the Owen Farm Borrow Pit in Plymouth, North Carolina (**Figure 1**).

PROJECT BACKGROUND

In September 1994, GSC (as CYTEC Industries, Inc.) received approval from the DWM to use processed silica to assist in the restoration of selected tracts of farm land to productive use. Specifically, approximately 48,000 cubic yards of processed silica were used, over a period of two years, to fill a soil borrow pit to a compatible elevation with adjacent fields. Operational conditions of the Solid Waste Demonstration Project included groundwater monitoring at the site.

Since 1994, GSC has conducted groundwater monitoring at the site and submitted the sampling results to the DWM on a semi-annual basis. After reviewing the recent and historical data from the groundwater monitoring, S&ME concluded in its reports for the September 2007 and March 2008 sampling events that "... GSC has demonstrated that restoration of land resources has been performed without an adverse release of constituents to the environment that may pose a threat to public health and safety." Accordingly, S&ME requested, on behalf of GSC, that DWM consider termination of the Solid Waste Demonstration Project and semi-annual groundwater monitoring at the site.

In a letter dated April 17, 2008, Mr. Brian Wootton of the DWM responded, in part, that based on the historical detections of aluminum and sulfate in the groundwater samples and periodic detections of sulfate in excess of the 250 mg/l North Carolina groundwater standard, the Solid Waste Section will allow the groundwater sampling schedule to be reduced from semi-annual to annual (in September). At the end of three (3) years of this annual sampling, GSC may request a revaluation of the sampling schedule. This report contains the results of the **third** of the **three** annual September groundwater sampling events and provides a summary of historical sampling events at the site. A copy of Mr. Wooton's letter is attached for reference in **Appendix I.**

GROUNDWATER MEASUREMENT AND SAMPLING ACTIVITIES

On September 15, 2010, S&ME personnel visited the referenced site to collect groundwater samples from the four selected monitor wells (MW-1, MW-2, MW-3, and MW-4). Depth to groundwater was measured in each well prior to sampling. Water level measurements were compared to the surveyed measuring points on the wells and converted to relative groundwater elevations. These elevations were used to construct the attached groundwater potentiometric map (see **Figure 2**). These results show that groundwater flow continues to flow toward the west, in accordance with previous data. Water levels were consistently higher than recent sampling events, likely reflecting higher precipitation amounts.

Using bailers, the monitor wells were purged of three well volumes of water prior to collecting samples for analysis. While purging the wells, specific conductivity, pH, and temperature were measured in the groundwater collected from each well. These field data are summarized in **Table 1**. Groundwater samples designated for laboratory analysis were then collected by dedicated bailers and placed in laboratory-supplied containers, stored on ice, and transported under standard Chain-of-Custody protocol to SGS North America, Inc. (SGS) located in Wilmington, North Carolina.

The samples were analyzed for total aluminum and sulfate using EPA Method 6010C and Hach Method 8051, respectively. **Table 2** summarizes the laboratory analytical results for the September 2010 groundwater sampling event. Sulfate concentrations reported for the samples collected ranged from 46.5 mg/L in MW-2 to 187 mg/L in MW-4. Total aluminum concentrations in the samples ranged from 0.441 mg/L in well MW-2 to 5.91 mg/L in well MW-1. A copy of the laboratory analytical results is included as an attachment in **Appendix I.**

Table 3 summarizes the historical analytical data from previous and current sampling events for comparison. In comparing the September 2010 sampling event data with the results of the previous sampling event of September 2009, the following trends can be seen:

- Aluminum concentrations in groundwater increased in monitor well MW-1, decreased in MW-2, and were essentially unchanged in MW-3 and MW-4.
- Sulfate concentrations in groundwater increased in monitor wells MW-2, MW-3, and MW-4 and were essentially unchanged in MW-1.

Figures 3 and **4** are also presented for evaluation of historical trends in the laboratory analytical results for aluminum and sulfate concentrations, respectively. As shown on **Figure 3**, aluminum concentrations appear variable in all four wells from October 1994 through March 1998. After that date, aluminum levels remained consistently low, with most results being at or below 5 mg/L through March 2001. The aluminum results have shown some fluctuation in recent years but with peaks at or below 20 mg/L.

As shown on **Figure 4**, the sulfate results have been somewhat more variable, with levels being initially above 75 mg/L or less for several years. After mid-1999, sulfate levels in samples from wells MW-1 and MW-2 remain approximately below 75 mg/L while the levels in MW-3 and MW-4 become more elevated and variable. Sulfate levels in these two wells in March 2006 exceeded the sulfate 2L Groundwater Standard. Since that event, sulfate levels have continued to fluctuate but have consistently remained below the 2L Sulfate Groundwater Standard of 250 mg/L.

Figure 5 provides a historical record of the pH of groundwater from all four monitor wells. Groundwater pH measured during the September 2010 sampling event increased slightly in monitor wells MW-2, MW-3 and MW-4 relative to measurements recorded during the September 2009 event. Groundwater pH in monitor well MW-1 decreased slightly. Overall, since 1995 there has been little variability in pH levels recorded at the site, with a slightly higher pH in monitor well MW-2.

REQUEST FOR TERMINATION OF DEMONSTRATION PROJECT

The Solid Waste Demonstration Project into which GSC entered with DWM was an innovative plan to utilize processed silica by-product as a beneficial resource rather than disposing of the by-product as solid waste. Semi-annual groundwater sampling for pH, aluminum, and sulfate at the site has shown no obvious impact to groundwater quality from the processed silica by-product. As presented in S&ME's September 2003 and March 2004 Sampling Reports, studies of the plant growth and the development of organic matter and soil structure conducted at the site by Mr. Ronnie W. Heiniger, Associate Professor at North Carolina State University, indicated that plant yields from the reclamation area have been as good, or better than, plant yields from the surrounding area. Also included in the September 2003 Sampling Report was a letter from the current landowner, Mr. Ebby Owens, signifying satisfaction with the state of the reclamation area and requesting that the groundwater monitoring wells are removed from the site. Photos taken of the site during the September 2010 sampling event, showing the healthy plant growth observed at the site, are included in **Appendix I**.

Based on the results of groundwater monitoring and plant growth and development of organic matter and soil structure studies conducted at the site, it is our opinion that GSC has demonstrated that restoration of land resources has been performed without an adverse release of constituents to the environment that may pose a threat to public health and safety. As discussed in the background section of this report, GSC has previously requested termination of groundwater monitoring for this demonstration project. This sampling event has

successfully demonstrated that sulfate levels have remained below 2L Groundwater Standards for this site. Accordingly, on behalf of GSC, we request that DWM approve termination of the Solid Waste Demonstration Project and annual groundwater monitoring at the Owen Farm Borrow Pit site.

CLOSING

S&ME hopes this information is helpful to you. If you have any questions or require additional information, please contact our office at (919) 872-2660.

Sincerely,
S&ME, INC.

Claudia B. Irvin
Assistant Project Manager

Samuel P. Watts, P.G.
Senior Project Manager

Attachments
cc: Ms. Charita Redding (GSC)
Mr. Herb Myers (GSC)
Mr. Brian Wootton

TABLES

TABLE 1
FIELD MEASUREMENT DATA
September 15, 2010
OWEN BORROW PIT
PLYMOUTH, NORTH CAROLINA
S&ME PROJECT NO. 1040-01-537

Monitor Well I.D.	TOC Elevation (feet)	Depth to Water From TOC (feet)	Depth to Bottom of Well (feet)	Groundwater Elevation (feet)	Temp (°C)	pH	Specific Conductance (µS/cm)
MW-1	39.41	10.27	20.05	29.14	23.2	3.98	620
MW-2	35.62	22.72	30.05	12.90	17.7	4.72	180
MW-3	24.61	13.51	19.20	11.10	19.3	4.09	440
MW-4	32.31	19.47	26.43	12.84	17.9	4.13	460

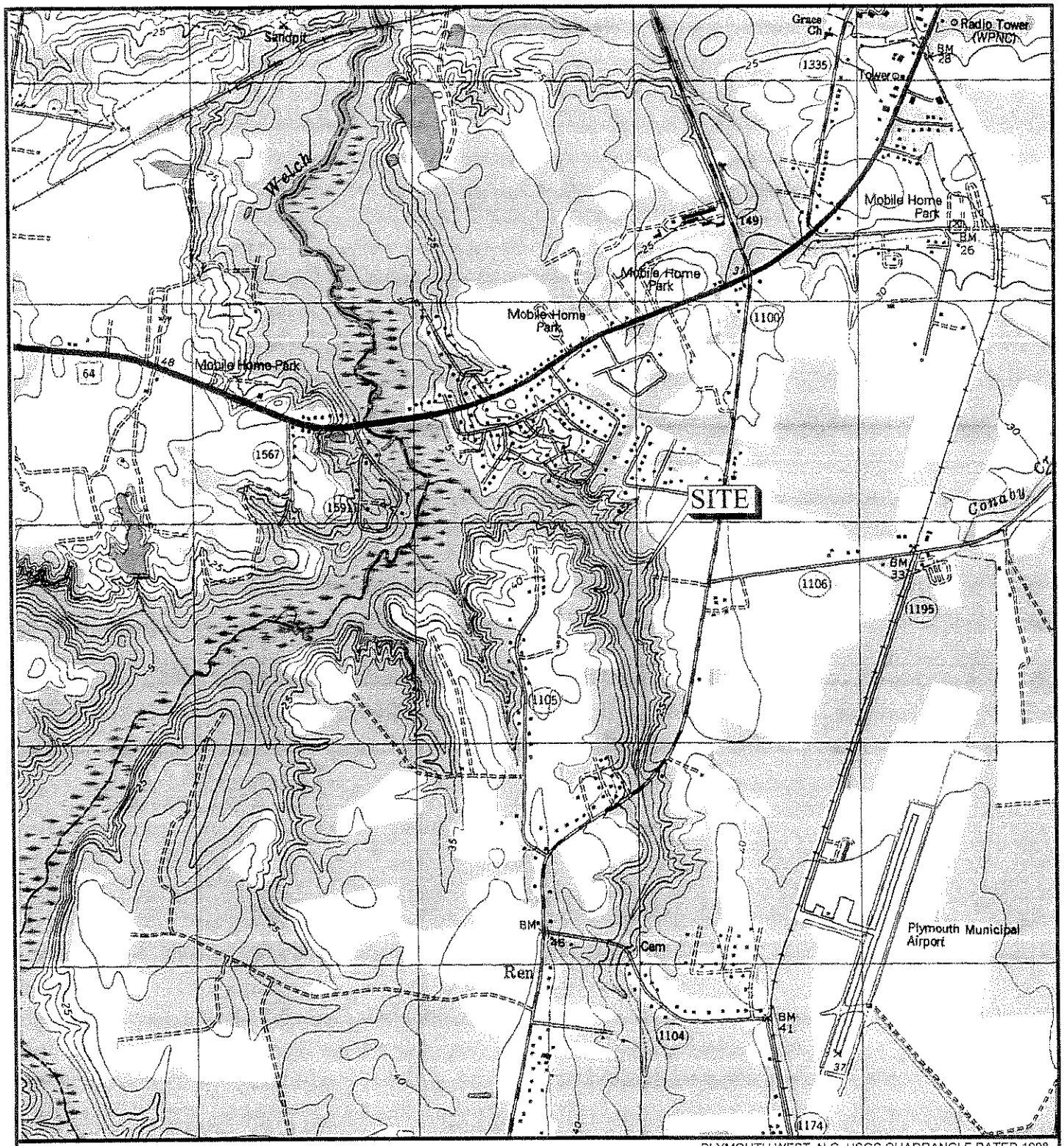
°C - degrees Celsius
µS/cm – microSiemens per centimeter
pH – standard units

TABLE 2
LABORATORY ANALYTICAL RESULTS
September 15, 2010
OWEN BORROW PIT
PLYMOUTH, NORTH CAROLINA
S&ME PROJECT NO. 1040-01-537

Analyte	MW-1 (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	Quantitation Limits (mg/L)
Aluminum (Total)	5.91	0.441	4.93	2.20	0.100 - 1.00
Sulfate	54.5	46.5	182	187	2 - 70

mg/L - milligrams per Liter

FIGURES



2000 0 2000

GRAPHIC SCALE IN FEET

PLYMOUTH WEST, N.C. USGS QUADRANGLE DATED 1998

VICINITY MAP
OWEN FARM BORROW PIT
GEO-SPECIALTY CHEMICAL
PLYMOUTH, NORTH CAROLINA

S&ME
ENVIRONMENTAL SERVICES
ENGINEERING · TESTING

Job No. 1040-01-537
Scale: 1" = 2000'
Fig No. 1

TABLE 3
HISTORICAL SUMMARY OF GROUNDWATER QUALITY DATA
OWEN FARM BORROW PIT
PLYMOUTH, NORTH CAROLINA
S&ME PROJECT NO. 1040-01-537

Monitor Well ID	Analyte	Oct-94	Mar-95	Jun-95	Sep-95	Dec-95	Apr-96	Nov-96	Mar-97	Sep-97	Mar-98	Sep-98	Apr-99	Oct-99	Mar-00	Sep-00	Apr-01	Nov-01	Jan-02	Mar-02	Sep-02	Mar-03	Sep-03	Mar-04	Sep-04	Mar-05	Oct-05	Mar-06	Sep-06	Mar-07	Sep-07	Mar-08	Sep-08	Sep-09	Sep-10
MW-1	Aluminum	62	3.8	1.7	2	2	3.17	6.88	0.260	2.34	1.53	1.80	1.37	1.48	1.46	1.36	1.47	7.74	3.24	2.16	2.03	3.92	1.61	2.25	1.18	1.23	1.3	1.28	1.43	7.16	9.45	1.48	1.4	1.59	5.91
	Sulfate	76	77	88	56	81	63.3	56.2	46.8	45.9	53	49.7	47.7	46.7	55.4	41	59	NA	75	59	53	69	52	59.2	52.6	51.7	62	112	52.0	47	47.2	56.4	70	56.6	54.5
	pH	3.9	4.4	4.4	4.1	4.0	4.5	4.4	4.8	4.2	3.9	4.4	4.7	4.0	4.3	3.8	4.5	5.6	4.2	5.3	5.6	6.4	4.8	5.8	4.8	4.4	4.9	4.8	4.2	4.43	3.9	3.8	3.72	4.20	3.98
MW-2	Aluminum	18	4.6	2	11	15	4.14	4.85	0.113	4.35	0.450	0.352	0.270	0.794	0.329	0.399	0.399	0.247	0.147	0.402	0.595	6.28	4.07	1.51	2.39	<0.20	1.50	2.41	3.56	2.53	2.32	0.74	<0.10	3.6	0.441
	Sulfate	23	32	31	25	24	28.8	23.0	17.3	24.7	33	28.9	30.9	34.8	27.9	26.8	27	NA	44	29	39.5	43	25	30.7	29.3	24.4	36.6	29.1	38	33	44.5	35.6	49	36.8	46.5
	pH	4.7	4.6	4.6	4.9	5.0	4.9	4.8	5.9	4.7	5.3	4.7	5.0	5.7	4.8	4.2	4.9	5.5	4.6	5.1	6.0	6.0	5.2	6.4	5.6	4.3	8.9	5.3	4.6	5.04	4.6	5.2	4.31	4.28	4.72
MW-3	Aluminum	6.3	4.4	1.9	24	24	3.78	7.82	0.106	5.67	0.482	0.935	0.508	0.634	1.21	0.648	1.29	2.82	1.95	1.62	1.85	7.37	2.46	11.5	5.27	3.38	4.78	2.5	9.06	3.74	7.4	8.2	1.55	4.15	4.93
	Sulfate	25	26	21	21	27	26.7	23.4	34.3	48.8	36	61.5	63.3	25.4	137.5	35	170	NA	150	110	145	25	12	235	134	242	63.5	332	83	200	105	75.7	185	97.7	182
	pH	4.3	5.5	5.5	4.2	5.0	5.1	4.6	5.3	4.5	4.7	4.6	4.7	4.6	4.3	4.1	5.1	5.5	4.6	3.3	5.0	6.7	4.6	7.0	4.4	3.9	7.5	4.6	4.2	4.47	4.0	4	3.68	3.07	4.09
MW-4	Aluminum	24	9.2	3.3	17	60	6.33	2.93	BQL	14.7	0.746	1.19	0.501	0.889	1.46	0.607	0.583	3.31	1.03	2.25	2.19	8.17	4	3.56	1.38	2.6	2.33	2.79	3.36	3.69	18.2	1.73	1.56	2.77	2.20
	Sulfate	64	63	95	68	73	55.5	60.4	16.6	49.1	50	61.2	53.7	50.5	241	49	130	NA	80	63	79	69	59	244	161	97.8	183	430	95.0	234	113	81.6	84	76	187
	pH	4.4	4.3	4.3	4.4	5.0	4.5	4.4	4.7	4.6	4.7	4.6	4.5	4.3	4.2	3.9	4.7	5.1	5.4	4.6	5.4	6.2	4.4	5.8	4.5	4.2	6.0	4.6	4.2	4.30	4.1	3.8	3.94	2.92	4.13

Aluminum and Sulfate concentration values are reported in mg/L units.

pH values are reported in standard units.

NA = Not Analyzed

APPROXIMATE LIMITS OF WASTE DISPOSAL AREA

±3.6 ACRES

MW-3 (11.10)

MW-4 (12.84)

MW-2 (12.90)

MW-1 (29.14)

12 12 13 14 16 18 20 22 24 26 28 28

DIRT ROAD

LONG RIDGE ROAD

SR 1106

SR 1100

LEGEND

⊗ MW-2 (12.90)	MONITOR WELL GROUNDWATER ELEVATION (FT.)
20	POTENTIOMETRIC SURFACE (DASHED WHERE INFERRED)
←	GROUNDWATER FLOW DIRECTION

60 0 30 60

SCALE IN FEET

DATE: SEPT. 2010

SCALE: 1" = 60'

DRAWN BY: BTR

PROJECT NUMBER: 1040-01-537

CHECKED BY: SPW

DRAWING NUMBER: B-1385

S&ME
WWW.SMEINC.COM
NC ENGINEER LICENSE #F-0176
3201 SPRING FOREST RD, RALEIGH, NC 27616

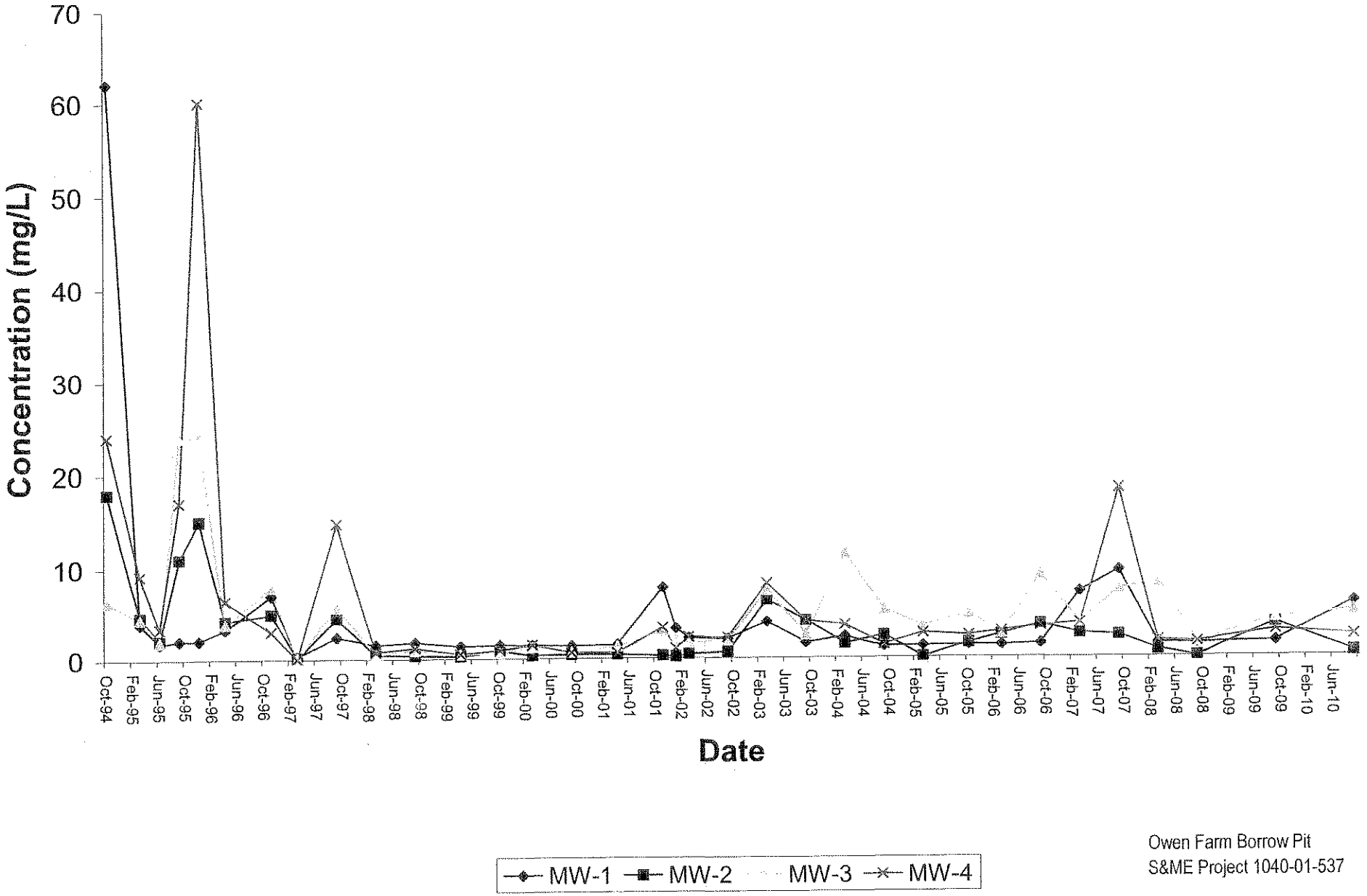
POTENTIONMETRIC MAP SEPTEMBER 2010
OWEN FARM BORROW PIT

GEO-SPECIALTY CHEMICAL
PLYMOUTH, NORTH CAROLINA

FIGURE NO.
2

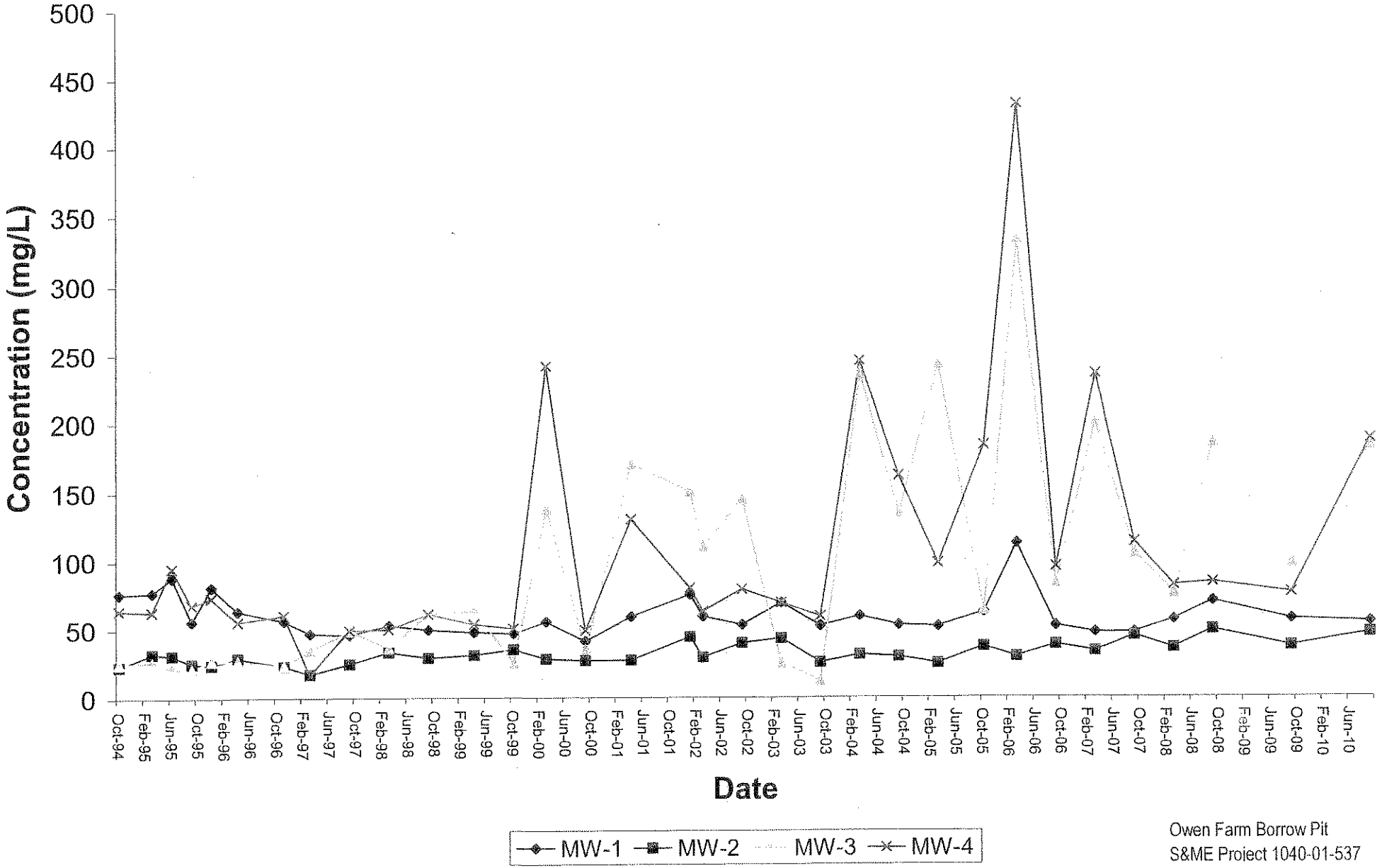
S:\PROJECT\SPre-2005\Environ\2001 Jobs\01-537 Owen Farm Borrow Pit - Geospecialty Chemicals\LAU\b1385.dwg, b1385, 9/20/2010 9:43:08 AM, 1:1

Figure 3
Total Aluminum Concentration in mg/L vs Time



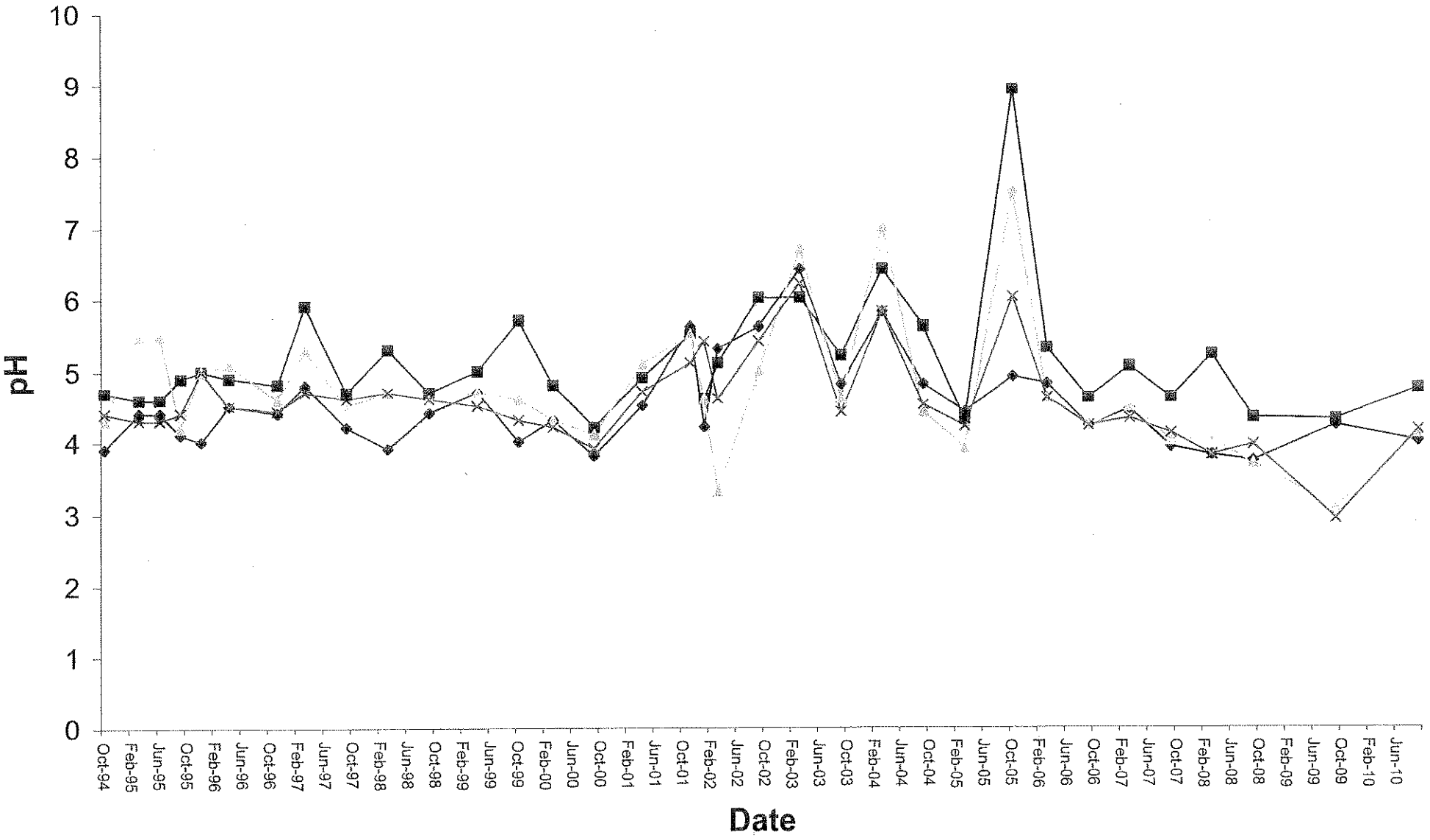
Owen Farm Borrow Pit
S&ME Project 1040-01-537

Figure 4
Sulfate Concentration in mg/L vs Time



Owen Farm Borrow Pit
S&ME Project 1040-01-537

Figure 5
pH vs Time



Owen Farm Borrow Pit
S&ME Project 1040-01-537

APPENDIX I

CORRESPONDENCE

DWM letter, April 17, 2008

North Carolina Department of Environment and Natural Resources
Dexter R. Matthews, Director | Division of Waste Management | Michael F. Easley, Governor
William G. Ross Jr., Secretary

April 17, 2008

Ms. Charita Redding, Manager of Safety & Environmental Affairs,
Geo-Specialty Chemicals (GCS)
P.O. Box 1249
Oglethorpe, Georgia 31068

RE: Owen Borrow Pit – Solid Waste Demonstration Project
Water Quality Monitoring Requirements –
Plymouth, NC
Washington County

Dear Ms. Redding:

The Solid Waste Section received the December 4, 2007 S&ME, Inc. Report, which included the 2007 September Semi-Annual Groundwater Sampling results for the Owen Borrow Pitt site. The Report was written on behalf of Geo Specialty Chemicals (GSC - former CYTEC) and Mr. Ebby Owens, the landowner.

On page 3 of the Report, S&ME requests for termination of the Solid Waste Demonstration Project at the Owen Farm Borrow Pitt. The report states in-part, *"Based on the results of groundwater monitoring and plant growth and development of organic matter and soil structure studies conducted at the site, it is our opinion that GSC has demonstrated that restoration of land resources has been performed without an adverse release of constituents to the environment that may pose a threat to public health and safety. Accordingly, S&ME, Inc. on behalf of GSC, requests that the DWM consider termination of the Solid Waste Demonstration Project and semi-annual groundwater monitoring at the referenced site".*

In addition to this report, a subsequent semiannual groundwater sampling results report (dated April 14, 2008, by S&ME, Inc.) and a revised site map was received recently by the Solid Waste Section. In this report, the request to cease groundwater monitoring is stated the same as in the December 2007 report.

Based on the groundwater data submitted since 1994, there have been detections of the constituents, Aluminum and Sulfate in samples obtained from the four (4) groundwater monitor wells at the site. According to groundwater sampling data submitted, the constituent Sulfate was detected above the North Carolina 2L groundwater standard of 250 mg/l during the March 2006 sampling event. However, the trend for this constituent concentration has been mostly below 2L groundwater standards. The constituent, Aluminum has also been detected in the groundwater monitoring wells.

Based on these factors, the Solid Waste Section will allow the groundwater sampling schedule be reduced from semi-annually to once a year (annually – September) and the groundwater wells shall continued to be sampled for the same constituents; Sulfate, Aluminum, Specific Conductivity, Temperature, and pH for a time frame of three (3) years. At the end of three (3) years, you may submit a written request to the Solid Waste Section for a revaluation of the groundwater monitoring schedule. Please note, that if the frequency of groundwater quality standards exceedances increase during the next three (3) years, then semi-annual sampling, assessment monitoring, and possible corrective action may be implemented at the time of reevaluation.

Please send future GW analytical results/reports to Don Herndon of the Solid Waste Section. He can be reached at (919) 508-8502.

Thank you for your cooperation. If you have any questions, please call me at (919) 508-8524.

Sincerely,

Brian Wootton

Brian Wootton
Hydrogeologist
Solid Waste Section

cc: Samuel P. Watts, P.G. – S&ME, Inc.
Ed Mussler - Solid Waste Section
Mark Poindexter - Solid Waste Section
Ervin Lane – Solid Waste Section
Chuck Boyette – Solid Waste Section
Don Herndon - Solid Waste Section

LABORATORY ANAYLTICAL REPORT

SGS

Sam Watts
S&ME
3201 Spring Forest Road
Raleigh, OK 27616

Report Number: G108-1845

Client Project: Owen Farm

Dear Sam Watts,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Barbara Hager at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America, Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America, Inc.

Barbara Hager 30-Sept-10

Project Manager
Barbara Hager

Date

List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

UJ = Target analytes with recoveries that are 10% < %R < LCL; # of MEs are allowable and compounds are not detected in the sample.

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% soilds = Percent Solids

Special Notes:
1) Metals and mercury samples are digested with a hot block; see the standard operating procedure document for details.
2) Uncertainty for all reported data is less than or equal to 30 percent.

MI34.021808.4

Results for Metals

Client Sample ID:	MW-1			Analyzed By:	PSW
Client Project ID:	Owen Farm			Date Collected:	9/15/2010 14:35
Lab Sample ID:	G108-1845-1			Date Received:	9/16/2010
Lab Project ID:	G108-1845			Matrix:	WATER
ICP InitWt/Vol:	50 mL	Final Vol:	50 mL		
Hg InitWt/Vol:		Final Vol:			
Prep Batch:	17399				

Metals	Result	RL	DF	Units	Method	Date Analyzed
Aluminum	5.91	1.00	10	MG/L	6010C	9/22/2010

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By:
METALS.XLS

Results for Metals

Client Sample ID:	MW-4			Analyzed By:	PSW
Client Project ID:	Owen Farm			Date Collected:	9/15/2010 15:25
Lab Sample ID:	G108-1845-2			Date Received:	9/16/2010
Lab Project ID:	G108-1845			Matrix:	WATER
ICP InitWt/Vol:	50 mL	Final Vol:	50 mL		
Hg InitWt/Vol:		Final Vol:			
Prep Batch:	17399				

Metals	Result	RL	DF	Units	Method	Date Analyzed
Aluminum	**2.20**	0.100	1	MG/L	6010C	9/21/2010

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By:
METALS.XLS

Results for Metals

Client Sample ID:	MW-3			Analyzed By:	PSW
Client Project ID:	Owen Farm			Date Collected:	9/15/2010 16:20
Lab Sample ID:	G108-1845-3			Date Received:	9/16/2010
Lab Project ID:	G108-1845			Matrix:	WATER
ICP InitWt/Vol:	50 mL	Final Vol:	50 mL		
Hg InitWt/Vol:		Final Vol:			
Prep Batch:	17399				

Metals	Result	RL	DF	Units	Method	Date Analyzed
Aluminum	4.93	0.100	1	MG/L	6010C	9/21/2010

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By:
METALS.XLS

Results for Metals

Client Sample ID:	MW-2			Analyzed By:	PSW
Client Project ID:	Owen Farm			Date Collected:	9/15/2010 17:00
Lab Sample ID:	G108-1845-4			Date Received:	9/16/2010
Lab Project ID:	G108-1845			Matrix:	WATER
ICP InitWt/Vol:	50 mL	Final Vol:	50 mL		
Hg InitWt/Vol:		Final Vol:			
Prep Batch:	17399				

Metals	Result	RL	DF	Units	Method	Date Analyzed
Aluminum	**0.441**	0.100	1	MG/L	6010C	9/21/2010

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By:
METALS.XLS

THT!Opsi !Bn f sjdb-!.bd/

Analytical Results

Client Sample ID:	MW-1	Date Collected:	2010-09-15 14:35:00
Client Project ID:	Owen Farm	Date Received:	2010-09-16 09:45:00
Lab Sample ID:	G108-1845-1	Matrix:	Water
Lab Project ID:	G108-1845		

Analyte	Result	Units	Method	Date Analyzed	Analyst
Sulfate	54.5	mg/L	Hach 8051	09/22/10	TriTest R

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
RL = Report Limit

Reviewed By: subout

Analytical Results

Client Sample ID:	MW-4	Date Collected:	2010-09-15 15:25:00
Client Project ID:	Owen Farm	Date Received:	2010-09-16 09:45:00
Lab Sample ID:	G108-1845-2	Matrix:	Water
Lab Project ID:	G108-1845		

Analyte	Result	Units	Method	Date Analyzed	Analyst
Sulfate	187	mg/L	Hach 8051	09/22/10	TriTest R

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
RL = Report Limit

Reviewed By: subout

Analytical Results

Client Sample ID:	MW-3	Date Collected:	2010-09-15 16:20:00
Client Project ID:	Owen Farm	Date Received:	2010-09-16 09:45:00
Lab Sample ID:	G108-1845-3	Matrix:	Water
Lab Project ID:	G108-1845		

Analyte	Result	Units	Method	Date Analyzed	Analyst
Sulfate	182	mg/L	Hach 8051	09/22/10	TriTest R

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
RL = Report Limit

Reviewed By: subout

Analytical Results

Client Sample ID:	MW-2	Date Collected:	2010-09-15 17:00:00
Client Project ID:	Owen Farm	Date Received:	2010-09-16 09:45:00
Lab Sample ID:	G108-1845-4	Matrix:	Water
Lab Project ID:	G108-1845		

Analyte	Result	Units	Method	Date Analyzed	Analyst
Sulfate	46.5	mg/L	Hach 8051	09/22/10	TriTest R

Comments
BQL = Below Quantitation Limits
DF = Dilution Factor
RL = Report Limit

Reviewed By: subout

SGS

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
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- New Jersey
- North Carolina
- Maryland
- New York
- Ohio

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100452

(1)
CLIENT: S+ME, Inc.
CONTACT: Sam Watts PHONE NO:(919) 872-2660
PROJECT: Owen Farm SITE/PWSID#: 1040-01-537
REPORTS TO: Sam Watts
S+ME Inc.
3201 Spring Forest Rd, Raleigh NC 27616 FAX NO.:( )
INVOICE TO: S+ME Inc
3201 Spring Forest Rd
Raleigh NC 27616
QUOTE #:
P.O. NUMBER:

SGS Reference: G108-1845

PAGE ____ OF ____

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP, G=GRAB)	Preservatives Used	Analysis Required (3): Aluminum Sulfate	REMARKS
	MW-1	9/15/10	1435	H_2O	2	G		X X	
	MW-4		15:25					X X	
	MW-3		16:20					X X	
	MW-2		17:00					X X	

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Sam Watts	9/15/10	19:30	FED EX
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 9/16/10	Time 9:45	Received By:

(4)
Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) YES NO
Temperature°C: 4.5
Special Deliverable Requirements:
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Special Instructions:
Requested Turnaround Time:
☐ RUSH ____ Date Needed ☐ STD

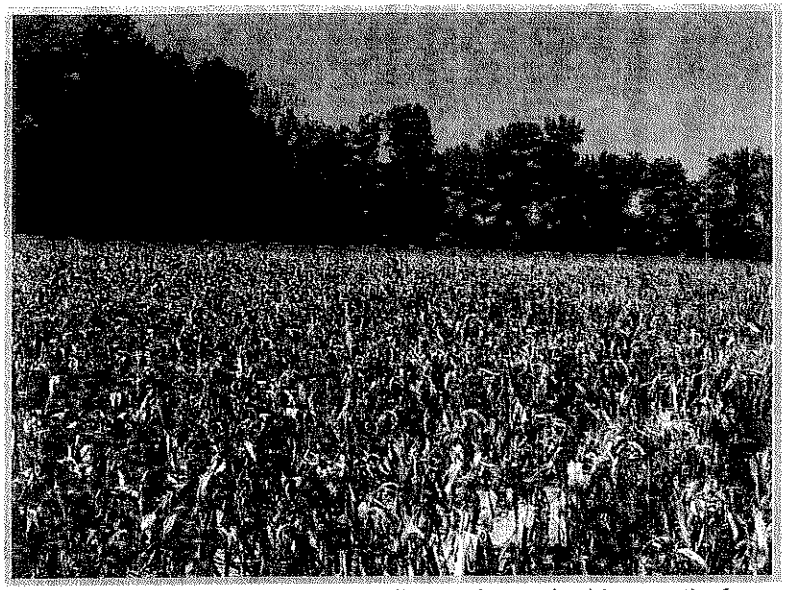
☐ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

PHOTOGRAPH LOG

1 View of the project site looking west from the entrance road. Bollards around monitor well MW-1 are visible in the foreground.

2 Close-up view of monitor well MW-1. (looking northwest)



3 View of the former waste disposal area looking north- from monitor well MW-1. The site is cultivated in corn.

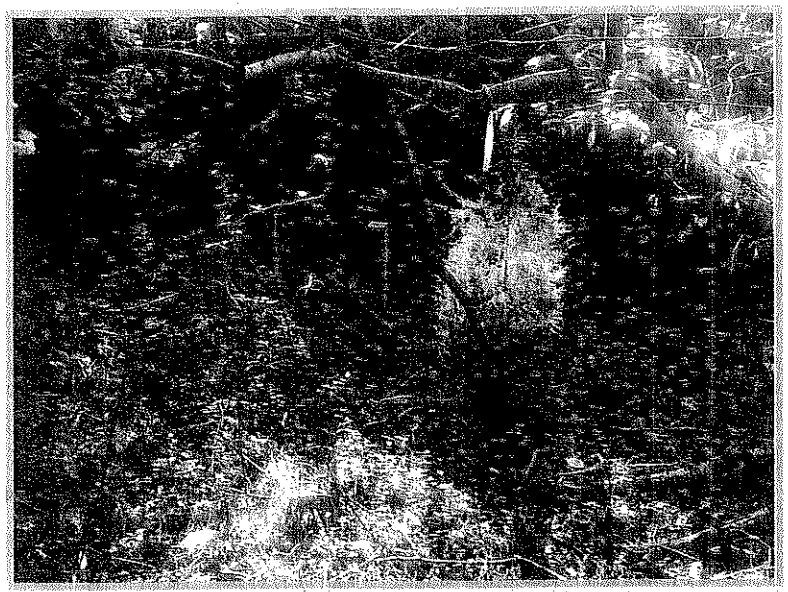
4 View of the waste disposal area from the edge of the woods looking north. Truck visible in the distance is parked in the field next to MW-1.

S&ME

Owen Farm Borrow Pit
Solid Waste Demonstration Project
Plymouth, North Carolina

S&ME Project No.: 1040-01-537

Taken by: SPW | Date: 9/15/10



5 Groundwater monitor well MW-2.

6 Groundwater monitor well MW-4.