



March 20, 2013

Ms. Charlene Sauls; Regional Hydrogeologist
Pennsylvania Department of Environmental Protection
Bureau of Land Recycling and Waste Management
909 Elmerton Avenue
Harrisburg, PA 17110-8200

REF: Creswell Landfill (BWM Permit #100008)
Groundwater Monitoring; 1st Quarter 2013

Dear Ms. Sauls:

Enclosed, as a PDF file, are the Form 19 reports for the 1st Quarter 2013 sampling period completed at the above referenced facility. The laboratory results were reviewed to evaluate changes or trends and as a quality assurance check of the data. In summary:

GENERAL

- This sampling event was for the "Quarterly" Form 19 parameters, twelve (12) of the thirteen (13) GWMP locations were sampled; a frozen water column in the casing for CWMP008W prevented us from monitoring this location
- Enclosed, on CD, is file CWMP0113.csv that should be in the format compatible with your LandLinks software. Additionally, the CD includes a PDF file of all the Forms 19 and PDF files of the laboratory reports

UPGRADIENT WATER QUALITY

- Upgradient locations CWMP001W and 5W had results that generally parallel historic or seasonal values.

DOWNGRADIENT WATER QUALITY

- Location CWMP002W had results that generally parallel historic or seasonal values excepting VOC's which, although continuing a downward trend from levels noted during 3rd Quarter 2012 sampling, have not returned to values from before the 3rd Quarter 2012. We will continue to monitor this closely during future events and anticipate levels will continue to decline.



Unlocking the Energy of Innovation

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Creswell Landfill (BWM Permit #100008)

Groundwater Monitoring; 1st Quarter 2013

March 20, 2013

- Location CWMP003W continues to generally indicate declining levels of 1,1-dichloroethane and 1,1,1-trichloroethane as we continue to observe concentrations declining since 2006. We will continue to monitor this pumping well location and report on its performance following future sampling events.
- Location CWMP004W also has a recent history of low level detects of 1,1-dichloroethane and 1,1,1-trichloroethane. As with MP-3, we continue to document concentrations declining over time. We will continue to monitor and report on this pumping well location during future sampling events.
- Location CWMP007W had a reported value for ammonia-nitrogen of 0.55 mg/l during 3rd Quarter 2012 sampling, which would have been the first detect in 91 sampling events. This quarter, as with 4th Quarter 2012 sampling, the result was "not detected". Sulfate had a reported value of 21 mg/l during 3rd Quarter 2012 sampling but dropped significantly to 14.3 mg/l during the 4th Quarter and to 13.0 mg/l this quarter. Accordingly, 3rd Quarter results for both ammonia-nitrogen and sulfate appear atypical and we will monitor them closely during future sampling events.
- All other locations had results which generally parallel seasonal or historic data.

SUMMARY

Other than indicated above, we observed no unusual trends and the values reported are generally consistent with historic or seasonal results. We are currently scheduled to complete our next sampling (for the "annual" Form 19 parameters) in April.

Feel free to call if you have any questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Brooks K. Norris". The signature is written in a cursive style.

Brooks K. Norris
Senior Manager, Technical Services

Enclosures

cc: Bob Zorbaugh; Bob Eshbach; Emily Kauffman
Randy Weiss (PaDEP)



February 8, 2013

Mr. Brooks Norris
Lancaster County Solid Waste
1299 Hbg Pike, P.O. Box 4425
Lancaster, PA 17604

Certificate of Analysis

Project Name: Creswell Facility 2012	Workorder: 1008537
Purchase Order:	Workorder ID: 1st Qtr 2013 CWMR 017S/018S

Dear Mr. Norris,

Enclosed are the analytical results for samples received by the laboratory on Tuesday, January 22, 2013.

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

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

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

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

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


Anna G Milliken
Technical Manager

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SAMPLE SUMMARY

Workorder: 1008537 1st Qtr 2013 CWMR 017S/018S

Discard Date: 02/22/2013

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1008537001	CWMP017S	Ground Water	1/22/13 09:28	1/22/13 15:45	Brian Shade
1008537002	CWMP018S	Ground Water	1/22/13 10:03	1/22/13 15:45	Brian Shade

Workorder Comments:

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.

Standard Acronyms/Flags

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

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ANALYTICAL RESULTS

Workorder: 1008537 1st Qtr 2013 CWMR 017S/018S

Lab ID: **1008537001**
Sample ID: **CWMP017S**

Date Collected: 1/22/2013 09:28
Date Received: 1/22/2013 15:45

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/24/13 16:43	DRS	H
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/24/13 16:43	DRS	H
Benzene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Bromoform	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/24/13 16:43	DRS	H
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Chloroform	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/24/13 16:43	DRS	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/24/13 16:43	DRS	H
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/24/13 16:43	DRS	H
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/24/13 16:43	DRS	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Styrene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H

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ANALYTICAL RESULTS

Workorder: 1008537 1st Qtr 2013 CWMR 017S/018S

Lab ID: **1008537001**
Sample ID: **CWMP017S**

Date Collected: 1/22/2013 09:28
Date Received: 1/22/2013 15:45

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Toluene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/24/13 16:43	DRS	H
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/24/13 16:43	DRS	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/24/13 16:43	DRS	H
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/24/13 16:43	DRS	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/24/13 16:43	DRS	H
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	80.9		%	62-133	SW846 8260B		1/24/13 16:43	DRS	H
4-Bromofluorobenzene (S)	99.3		%	79-114	SW846 8260B		1/24/13 16:43	DRS	H
Dibromofluoromethane (S)	83.2		%	78-116	SW846 8260B		1/24/13 16:43	DRS	H
Toluene-d8 (S)	97.1		%	76-127	SW846 8260B		1/24/13 16:43	DRS	H

WET CHEMISTRY

Alkalinity, Bicarbonate	59		mg/L	5	SM20-2320 B		1/23/13 05:02	MSA	C
Alkalinity, Total	59		mg/L	5	SM20-2320 B		1/23/13 05:02	MSA	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		1/30/13 20:30	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		1/29/13 09:30	LMM	B
Chloride	144		mg/L	2.0	EPA 300		1/23/13 04:57	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300		1/23/13 04:57	FSC	C
Nitrate-N	14.0		mg/L	0.20	EPA 300		1/23/13 04:57	FSC	C
pH	6.97		pH_Units		SM4500B		1/23/13 05:02	MSA	C
Phenolics	ND		mg/L	0.01	SW846 9066	1/24/13 JPA	1/24/13 19:38	JPA	G
Specific Conductance	741		umhos/cm	1	EPA 120.1		1/23/13 05:02	MSA	C
Sulfate	24.0		mg/L	2.0	EPA 300		1/23/13 04:57	FSC	C
Total Dissolved Solids	368		mg/L	5	SM20-2540 C		1/23/13 17:30	CF	C
Total Organic Carbon (TOC)	2.6		mg/L	1.0	SM20-5310B		2/5/13 13:36	LJF	F
Turbidity	1.47		NTU	0.10	SM 2130B		1/23/13 05:30	MSA	C

METALS

Calcium, Total	34.0		mg/L	0.11	SW846 6010C	1/23/13 KMK	1/29/13 11:37	SRT	D1
Iron, Total	0.21		mg/L	0.067	SW846 6010C	1/23/13 KMK	1/29/13 11:37	SRT	D1
Magnesium, Total	21.4		mg/L	0.11	SW846 6010C	1/23/13 KMK	1/29/13 11:37	SRT	D1
Manganese, Total	0.12		mg/L	0.0056	SW846 6010C	1/23/13 KMK	1/29/13 11:37	SRT	D1

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ANALYTICAL RESULTS

Workorder: 1008537 1st Qtr 2013 CWMR 017S/018S

Lab ID: **1008537001**
Sample ID: **CWMP017S**

Date Collected: 1/22/2013 09:28
Date Received: 1/22/2013 15:45

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Total	7.1		mg/L	0.56	SW846 6010C	1/23/13	KMK	1/29/13 11:37	SRT	D1
Sodium, Total	73.0		mg/L	0.56	SW846 6010C	1/23/13	KMK	1/29/13 11:37	SRT	D1

FIELD PARAMETERS

Dissolved Oxygen	13.12		mg/L	0.01	Field			1/22/13 09:28	BGS	E
Flow Rate	142.10		gal/min		Field			1/22/13 09:28	BGS	E
pH, Field (SM4500B)	7.15		pH_Units		Field			1/22/13 09:28	BGS	E
Specific Conductance, Field	755		umhos/cm	1	Field			1/22/13 09:28	BGS	E
Temperature	1.98		Deg. C		Field			1/22/13 09:28	BGS	E

Sample Comments:

Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS

Workorder: 1008537 1st Qtr 2013 CWMR 017S/018S

Lab ID: **1008537002**
Sample ID: **CWMP018S**

Date Collected: 1/22/2013 10:03
Date Received: 1/22/2013 15:45

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/24/13 17:17	DRS	H
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/24/13 17:17	DRS	H
Benzene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Bromoform	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/24/13 17:17	DRS	H
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Chloroform	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/24/13 17:17	DRS	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/24/13 17:17	DRS	H
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/24/13 17:17	DRS	H
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/24/13 17:17	DRS	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Styrene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H

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ANALYTICAL RESULTS

Workorder: 1008537 1st Qtr 2013 CWMR 017S/018S

Lab ID: **1008537002**
Sample ID: **CWMP018S**

Date Collected: 1/22/2013 10:03
Date Received: 1/22/2013 15:45

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Toluene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/24/13 17:17	DRS	H
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/24/13 17:17	DRS	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/24/13 17:17	DRS	H
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/24/13 17:17	DRS	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/24/13 17:17	DRS	H
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	83.7		%	62-133	SW846 8260B		1/24/13 17:17	DRS	H
4-Bromofluorobenzene (S)	95.7		%	79-114	SW846 8260B		1/24/13 17:17	DRS	H
Dibromofluoromethane (S)	87.5		%	78-116	SW846 8260B		1/24/13 17:17	DRS	H
Toluene-d8 (S)	93.5		%	76-127	SW846 8260B		1/24/13 17:17	DRS	H

WET CHEMISTRY

Alkalinity, Bicarbonate	119		mg/L	5	SM20-2320 B		1/23/13 05:11	MSA	C
Alkalinity, Total	119		mg/L	5	SM20-2320 B		1/23/13 05:11	MSA	C
Ammonia, Free (Non-Distilled)	0.19		mg/L	0.10	SM4500D		1/30/13 20:30	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		1/29/13 09:30	LMM	B
Chloride	286		mg/L	10.0	EPA 300		1/23/13 10:05	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300		1/23/13 09:50	FSC	C
Nitrate-N	19.5		mg/L	0.20	EPA 300		1/23/13 09:50	FSC	C
pH	7.90		pH_Units		SM4500B		1/23/13 05:11	MSA	C
Phenolics	ND		mg/L	0.01	SW846 9066	1/29/13 JPA	2/1/13 11:18	KLR	G
Specific Conductance	1350		umhos/cm	1	EPA 120.1		1/23/13 05:11	MSA	C
Sulfate	34.4		mg/L	2.0	EPA 300		1/23/13 09:50	FSC	C
Total Dissolved Solids	634		mg/L	5	SM20-2540 C		1/23/13 17:30	CF	C
Total Organic Carbon (TOC)	7.1		mg/L	1.0	SM20-5310B		2/5/13 13:36	LJF	F
Turbidity	1.83		NTU	0.10	SM 2130B		1/23/13 05:30	MSA	C

METALS

Calcium, Total	60.5		mg/L	0.11	SW846 6010C	1/23/13 KMK	1/29/13 11:42	SRT	D1
Iron, Total	0.17		mg/L	0.067	SW846 6010C	1/23/13 KMK	1/29/13 11:42	SRT	D1
Magnesium, Total	38.1		mg/L	0.11	SW846 6010C	1/23/13 KMK	1/29/13 11:42	SRT	D1
Manganese, Total	0.23		mg/L	0.0056	SW846 6010C	1/23/13 KMK	1/29/13 11:42	SRT	D1

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ANALYTICAL RESULTS

Workorder: 1008537 1st Qtr 2013 CWMR 017S/018S

Lab ID: **1008537002**

Date Collected: 1/22/2013 10:03

Matrix: Ground Water

Sample ID: **CWMP018S**

Date Received: 1/22/2013 15:45

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Total	14.5		mg/L	0.56	SW846 6010C	1/23/13	KMK	1/29/13 11:42	SRT	D1
Sodium, Total	142		mg/L	0.56	SW846 6010C	1/23/13	KMK	1/29/13 11:42	SRT	D1

FIELD PARAMETERS

Dissolved Oxygen	15.61		mg/L	0.01	Field			1/22/13 10:03	BGS	E
Flow Rate	314.20		gal/min		Field			1/22/13 10:03	BGS	E
pH, Field (SM4500B)	7.33		pH_Units		Field			1/22/13 10:03	BGS	E
Specific Conductance, Field	1401		umhos/cm	1	Field			1/22/13 10:03	BGS	E
Temperature	0.14		Deg. C		Field			1/22/13 10:03	BGS	E

Sample Comments:



Anna G Milliken

Technical Manager

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Page 1 of 1
 Courier: _____
 Tracking #: _____

* 1 0 0 8 5 3 7 *

**CHAIN OF CUSTODY/
REQUEST FOR ANALYSIS**

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

Co. Name: **LCSW MVA** Phone: _____

Contact (Report): **Brooks Morris**

Address: _____

PO#: _____

Project Name#: **Morris Run** ALS Quote #: _____

TAT: _____ Date Required: _____

Approved By: _____

Email? Fax?

Ship to: 34 Dogwood Lane ■ Middletown, PA 17057 ■ 717-944-5541 ■ Fax: 717-544-1430

Receipts in violation (limited to 30 days)

Received by: _____

Signature: _____

Therm. ID: **1115**

No. of Coolers: _____

Notes: _____

Sample Description/Location <small>(as it will appear on the lab report)</small>	Sample Date	Military Time	Enter Number of Containers Per Analysis		COC Comments
			Matrix	G or C	
1 CWMP0175	12-13-13	1003	1	1	
2 CWMP0185			1	1	
3					
4					
5					
6					
7					
8					

LOGGED BY (signature): _____

REVIEWED BY (signature): _____

SAMPLED BY (Please Print): **RG Shade ALS**

Relinquished By / Company Name: **RG Shade ALS**

DATE: **12-13-13** TIME: **1545**

DATE: **12-13-13** TIME: **1545**

DATE: _____ TIME: _____

DATE: _____ TIME: _____

DATE: _____ TIME: _____

DATE: _____ TIME: _____

DATE: _____ TIME: _____

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Report ID: 1008537 - 2/8/2013

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February 18, 2013

Mr. Brooks Norris
Lancaster County Solid Waste
1299 Hbg Pike, P.O. Box 4425
Lancaster, PA 17604

Certificate of Analysis

Project Name: Creswell Facility 2012	Workorder: 1009220
Purchase Order:	Workorder ID: 1st Qtr 2013 CWMP (Q)

Dear Mr. Norris,

Enclosed are the analytical results for samples received by the laboratory on Friday, January 25, 2013.

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

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

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

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

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



Anna G Milliken
Technical Manager

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SAMPLE SUMMARY

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Discard Date: 03/04/2013

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1009220001	CWMP016W	Ground Water	1/25/13 09:54	1/25/13 17:15	Brian Shade
1009220002	CWMP010W	Ground Water	1/25/13 12:42	1/25/13 17:15	Brian Shade
1009220003	CWMP009W	Ground Water	1/25/13 13:04	1/25/13 17:15	Brian Shade
1009220004	Field Blank	Ground Water	1/25/13 14:33	1/25/13 17:15	Brian Shade
1009220005	Trip Blank	Ground Water	1/25/13 17:15	1/25/13 17:15	Brian Shade

Workorder Comments:

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.

Standard Acronyms/Flags

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

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220001**
Sample ID: **CWMP016W**

Date Collected: 1/25/2013 09:54
Date Received: 1/25/2013 17:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/26/13 08:47	GLQ	H
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/26/13 08:47	GLQ	H
Benzene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Bromoform	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/26/13 08:47	GLQ	H
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Chloroform	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/26/13 08:47	GLQ	H
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/26/13 08:47	GLQ	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Styrene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

 Lab ID: **1009220001**
 Sample ID: **CWMP016W**

 Date Collected: 1/25/2013 09:54 Matrix: Ground Water
 Date Received: 1/25/2013 17:15

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Toluene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/26/13 08:47	GLQ	H
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/26/13 08:47	GLQ	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 08:47	GLQ	H
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	94.6		%	62-133	SW846 8260B		1/26/13 08:47	GLQ	H
4-Bromofluorobenzene (S)	86.6		%	79-114	SW846 8260B		1/26/13 08:47	GLQ	H
Dibromofluoromethane (S)	85.3		%	78-116	SW846 8260B		1/26/13 08:47	GLQ	H
Toluene-d8 (S)	90.3		%	76-127	SW846 8260B		1/26/13 08:47	GLQ	H

WET CHEMISTRY

Alkalinity, Bicarbonate	8		mg/L	5	SM20-2320 B		1/26/13 09:03	MBW	C
Alkalinity, Total	8		mg/L	5	SM20-2320 B		1/26/13 09:03	MBW	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		2/7/13 14:45	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		2/4/13 10:45	LMM	B
Chloride	2.5		mg/L	2.0	EPA 300		1/26/13 11:35	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300		1/26/13 11:35	FSC	C
Nitrate-N	0.20		mg/L	0.20	EPA 300		1/26/13 11:35	FSC	C
pH	6.11		pH_Units		SM4500B		1/26/13 09:03	MBW	C
Phenolics	ND		mg/L	0.01	SW846 9066	2/4/13 JPA	2/5/13 10:09	KLR	G
Specific Conductance	52		umhos/cm	1	EPA 120.1		1/26/13 09:03	MBW	C
Sulfate	12.2		mg/L	2.0	EPA 300		1/26/13 11:35	FSC	C
Total Dissolved Solids	44		mg/L	5	SM20-2540 C		1/28/13 19:45	CF	C
Total Organic Carbon (TOC)	ND		mg/L	1.0	SM20-5310B		2/12/13 18:00	LJF	F
Turbidity	3.63		NTU	0.10	SM 2130B		1/26/13 05:40	MBW	C

METALS

Calcium, Dissolved	4.7		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 13:57	JWK	D1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	1/29/13 JWK	2/5/13 13:57	JWK	D1
Magnesium, Dissolved	1.1		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 13:57	JWK	D1
Manganese, Dissolved	0.013		mg/L	0.0050	SW846 6010C	1/29/13 JWK	2/5/13 13:57	JWK	D1

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Mexico: Monterrey

ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220001**
Sample ID: **CWMP016W**

Date Collected: 1/25/2013 09:54
Date Received: 1/25/2013 17:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	ND		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 13:57	JWK	D1
Sodium, Dissolved	3.2		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 13:57	JWK	D1

FIELD PARAMETERS

Depth to Water Level	8.46		Feet		Field			1/25/13 09:54	BGS	E
Ground Water Elevation	303.51		ft/MSL		Field			1/25/13 09:54	BGS	E
pH, Field (SM4500B)	3.31		pH_Units		Field			1/25/13 09:54	BGS	E
Sample Depth	71.00		Feet		Field			1/25/13 09:54	BGS	E
Specific Conductance, Field	58		umhos/cm	1	Field			1/25/13 09:54	BGS	E
Water Level After Purge	21.23		Feet		Field			1/25/13 09:54	BGS	E

Sample Comments:


Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220002**
Sample ID: **CWMP010W**

Date Collected: 1/25/2013 12:42
Date Received: 1/25/2013 17:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/26/13 11:38	GLQ	H
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/26/13 11:38	GLQ	H
Benzene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Bromoform	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Bromomethane	ND	1	ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/26/13 11:38	GLQ	H
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Chloroform	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/26/13 11:38	GLQ	H
Iodomethane	ND	2	ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/26/13 11:38	GLQ	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Styrene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: 1009220002 **Date Collected:** 1/25/2013 12:42 **Matrix:** Ground Water
Sample ID: CWMP010W **Date Received:** 1/25/2013 17:15

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Toluene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/26/13 11:38	GLQ	H
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/26/13 11:38	GLQ	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 11:38	GLQ	H
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	111		%	62-133	SW846 8260B		1/26/13 11:38	GLQ	H
4-Bromofluorobenzene (S)	112		%	79-114	SW846 8260B		1/26/13 11:38	GLQ	H
Dibromofluoromethane (S)	105		%	78-116	SW846 8260B		1/26/13 11:38	GLQ	H
Toluene-d8 (S)	105		%	76-127	SW846 8260B		1/26/13 11:38	GLQ	H

WET CHEMISTRY

Alkalinity, Bicarbonate	62		mg/L	5	SM20-2320 B		1/26/13 09:11	MBW	C
Alkalinity, Total	62		mg/L	5	SM20-2320 B		1/26/13 09:11	MBW	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		2/7/13 14:45	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		2/4/13 10:45	LMM	B
Chloride	141		mg/L	2.0	EPA 300		1/26/13 11:49	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300		1/26/13 11:49	FSC	C
Nitrate-N	6.1		mg/L	0.20	EPA 300		1/26/13 11:49	FSC	C
pH	6.94		pH_Units		SM4500B		1/26/13 09:11	MBW	C
Phenolics	ND	3	mg/L	0.01	SW846 9066	2/4/13 JPA	2/5/13 10:10	KLR	G
Specific Conductance	688		umhos/cm	1	EPA 120.1		1/26/13 09:11	MBW	C
Sulfate	30.3		mg/L	2.0	EPA 300		1/26/13 11:49	FSC	C
Total Dissolved Solids	366		mg/L	5	SM20-2540 C		1/28/13 19:45	CF	C
Total Organic Carbon (TOC)	3.7		mg/L	1.0	SM20-5310B		2/12/13 18:00	LJF	F
Turbidity	3.77		NTU	0.10	SM 2130B		1/26/13 05:40	MBW	C

METALS

Calcium, Dissolved	28.9		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 14:01	JWK	D1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	1/29/13 JWK	2/5/13 14:01	JWK	D1
Magnesium, Dissolved	17.1		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 14:01	JWK	D1
Manganese, Dissolved	0.24		mg/L	0.0050	SW846 6010C	1/29/13 JWK	2/5/13 14:01	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220002**
Sample ID: **CWMP010W**

Date Collected: 1/25/2013 12:42
Date Received: 1/25/2013 17:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	7.0		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 14:01	JWK	D1
Sodium, Dissolved	86.5		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 14:01	JWK	D1

FIELD PARAMETERS

Depth to Water Level	8.79		Feet		Field			1/25/13 12:42	BGS	E
Ground Water Elevation	352.11		ft/MSL		Field			1/25/13 12:42	BGS	E
pH, Field (SM4500B)	6.20		pH_Units		Field			1/25/13 12:42	BGS	E
Sample Depth	17.00		Feet		Field			1/25/13 12:42	BGS	E
Specific Conductance, Field	836		umhos/cm	1	Field			1/25/13 12:42	BGS	E
Water Level After Purge	16.17		Feet		Field			1/25/13 12:42	BGS	E

Sample Comments:

A positive residual chlorine result was detected in the preservation check for the volatile organics analysis of this sample. This may be due to the presence of residual chlorine or another oxidizing agent.



Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220003**
Sample ID: **CWMP009W**

Date Collected: 1/25/2013 13:04
Date Received: 1/25/2013 17:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	12.4		ug/L	10.0	SW846 8260B		1/26/13 12:00	GLQ	H
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/26/13 12:00	GLQ	H
Benzene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Bromoform	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Bromomethane	ND	1	ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/26/13 12:00	GLQ	H
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Chlorobenzene	26.0		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Chloroethane	27.0		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Chloroform	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,2-Dichlorobenzene	3.0		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,4-Dichlorobenzene	10		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,1-Dichloroethane	4.0		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/26/13 12:00	GLQ	H
Iodomethane	ND	2	ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/26/13 12:00	GLQ	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Styrene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220003**
Sample ID: **CWMP009W**

Date Collected: 1/25/2013 13:04 Matrix: Ground Water
Date Received: 1/25/2013 17:15

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Toluene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/26/13 12:00	GLQ	H
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/26/13 12:00	GLQ	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 12:00	GLQ	H
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	112		%	62-133	SW846 8260B		1/26/13 12:00	GLQ	H
4-Bromofluorobenzene (S)	113		%	79-114	SW846 8260B		1/26/13 12:00	GLQ	H
Dibromofluoromethane (S)	105		%	78-116	SW846 8260B		1/26/13 12:00	GLQ	H
Toluene-d8 (S)	107		%	76-127	SW846 8260B		1/26/13 12:00	GLQ	H

WET CHEMISTRY

Alkalinity, Bicarbonate	546		mg/L	5	SM20-2320 B		1/26/13 09:22	MBW	C
Alkalinity, Total	546		mg/L	5	SM20-2320 B		1/26/13 09:22	MBW	C
Ammonia, Free (Non-Distilled)	16.7		mg/L	0.10	SM4500D		2/7/13 14:45	NJA	B
Chemical Oxygen Demand (COD)	88		mg/L	15	EPA 410.4		2/4/13 11:27	LMM	B
Chloride	402		mg/L	10.0	EPA 300		1/26/13 12:33	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300		1/26/13 12:18	FSC	C
Nitrate-N	ND		mg/L	0.20	EPA 300		1/26/13 12:18	FSC	C
pH	6.51		pH_Units		SM4500B		1/26/13 09:22	MBW	C
Phenolics	ND		mg/L	0.01	SW846 9066	2/4/13 JPA	2/5/13 10:13	KLR	G
Specific Conductance	2190		umhos/cm	1	EPA 120.1		1/26/13 09:22	MBW	C
Sulfate	3.5		mg/L	2.0	EPA 300		1/26/13 12:18	FSC	C
Total Dissolved Solids	1140		mg/L	5	SM20-2540 C		1/28/13 19:45	CF	C
Total Organic Carbon (TOC)	34.3		mg/L	1.0	SM20-5310B		2/12/13 18:00	LJF	F
Turbidity	46.0		NTU	0.10	SM 2130B		1/26/13 05:40	MBW	C

METALS

Calcium, Dissolved	137		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 14:04	JWK	D1
Iron, Dissolved	32.4		mg/L	0.060	SW846 6010C	1/29/13 JWK	2/5/13 14:04	JWK	D1
Magnesium, Dissolved	66.4		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 14:04	JWK	D1
Manganese, Dissolved	11.1		mg/L	0.0050	SW846 6010C	1/29/13 JWK	2/5/13 14:04	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220003**
Sample ID: **CWMP009W**

Date Collected: 1/25/2013 13:04 Matrix: Ground Water
Date Received: 1/25/2013 17:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	32.4		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 14:04	JWK	D1
Sodium, Dissolved	144		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 14:04	JWK	D1

FIELD PARAMETERS

Depth to Water Level	9.17		Feet		Field			1/25/13 13:04	BGS	E
Ground Water Elevation	395.03		ft/MSL		Field			1/25/13 13:04	BGS	E
pH, Field (SM4500B)	6.10		pH_Units		Field			1/25/13 13:04	BGS	E
Sample Depth	16.00		Feet		Field			1/25/13 13:04	BGS	E
Specific Conductance, Field	2282		umhos/cm	1	Field			1/25/13 13:04	BGS	E
Water Level After Purge	11.18		Feet		Field			1/25/13 13:04	BGS	E

Sample Comments:


Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220004**
Sample ID: **Field Blank**

Date Collected: 1/25/2013 14:33
Date Received: 1/25/2013 17:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/26/13 05:45	GLQ	H
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/26/13 05:45	GLQ	H
Benzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Bromoform	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/26/13 05:45	GLQ	H
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Chloroform	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/26/13 05:45	GLQ	H
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/26/13 05:45	GLQ	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Styrene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220004**
Sample ID: **Field Blank**

Date Collected: 1/25/2013 14:33 Matrix: Ground Water
Date Received: 1/25/2013 17:15

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Toluene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/26/13 05:45	GLQ	H
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/26/13 05:45	GLQ	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 05:45	GLQ	H
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	91.4		%	62-133	SW846 8260B		1/26/13 05:45	GLQ	H
4-Bromofluorobenzene (S)	98.5		%	79-114	SW846 8260B		1/26/13 05:45	GLQ	H
Dibromofluoromethane (S)	88.5		%	78-116	SW846 8260B		1/26/13 05:45	GLQ	H
Toluene-d8 (S)	96.1		%	76-127	SW846 8260B		1/26/13 05:45	GLQ	H

WET CHEMISTRY

Alkalinity, Bicarbonate	ND		mg/L	5	SM20-2320 B		1/26/13 09:30	MBW	C
Alkalinity, Total	ND		mg/L	5	SM20-2320 B		1/26/13 09:30	MBW	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		2/7/13 14:45	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		2/4/13 11:27	LMM	B
Chloride	ND		mg/L	1.0	EPA 300		1/26/13 14:47	FSC	C
Fluoride	ND		mg/L	0.10	EPA 300		1/26/13 14:47	FSC	C
Nitrate-N	ND		mg/L	0.10	EPA 300		1/26/13 14:47	FSC	C
pH	6.15		pH_Units		SM4500B		1/26/13 09:30	MBW	C
Phenolics	ND		mg/L	0.01	SW846 9066	2/4/13 JPA	2/5/13 10:14	KLR	G
Specific Conductance	ND		umhos/cm	1	EPA 120.1		1/26/13 09:30	MBW	C
Sulfate	ND		mg/L	1.0	EPA 300		1/26/13 14:47	FSC	C
Total Dissolved Solids	ND		mg/L	5	SM20-2540 C		1/28/13 19:45	CF	C
Total Organic Carbon (TOC)	ND		mg/L	1.0	SM20-5310B		2/12/13 18:00	LJF	F
Turbidity	ND		NTU	0.10	SM 2130B		1/26/13 05:40	MBW	C

METALS

Calcium, Dissolved	0.18		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 14:08	JWK	D1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	1/29/13 JWK	2/5/13 14:08	JWK	D1
Magnesium, Dissolved	ND		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 14:08	JWK	D1
Manganese, Dissolved	ND		mg/L	0.0050	SW846 6010C	1/29/13 JWK	2/5/13 14:08	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220004**

Date Collected: 1/25/2013 14:33

Matrix: Ground Water

Sample ID: **Field Blank**

Date Received: 1/25/2013 17:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	ND		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 14:08	JWK	D1
Sodium, Dissolved	ND		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 14:08	JWK	D1

Sample Comments:


Anna G Milliken

Technical Manager

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220005**

Date Collected: 1/25/2013 17:15

Matrix: Ground Water

Sample ID: **Trip Blank**

Date Received: 1/25/2013 17:15

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/26/13 05:11	GLQ	B
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/26/13 05:11	GLQ	B
Benzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Bromoform	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/26/13 05:11	GLQ	B
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Chloroform	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/26/13 05:11	GLQ	B
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/26/13 05:11	GLQ	B
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Styrene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B

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ANALYTICAL RESULTS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

Lab ID: **1009220005**

Date Collected: 1/25/2013 17:15

Matrix: Ground Water

Sample ID: **Trip Blank**

Date Received: 1/25/2013 17:15

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Toluene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/26/13 05:11	GLQ	B
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/26/13 05:11	GLQ	B
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/26/13 05:11	GLQ	B
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	96.7		%	62-133	SW846 8260B		1/26/13 05:11	GLQ	B
4-Bromofluorobenzene (S)	96.2		%	79-114	SW846 8260B		1/26/13 05:11	GLQ	B
Dibromofluoromethane (S)	93		%	78-116	SW846 8260B		1/26/13 05:11	GLQ	B
Toluene-d8 (S)	99.4		%	76-127	SW846 8260B		1/26/13 05:11	GLQ	B

Sample Comments:


Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS QUALIFIERS/FLAGS

Workorder: 1009220 1st Qtr 2013 CWMP (Q)

PARAMETER QUALIFIERS/FLAGS

- [1] The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Bromomethane. The % Recovery was reported as 25 and the control limits were 45 to 148.
- [2] The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Iodomethane. The % Recovery was reported as 32.1 and the control limits were 37 to 128.
- [3] The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.

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ALS Environmental



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

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

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

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

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

Page of _____ of _____
Carrier: _____
Tracing #: _____



* 1 0 0 9 2 2 D *

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

Co. Name: **ALSWMH**
Contact (report to): **Brooks Norris**
Address: _____
Phone: _____
PO#: _____

Project Name: **CAMP USES - City** ALS Quote #: _____
 Normal-Standard TAT is 10 business days.
 Rush-Subject to ALS approval and surcharges.
 Approved By: _____
 Date Required: _____

Container Type: _____
 Container Size: _____
 Preservative: _____

ANALYSES/METHOD REQUESTED

Sample	Description/Location	Matrix	Container	Volume	Temp	Seals Intact?	Correct Sample Volume?	Correct Preservation?	Headspace/Volatiles?	COC Labels complete/accurate?	Container in good condition?
1	CAMP01GW	G	6	1	1715	Y	Y	Y	Y	Y	Y
2	CAMP02GW	G	6	1	1715	Y	Y	Y	Y	Y	Y
3	CAMP03GW	G	6	1	1715	Y	Y	Y	Y	Y	Y
4	Field Blank	G	6	1	1715	Y	Y	Y	Y	Y	Y
5	Trip Blank	G	6	1	1715	Y	Y	Y	Y	Y	Y
6											
7											
8											

LOGGED BY (Signature): _____ DATE: 1/25/15
 REVIEWED BY (Signature): _____ DATE: 1/25/15

SAMPLED BY (Please Print): **REGINA ALS**
 Relinquished By / Company Name: _____
 Date: 1/25/15 Time: 1715
 Received By / Company Name: _____
 Date: 1/25/15 Time: 1715

ALS FIELD SERVICES
 Pickup
 Labor
 Component Sampling
 Rental Equipment
 Other

Notes: _____

Circle appropriate Y or N.

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* G=Grab, C=Composite
**Matrix: A=Air, DW=Drinking Water, GW=Groundwater, O=Oil, CL=Other Liquid, SL=Sludge, SO=Soil, WP=Wipe, WW=Wastewater
***Container Type: AG-Amber Glass, CG-Clear Glass, PL-Plastic. Container Size: 300ml, 600ml, 1L, 500ml, etc. Preservative: HCl, HNO3, NaOH, etc.

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February 13, 2013

Mr. Brooks Norris
Lancaster County Solid Waste
1299 Hbg Pike, P.O. Box 4425
Lancaster, PA 17604

Certificate of Analysis

Project Name: Creswell Facility 2012	Workorder: 1008967
Purchase Order:	Workorder ID: 1st Qtr 2013 CWMP (Q)

Dear Mr. Norris,

Enclosed are the analytical results for samples received by the laboratory on Thursday, January 24, 2013.

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

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

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

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



Anna G Milliken
Technical Manager

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SAMPLE SUMMARY

Workorder: 1008967 1st Qtr 2013 CWMP (Q)

Discard Date: 02/27/2013

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1008967001	CWMP005W	Ground Water	1/24/13 10:36	1/24/13 16:36	Customer

Workorder Comments:

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.

Standard Acronyms/Flags

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

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ANALYTICAL RESULTS

Workorder: 1008967 1st Qtr 2013 CWMP (Q)

Lab ID: **1008967001**
Sample ID: **CWMP005W**

Date Collected: 1/24/2013 10:36
Date Received: 1/24/2013 16:36

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/25/13 15:43	DRS	H
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/25/13 15:43	DRS	H
Benzene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Bromoform	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Bromomethane	ND	1	ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/25/13 15:43	DRS	H
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Chloroform	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/25/13 15:43	DRS	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/25/13 15:43	DRS	H
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/25/13 15:43	DRS	H
Iodomethane	ND	2	ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/25/13 15:43	DRS	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Styrene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H

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ANALYTICAL RESULTS

Workorder: 1008967 1st Qtr 2013 CWMP (Q)

Lab ID: **1008967001**
Sample ID: **CWMP005W**

Date Collected: 1/24/2013 10:36
Date Received: 1/24/2013 16:36

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Toluene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/25/13 15:43	DRS	H
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/25/13 15:43	DRS	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/25/13 15:43	DRS	H
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/25/13 15:43	DRS	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/25/13 15:43	DRS	H
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	110		%	62-133	SW846 8260B		1/25/13 15:43	DRS	H
4-Bromofluorobenzene (S)	111		%	79-114	SW846 8260B		1/25/13 15:43	DRS	H
Dibromofluoromethane (S)	102		%	78-116	SW846 8260B		1/25/13 15:43	DRS	H
Toluene-d8 (S)	108		%	76-127	SW846 8260B		1/25/13 15:43	DRS	H

WET CHEMISTRY

Alkalinity, Bicarbonate	13		mg/L	5	SM20-2320 B		1/25/13 07:46	MSA	C
Alkalinity, Total	13		mg/L	5	SM20-2320 B		1/25/13 07:46	MSA	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		2/7/13 14:15	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		2/4/13 10:45	LMM	B
Chloride	73.0		mg/L	2.0	EPA 300		1/25/13 12:06	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300		1/25/13 12:06	FSC	C
Nitrate-N	13.6		mg/L	0.20	EPA 300		1/25/13 12:06	FSC	C
pH	5.97		pH_Units		SM4500B		1/25/13 07:46	MSA	C
Phenolics	ND		mg/L	0.01	SW846 9066	2/4/13 JPA	2/5/13 09:54	KLR	G
Specific Conductance	356		umhos/cm	1	EPA 120.1		1/25/13 07:46	MSA	C
Sulfate	2.0		mg/L	2.0	EPA 300		1/25/13 12:06	FSC	C
Total Dissolved Solids	292		mg/L	5	SM20-2540 C		1/27/13 18:30	CF	C
Total Organic Carbon (TOC)	ND		mg/L	1.0	SM20-5310B		2/11/13 12:26	LJF	F
Turbidity	1.84		NTU	0.10	SM 2130B		1/25/13 04:50	MSA	C

METALS

Calcium, Dissolved	21.7		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 13:54	JWK	D1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	1/29/13 JWK	2/5/13 13:54	JWK	D1
Magnesium, Dissolved	11.7		mg/L	0.10	SW846 6010C	1/29/13 JWK	2/5/13 13:54	JWK	D1
Manganese, Dissolved	0.082		mg/L	0.0050	SW846 6010C	1/29/13 JWK	2/5/13 13:54	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1008967 1st Qtr 2013 CWMP (Q)

Lab ID: **1008967001**
Sample ID: **CWMP005W**

Date Collected: 1/24/2013 10:36
Date Received: 1/24/2013 16:36

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	2.5		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 13:54	JWK	D1
Sodium, Dissolved	30.8		mg/L	0.50	SW846 6010C	1/29/13	JWK	2/5/13 13:54	JWK	D1

FIELD PARAMETERS

Depth to Water Level	41.63		Feet		Field			1/24/13 10:36	BGS	E
Ground Water Elevation	471.80		ft/MSL		Field			1/24/13 10:36	BGS	E
pH, Field (SM4500B)	4.65		pH_Units		Field			1/24/13 10:36	BGS	E
Sample Depth	130.00		Feet		Field			1/24/13 10:36	BGS	E
Specific Conductance, Field	401		umhos/cm	1	Field			1/24/13 10:36	BGS	E
Water Level After Purge	42.92		Feet		Field			1/24/13 10:36	BGS	E

Sample Comments:


Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS QUALIFIERS/FLAGS

Workorder: 1008967 1st Qtr 2013 CWMP (Q)

PARAMETER QUALIFIERS/FLAGS

- [1] The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Bromomethane. The % Recovery was reported as 36.3 and the control limits were 45 to 148.
- [2] The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Iodomethane. The % Recovery was reported as 33.4 and the control limits were 37 to 128.

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February 13, 2013

Mr. Brooks Norris
Lancaster County Solid Waste
1299 Hbg Pike, P.O. Box 4425
Lancaster, PA 17604

Certificate of Analysis

Project Name: Creswell Facility 2012	Workorder: 1008737
Purchase Order:	Workorder ID: 1st Qtr 2013 CWMP (Q)

Dear Mr. Norris,

Enclosed are the analytical results for samples received by the laboratory on Wednesday, January 23, 2013.

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

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

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

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



Anna G Milliken
Technical Manager

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SAMPLE SUMMARY

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Discard Date: 02/27/2013

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1008737001	CWMP012W	Ground Water	1/23/13 10:14	1/23/13 14:15	Brian Shade
1008737002	CWMP002W	Ground Water	1/23/13 11:22	1/23/13 14:15	Brian Shade
1008737003	CWMP004W	Ground Water	1/23/13 12:10	1/23/13 14:15	Brian Shade
1008737004	CWMP003W	Ground Water	1/23/13 12:23	1/23/13 14:15	Brian Shade

Workorder Comments:

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.

Standard Acronyms/Flags

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

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Lab ID: **1008737001**
Sample ID: **CWMP012W**

Date Collected: 1/23/2013 10:14
Date Received: 1/23/2013 14:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/24/13 18:25	DRS	
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/24/13 18:25	DRS	
Benzene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Bromoform	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/24/13 18:25	DRS	
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Chloroform	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/24/13 18:25	DRS	
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/24/13 18:25	DRS	
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
1,1-Dichloroethane	2.8		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/24/13 18:25	DRS	
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/24/13 18:25	DRS	
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
Styrene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

 Lab ID: **1008737001**
 Sample ID: **CWMP012W**

 Date Collected: 1/23/2013 10:14
 Date Received: 1/23/2013 14:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	I
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	I
Toluene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	I
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/24/13 18:25	DRS	I
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/24/13 18:25	DRS	I
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	I
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	I
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	I
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	I
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/24/13 18:25	DRS	I
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/24/13 18:25	DRS	I
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/24/13 18:25	DRS	I
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	87.1		%	62-133	SW846 8260B		1/24/13 18:25	DRS	I
4-Bromofluorobenzene (S)	97.9		%	79-114	SW846 8260B		1/24/13 18:25	DRS	I
Dibromofluoromethane (S)	86.2		%	78-116	SW846 8260B		1/24/13 18:25	DRS	I
Toluene-d8 (S)	94.4		%	76-127	SW846 8260B		1/24/13 18:25	DRS	I

WET CHEMISTRY

Alkalinity, Bicarbonate	71		mg/L	5	SM20-2320 B		1/24/13 07:32	MSA	C
Alkalinity, Total	71		mg/L	5	SM20-2320 B		1/24/13 07:32	MSA	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		2/7/13 14:15	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		1/29/13 09:30	LMM	B
Chloride	33.9		mg/L	2.0	EPA 300		1/24/13 12:16	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300		1/24/13 12:16	FSC	C
Nitrate-N	11.4		mg/L	0.20	EPA 300		1/24/13 12:16	FSC	C
pH	6.31		pH_Units		SM4500B		1/24/13 07:32	MSA	C
Phenolics	ND		mg/L	0.01	SW846 9066	2/4/13 JPA	2/5/13 09:53	KLR	H
Specific Conductance	318		umhos/cm	1	EPA 120.1		1/24/13 07:32	MSA	C
Sulfate	4.8		mg/L	2.0	EPA 300		1/24/13 12:16	FSC	C
Total Dissolved Solids	230		mg/L	5	SM20-2540 C		1/24/13 17:45	CF	C
Total Organic Carbon (TOC)	ND		mg/L	1.0	SM20-5310B		2/5/13 13:36	PAG	G
Turbidity	251		NTU	0.10	SM 2130B		1/24/13 04:00	MSA	C

METALS

Calcium, Dissolved	35.1		mg/L	0.10	SW846 6010C	1/29/13 JWK	1/29/13 12:34	JWK	D1
Iron, Dissolved	0.21		mg/L	0.060	SW846 6010C	1/29/13 JWK	1/29/13 12:34	JWK	D1
Magnesium, Dissolved	9.6		mg/L	0.10	SW846 6010C	1/29/13 JWK	1/29/13 12:34	JWK	D1
Manganese, Dissolved	0.74	1	mg/L	0.0050	SW846 6010C	1/29/13 JWK	1/29/13 12:34	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Lab ID: **1008737001**
Sample ID: **CWMP012W**

Date Collected: 1/23/2013 10:14 Matrix: Ground Water
Date Received: 1/23/2013 14:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	1.5		mg/L	0.50	SW846 6010C	1/29/13	JWK	1/29/13 12:34	JWK	D1
Sodium, Dissolved	12.5		mg/L	0.50	SW846 6010C	1/29/13	JWK	1/29/13 12:34	JWK	D1

FIELD PARAMETERS

Depth to Water Level	48.12		Feet		Field			1/23/13 10:14	BGS	F
pH, Field (SM4500B)	5.50		pH_Units		Field			1/23/13 10:14	BGS	F
Specific Conductance, Field	366		umhos/cm	1	Field			1/23/13 10:14	BGS	F
Temperature	8.53		Deg. C		Field			1/23/13 10:14	BGS	F

Sample Comments:


Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Lab ID: **1008737002**
Sample ID: **CWMP002W**

Date Collected: 1/23/2013 11:22
Date Received: 1/23/2013 14:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/25/13 00:27	DD	I
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/25/13 00:27	DD	I
Benzene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Bromoform	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/25/13 00:27	DD	I
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Chlorobenzene	1.5		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Chloroethane	68.3	2	ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Chloroform	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/25/13 00:27	DD	I
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/25/13 00:27	DD	I
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,4-Dichlorobenzene	2.1		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,1-Dichloroethane	42.6		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,1-Dichloroethene	1.2		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/25/13 00:27	DD	I
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/25/13 00:27	DD	I
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Styrene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

 Lab ID: **1008737002**
 Sample ID: **CWMP002W**

 Date Collected: 1/23/2013 11:22 Matrix: Ground Water
 Date Received: 1/23/2013 14:15

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Toluene	1.5		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/25/13 00:27	DD	I
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/25/13 00:27	DD	I
1,1,1-Trichloroethane	5.3		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/25/13 00:27	DD	I
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/25/13 00:27	DD	I
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/25/13 00:27	DD	I
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	88.5		%	62-133	SW846 8260B		1/25/13 00:27	DD	I
4-Bromofluorobenzene (S)	96.2		%	79-114	SW846 8260B		1/25/13 00:27	DD	I
Dibromofluoromethane (S)	86.9		%	78-116	SW846 8260B		1/25/13 00:27	DD	I
Toluene-d8 (S)	95.9		%	76-127	SW846 8260B		1/25/13 00:27	DD	I

WET CHEMISTRY

Alkalinity, Bicarbonate	77		mg/L	5	SM20-2320 B		1/24/13 07:39	MSA	C
Alkalinity, Total	77		mg/L	5	SM20-2320 B		1/24/13 07:39	MSA	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		2/7/13 14:15	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		1/29/13 09:30	LMM	B
Chloride	127		mg/L	2.0	EPA 300		1/24/13 12:30	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300		1/24/13 12:30	FSC	C
Nitrate-N	3.4		mg/L	0.20	EPA 300		1/24/13 12:30	FSC	C
pH	6.14		pH_Units		SM4500B		1/24/13 07:39	MSA	C
Phenolics	ND		mg/L	0.01	SW846 9066	1/24/13 JPA	1/24/13 19:31	JPA	H
Specific Conductance	627		umhos/cm	1	EPA 120.1		1/24/13 07:39	MSA	C
Sulfate	23.1		mg/L	2.0	EPA 300		1/24/13 12:30	FSC	C
Total Dissolved Solids	358		mg/L	5	SM20-2540 C		1/24/13 17:45	CF	C
Total Organic Carbon (TOC)	7.5		mg/L	1.0	SM20-5310B		1/24/13 14:00	LJF	G
Turbidity	0.10		NTU	0.10	SM 2130B		1/24/13 04:00	MSA	C

METALS

Calcium, Dissolved	58.4		mg/L	0.10	SW846 6010C	1/25/13 JWK	1/25/13 12:56	JWK	D1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	1/25/13 JWK	1/25/13 12:56	JWK	D1
Magnesium, Dissolved	17.5		mg/L	0.10	SW846 6010C	1/25/13 JWK	1/25/13 12:56	JWK	D1
Manganese, Dissolved	0.90		mg/L	0.0050	SW846 6010C	1/25/13 JWK	1/25/13 12:56	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Lab ID: **1008737002**
Sample ID: **CWMP002W**

Date Collected: 1/23/2013 11:22
Date Received: 1/23/2013 14:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	2.9		mg/L	0.50	SW846 6010C	1/25/13	JWK	1/25/13 12:56	JWK	D1
Sodium, Dissolved	24.8		mg/L	0.50	SW846 6010C	1/25/13	JWK	1/25/13 12:56	JWK	D1

FIELD PARAMETERS

Depth to Water Level	63.71		Feet		Field			1/23/13 11:22	BGS	F
Ground Water Elevation	462.10		ft/MSL		Field			1/23/13 11:22	BGS	F
pH, Field (SM4500B)	5.92		pH_Units		Field			1/23/13 11:22	BGS	F
Sample Depth	85.00		Feet		Field			1/23/13 11:22	BGS	F
Specific Conductance, Field	630		umhos/cm	1	Field			1/23/13 11:22	BGS	F
Water Level Before Purge	63.71		Feet		Field			1/23/13 11:22	BGS	F

Sample Comments:


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Technical Manager

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Lab ID: **1008737003**
Sample ID: **CWMP004W**

Date Collected: 1/23/2013 12:10
Date Received: 1/23/2013 14:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/25/13 01:01	DD	I
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/25/13 01:01	DD	I
Benzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Bromoform	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/25/13 01:01	DD	I
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Chloroform	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/25/13 01:01	DD	I
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/25/13 01:01	DD	I
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
1,1-Dichloroethane	1.8		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/25/13 01:01	DD	I
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/25/13 01:01	DD	I
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
Styrene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:01	DD	I

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

 Lab ID: **1008737003**
 Sample ID: **CWMP004W**

 Date Collected: 1/23/2013 12:10
 Date Received: 1/23/2013 14:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			1/25/13 01:01	DD	I
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			1/25/13 01:01	DD	I
Toluene	ND		ug/L	1.0	SW846 8260B			1/25/13 01:01	DD	I
Total Xylenes	ND		ug/L	3.0	SW846 8260B			1/25/13 01:01	DD	I
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B			1/25/13 01:01	DD	I
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			1/25/13 01:01	DD	I
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			1/25/13 01:01	DD	I
Trichloroethene	ND		ug/L	1.0	SW846 8260B			1/25/13 01:01	DD	I
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			1/25/13 01:01	DD	I
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			1/25/13 01:01	DD	I
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			1/25/13 01:01	DD	I
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			1/25/13 01:01	DD	I
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	92.5		%	62-133	SW846 8260B			1/25/13 01:01	DD	I
4-Bromofluorobenzene (S)	99		%	79-114	SW846 8260B			1/25/13 01:01	DD	I
Dibromofluoromethane (S)	91.1		%	78-116	SW846 8260B			1/25/13 01:01	DD	I
Toluene-d8 (S)	93.3		%	76-127	SW846 8260B			1/25/13 01:01	DD	I

WET CHEMISTRY

Alkalinity, Bicarbonate	24		mg/L	5	SM20-2320 B			1/24/13 07:46	MSA	C
Alkalinity, Total	24		mg/L	5	SM20-2320 B			1/24/13 07:46	MSA	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D			2/7/13 14:15	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			1/29/13 09:30	LMM	B
Chloride	37.8		mg/L	2.0	EPA 300			1/24/13 12:44	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300			1/24/13 12:44	FSC	C
Nitrate-N	8.8		mg/L	0.20	EPA 300			1/24/13 12:44	FSC	C
pH	6.44		pH_Units		SM4500B			1/24/13 07:46	MSA	C
Phenolics	ND		mg/L	0.01	SW846 9066	1/26/13	SYB	1/27/13 20:05	JPA	H
Specific Conductance	233		umhos/cm	1	EPA 120.1			1/24/13 07:46	MSA	C
Sulfate	5.0		mg/L	2.0	EPA 300			1/24/13 12:44	FSC	C
Total Dissolved Solids	180		mg/L	5	SM20-2540 C			1/24/13 17:45	CF	C
Total Organic Carbon (TOC)	ND		mg/L	1.0	SM20-5310B			2/5/13 13:36	PAG	G
Turbidity	0.35		NTU	0.10	SM 2130B			1/24/13 04:00	MSA	C

METALS

Calcium, Dissolved	20.8		mg/L	0.10	SW846 6010C	1/29/13	JWK	1/29/13 12:48	JWK	D1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	1/29/13	JWK	1/29/13 12:48	JWK	D1
Magnesium, Dissolved	6.4		mg/L	0.10	SW846 6010C	1/29/13	JWK	1/29/13 12:48	JWK	D1
Manganese, Dissolved	0.0058		mg/L	0.0050	SW846 6010C	1/29/13	JWK	1/29/13 12:48	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Lab ID: **1008737003**
Sample ID: **CWMP004W**

Date Collected: 1/23/2013 12:10 Matrix: Ground Water
Date Received: 1/23/2013 14:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	1.3		mg/L	0.50	SW846 6010C	1/29/13	JWK	1/29/13 12:48	JWK	D1
Sodium, Dissolved	13.3		mg/L	0.50	SW846 6010C	1/29/13	JWK	1/29/13 12:48	JWK	D1

FIELD PARAMETERS

Depth to Water Level	73.43		Feet		Field			1/23/13 12:10	BGS	F
Ground Water Elevation	456.10		ft/MSL		Field			1/23/13 12:10	BGS	F
pH, Field (SM4500B)	5.95		pH_Units		Field			1/23/13 12:10	BGS	F
Sample Depth	80.00		Feet		Field			1/23/13 12:10	BGS	F
Specific Conductance, Field	261		umhos/cm	1	Field			1/23/13 12:10	BGS	F
Water Level Before Purge	73.43		Feet		Field			1/23/13 12:10	BGS	F

Sample Comments:


Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Lab ID: **1008737004**
Sample ID: **CWMP003W**

Date Collected: 1/23/2013 12:23
Date Received: 1/23/2013 14:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/25/13 01:34	DD	I
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/25/13 01:34	DD	I
Benzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Bromoform	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/25/13 01:34	DD	I
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Chloroform	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/25/13 01:34	DD	I
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/25/13 01:34	DD	I
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,1-Dichloroethane	6.3		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/25/13 01:34	DD	I
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/25/13 01:34	DD	I
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Styrene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Lab ID: **1008737004**
Sample ID: **CWMP003W**

Date Collected: 1/23/2013 12:23
Date Received: 1/23/2013 14:15

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Toluene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/25/13 01:34	DD	I
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/25/13 01:34	DD	I
1,1,1-Trichloroethane	1.6		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/25/13 01:34	DD	I
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/25/13 01:34	DD	I
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/25/13 01:34	DD	I
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	91.7		%	62-133	SW846 8260B		1/25/13 01:34	DD	I
4-Bromofluorobenzene (S)	102		%	79-114	SW846 8260B		1/25/13 01:34	DD	I
Dibromofluoromethane (S)	89.6		%	78-116	SW846 8260B		1/25/13 01:34	DD	I
Toluene-d8 (S)	96.2		%	76-127	SW846 8260B		1/25/13 01:34	DD	I

WET CHEMISTRY

Alkalinity, Bicarbonate	17		mg/L	5	SM20-2320 B		1/24/13 07:53	MSA	C
Alkalinity, Total	17		mg/L	5	SM20-2320 B		1/24/13 07:53	MSA	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		2/7/13 14:15	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		1/29/13 09:30	LMM	B
Chloride	61.1		mg/L	2.0	EPA 300		1/24/13 11:18	FSC	C
Fluoride	ND		mg/L	0.20	EPA 300		1/24/13 11:18	FSC	C
Nitrate-N	10.7		mg/L	0.20	EPA 300		1/24/13 11:18	FSC	C
pH	6.26		pH_Units		SM4500B		1/24/13 07:53	MSA	C
Phenolics	ND		mg/L	0.01	SW846 9066	1/29/13 JPA	2/1/13 11:32	KLR	H
Specific Conductance	316		umhos/cm	1	EPA 120.1		1/24/13 07:53	MSA	C
Sulfate	4.6		mg/L	2.0	EPA 300		1/24/13 11:18	FSC	C
Total Dissolved Solids	219		mg/L	5	SM20-2540 C		1/24/13 17:45	CF	C
Total Organic Carbon (TOC)	ND		mg/L	1.0	SM20-5310B		2/5/13 13:36	PAG	G
Turbidity	ND		NTU	0.10	SM 2130B		1/24/13 04:00	MSA	C

METALS

Calcium, Dissolved	26.6		mg/L	0.10	SW846 6010C	1/29/13 JWK	1/29/13 13:00	JWK	D1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	1/29/13 JWK	1/29/13 13:00	JWK	D1
Magnesium, Dissolved	9.4		mg/L	0.10	SW846 6010C	1/29/13 JWK	1/29/13 13:00	JWK	D1
Manganese, Dissolved	0.0065		mg/L	0.0050	SW846 6010C	1/29/13 JWK	1/29/13 13:00	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

Lab ID: **1008737004**
Sample ID: **CWMP003W**

Date Collected: 1/23/2013 12:23 Matrix: Ground Water
Date Received: 1/23/2013 14:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	1.7		mg/L	0.50	SW846 6010C	1/29/13	JWK	1/29/13 13:00	JWK	D1
Sodium, Dissolved	16.2		mg/L	0.50	SW846 6010C	1/29/13	JWK	1/29/13 13:00	JWK	D1

FIELD PARAMETERS

Depth to Water Level	85.87		Feet		Field			1/23/13 12:23	BGS	F
Ground Water Elevation	438.34		ft/MSL		Field			1/23/13 12:23	BGS	F
pH, Field (SM4500B)	5.68		pH_Units		Field			1/23/13 12:23	BGS	F
Sample Depth	100.00		Feet		Field			1/23/13 12:23	BGS	F
Specific Conductance, Field	351		umhos/cm	1	Field			1/23/13 12:23	BGS	F
Water Level Before Purge	85.87		Feet		Field			1/23/13 12:23	BGS	F

Sample Comments:

Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS QUALIFIERS/FLAGS

Workorder: 1008737 1st Qtr 2013 CWMP (Q)

PARAMETER QUALIFIERS/FLAGS

- [1] The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. The sample was post-digestion spiked, and this matrix spike was within acceptable recovery limits.
- [2] The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte Chloroethane. The % Recovery was reported as -1.7 and the control limits were 51 to 142.

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ALS Environmental



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



Page 1 of 1
Courier:
Tracking #: *1008737*

CHAIN OF CUSTODY/
REQUEST FOR ANALYSIS

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

Receipt Information
Permit No.
Cooler Temp.
Therm. ID
No. of Coolers
Notes

Correct containers?
Correct sample volumes?
Correct preservation?
Headspace/Volatiles?
Container in good condition?

ALS FIELD SERVICES
Pick-up
Labor
Composites Sampling
Rental Equipment
Other

ANALYSES/METHOD REQUESTED
8260-Form 10
TOC
NH4-N-COD
Co-Re-Mg-Mn-K-Na
Pb-Cd-Hg
Pb-Cd-Hg-Cr-VI-As

Table with columns: Enter Number of Containers Per Analysis, Matrix, G or C

Enter Number of Containers Per Analysis
Matrix: G, C
G or C

LOGGED BY (Signature):
REVIEWED BY (Signature):
Date: 1-23-13 14:15

Requisitioned By / Company Name:
Date: 1-23-13 14:15

EDDs
DOB Criteria Required?

DOB Criteria Required?

DOB Criteria Required?

DOB Criteria Required?

DOB Criteria Required?

Co. Name: LCGWMA
Contact (print): Brooks Morris
Address:
Phone:
PO#:

Project Name#: CUMP City Sampling
ALS Quote #:
Date Required:
Approved By:

Sample Description/Location
COC Comments

Sample Date: 1-23-13 10:14
Military Time: 1122, 1210, 1220

LOGGED BY (Signature):
REVIEWED BY (Signature):
Date: 1-23-13 14:15

Requisitioned By / Company Name:
Date: 1-23-13 14:15

EDDs
DOB Criteria Required?

EDDs
DOB Criteria Required?

EDDs
DOB Criteria Required?

EDDs
DOB Criteria Required?

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February 8, 2013

Mr. Brooks Norris
Lancaster County Solid Waste
1299 Hbg Pike, P.O. Box 4425
Lancaster, PA 17604

Certificate of Analysis

Project Name: Creswell Facility 2012	Workorder: 1008374
Purchase Order:	Workorder ID: 1st Qtr 2013 CWMP (Q)

Dear Mr. Norris,

Enclosed are the analytical results for samples received by the laboratory on Monday, January 21, 2013.

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

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

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

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



Anna G Milliken
Technical Manager

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SAMPLE SUMMARY

Workorder: 1008374 1st Qtr 2013 CWMP (Q)

Discard Date: 02/22/2013

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
1008374001	CWMP007W	Ground Water	1/21/13 09:31	1/21/13 16:35	Brian Shade
1008374002	CWMP001W	Ground Water	1/21/13 10:46	1/21/13 16:35	Brian Shade

Workorder Comments:

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.

Standard Acronyms/Flags

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

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ANALYTICAL RESULTS

Workorder: 1008374 1st Qtr 2013 CWMP (Q)

Lab ID: **1008374001**
Sample ID: **CWMP007W**

Date Collected: 1/21/2013 09:31
Date Received: 1/21/2013 16:35

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/23/13 12:27	GLQ	H
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/23/13 12:27	GLQ	H
Benzene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Bromoform	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/23/13 12:27	GLQ	H
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Chloroform	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/23/13 12:27	GLQ	H
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/23/13 12:27	GLQ	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Styrene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H

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ANALYTICAL RESULTS

Workorder: 1008374 1st Qtr 2013 CWMP (Q)

Lab ID: **1008374001**
Sample ID: **CWMP007W**

Date Collected: 1/21/2013 09:31
Date Received: 1/21/2013 16:35

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Toluene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/23/13 12:27	GLQ	H
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/23/13 12:27	GLQ	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/23/13 12:27	GLQ	H
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	112		%	62-133	SW846 8260B		1/23/13 12:27	GLQ	H
4-Bromofluorobenzene (S)	101		%	79-114	SW846 8260B		1/23/13 12:27	GLQ	H
Dibromofluoromethane (S)	105		%	78-116	SW846 8260B		1/23/13 12:27	GLQ	H
Toluene-d8 (S)	124		%	76-127	SW846 8260B		1/23/13 12:27	GLQ	H

WET CHEMISTRY

Alkalinity, Bicarbonate	10		mg/L	5	SM20-2320 B		1/22/13 05:37	MSA	C
Alkalinity, Total	10		mg/L	5	SM20-2320 B		1/22/13 05:37	MSA	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		1/30/13 20:30	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		1/29/13 09:00	LMM	B
Chloride	64.3		mg/L	2.0	EPA 300		1/22/13 08:07	MBW	C
Fluoride	ND		mg/L	0.20	EPA 300		1/22/13 08:07	MBW	C
Nitrate-N	11.4		mg/L	0.20	EPA 300		1/22/13 08:07	MBW	C
pH	6.21		pH_Units		SM4500B		1/22/13 05:37	MSA	C
Phenolics	ND		mg/L	0.01	SW846 9066	1/23/13 JPA	1/24/13 17:40	JPA	G
Specific Conductance	337		umhos/cm	1	EPA 120.1		1/22/13 05:37	MSA	C
Sulfate	13.0		mg/L	2.0	EPA 300		1/22/13 08:07	MBW	C
Total Dissolved Solids	208		mg/L	5	SM20-2540 C		1/21/13 20:15	CF	C
Total Organic Carbon (TOC)	ND		mg/L	1.0	SM20-5310B		2/5/13 13:36	LJF	F
Turbidity	0.14		NTU	0.10	SM 2130B		1/22/13 04:40	MSA	C

METALS

Calcium, Dissolved	18.2		mg/L	0.10	SW846 6010C	1/25/13 JWK	1/25/13 14:42	JWK	D1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	1/25/13 JWK	1/25/13 14:42	JWK	D1
Magnesium, Dissolved	8.8		mg/L	0.10	SW846 6010C	1/25/13 JWK	1/25/13 14:42	JWK	D1
Manganese, Dissolved	0.0057		mg/L	0.0050	SW846 6010C	1/25/13 JWK	1/25/13 14:42	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1008374 1st Qtr 2013 CWMP (Q)

Lab ID: **1008374001**
Sample ID: **CWMP007W**

Date Collected: 1/21/2013 09:31 Matrix: Ground Water
Date Received: 1/21/2013 16:35

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	2.2		mg/L	0.50	SW846 6010C	1/25/13	JWK	1/25/13 14:42	JWK	D1
Sodium, Dissolved	31.8		mg/L	0.50	SW846 6010C	1/25/13	JWK	1/25/13 14:42	JWK	D1

FIELD PARAMETERS

Depth to Water Level	6.31		Feet		Field			1/21/13 09:31	BGS	E
Ground Water Elevation	447.09		ft/MSL		Field			1/21/13 09:31	BGS	E
pH, Field (SM4500B)	4.77		pH_Units		Field			1/21/13 09:31	BGS	E
Sample Depth	33.00		Feet		Field			1/21/13 09:31	BGS	E
Specific Conductance, Field	376		umhos/cm	1	Field			1/21/13 09:31	BGS	E
Water Level After Purge	7.14		Feet		Field			1/21/13 09:31	BGS	E

Sample Comments:

Anna G Milliken
Technical Manager

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ANALYTICAL RESULTS

Workorder: 1008374 1st Qtr 2013 CWMP (Q)

Lab ID: **1008374002**
Sample ID: **CWMP001W**

Date Collected: 1/21/2013 10:46
Date Received: 1/21/2013 16:35

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		1/23/13 13:00	GLQ	H
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		1/23/13 13:00	GLQ	H
Benzene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Bromoform	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Bromomethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
2-Butanone	ND		ug/L	10.0	SW846 8260B		1/23/13 13:00	GLQ	H
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Chloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Chloroform	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Chloromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Dibromomethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
2-Hexanone	ND		ug/L	5.0	SW846 8260B		1/23/13 13:00	GLQ	H
Iodomethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		1/23/13 13:00	GLQ	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Styrene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H

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United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York
Mexico: Monterrey

ANALYTICAL RESULTS

Workorder: 1008374 1st Qtr 2013 CWMP (Q)

Lab ID: **1008374002**
Sample ID: **CWMP001W**

Date Collected: 1/21/2013 10:46
Date Received: 1/21/2013 16:35

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Toluene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B		1/23/13 13:00	GLQ	H
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B		1/23/13 13:00	GLQ	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B		1/23/13 13:00	GLQ	H
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	108		%	62-133	SW846 8260B		1/23/13 13:00	GLQ	H
4-Bromofluorobenzene (S)	96.9		%	79-114	SW846 8260B		1/23/13 13:00	GLQ	H
Dibromofluoromethane (S)	101		%	78-116	SW846 8260B		1/23/13 13:00	GLQ	H
Toluene-d8 (S)	120		%	76-127	SW846 8260B		1/23/13 13:00	GLQ	H

WET CHEMISTRY

Alkalinity, Bicarbonate	ND		mg/L	5	SM20-2320 B		1/22/13 05:45	MSA	C
Alkalinity, Total	ND		mg/L	5	SM20-2320 B		1/22/13 05:45	MSA	C
Ammonia, Free (Non-Distilled)	ND		mg/L	0.10	SM4500D		1/30/13 20:30	NJA	B
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4		1/29/13 09:00	LMM	B
Chloride	26.8		mg/L	1.0	EPA 300		1/22/13 08:23	MBW	C
Fluoride	ND		mg/L	0.10	EPA 300		1/22/13 08:23	MBW	C
Nitrate-N	22.6		mg/L	0.50	EPA 300		1/22/13 08:39	MBW	C
pH	5.92		pH_Units		SM4500B		1/22/13 05:45	MSA	C
Phenolics	ND		mg/L	0.01	SW846 9066	1/23/13 JPA	1/24/13 17:41	JPA	G
Specific Conductance	267		umhos/cm	1	EPA 120.1		1/22/13 05:45	MSA	C
Sulfate	1.4		mg/L	1.0	EPA 300		1/22/13 08:23	MBW	C
Total Dissolved Solids	189		mg/L	5	SM20-2540 C		1/21/13 20:15	CF	C
Total Organic Carbon (TOC)	ND		mg/L	1.0	SM20-5310B		2/5/13 13:36	LJF	F
Turbidity	129		NTU	0.10	SM 2130B		1/22/13 04:40	MSA	C

METALS

Calcium, Dissolved	16.2		mg/L	0.10	SW846 6010C	1/25/13 JWK	1/25/13 14:46	JWK	D1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	1/25/13 JWK	1/25/13 14:46	JWK	D1
Magnesium, Dissolved	11.1		mg/L	0.10	SW846 6010C	1/25/13 JWK	1/25/13 14:46	JWK	D1
Manganese, Dissolved	0.054		mg/L	0.0050	SW846 6010C	1/25/13 JWK	1/25/13 14:46	JWK	D1

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ANALYTICAL RESULTS

Workorder: 1008374 1st Qtr 2013 CWMP (Q)

Lab ID: **1008374002**
Sample ID: **CWMP001W**

Date Collected: 1/21/2013 10:46
Date Received: 1/21/2013 16:35

Matrix: Ground Water

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Potassium, Dissolved	2.3		mg/L	0.50	SW846 6010C	1/25/13	JWK	1/25/13 14:46	JWK	D1
Sodium, Dissolved	13.6		mg/L	0.50	SW846 6010C	1/25/13	JWK	1/25/13 14:46	JWK	D1

FIELD PARAMETERS

Depth to Water Level	29.54		Feet		Field			1/21/13 10:46	BGS	E
Ground Water Elevation	485.59		ft/MSL		Field			1/21/13 10:46	BGS	E
pH, Field (SM4500B)	4.82		pH_Units		Field			1/21/13 10:46	BGS	E
Sample Depth	57.00		Feet		Field			1/21/13 10:46	BGS	E
Specific Conductance, Field	300		umhos/cm	1	Field			1/21/13 10:46	BGS	E
Water Level After Purge	51.18		Feet		Field			1/21/13 10:46	BGS	E

Sample Comments:


Anna G Milliken
Technical Manager

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I.D. No 100008

Monitoring Point No. CWMP007W

Sample Date 1/21/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	10	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	18.2	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	64.3	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	60 ND	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	8.8	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	5.7	SW846 6010B
NITRATE-NITROGEN	11.4	EPA 300.0
pH-FIELD (SU)	4.77	FIELD
pH-LAB (SU)	6.21	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	2.2	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	31.8	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	376	FIELD
SPEC. COND., LAB (umhos/cm)	337	EPA 120.1
SULFATE	13	EPA 300.0
ALKALINITY	10	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	208	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	1 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	0.14	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).
Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP007W

Sample Date 1/21/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

Date Prepared/Revised
03/20/2013

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form 19, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP001W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 27.43 " Longitude: 76 ° 26 ' 14.4 "

Depth to Water Level: 29.54 ft Measured from: Land Surface TOC

Casing Stickup: 1.23 ft Elevation of Water Level: 485.59 ft./MSL

Sampling Depth: 57 ft Volume of Water Column: 53.99 gal

Total Well Depth: 66.3 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/21/2013 Sample Collection Time: 10:46

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1008374002 Final Lab Analysis CompletionDate: 2/5/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP001W

Sample Date 1/21/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	5 ND	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	16.2	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	26.8	EPA 300.0
FLUORIDE	0.1 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	60 ND	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	11.1	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	54	SW846 6010B
NITRATE-NITROGEN	22.6	EPA 300.0
pH-FIELD (SU)	4.82	FIELD
pH-LAB (SU)	5.92	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	2.3	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	13.6	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	300	FIELD
SPEC. COND., LAB (umhos/cm)	267	EPA 120.1
SULFATE	1.4	EPA 300.0
ALKALINITY	5 ND	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	189	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	1 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	129	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).
Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP001W

Sample Date 1/21/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP017S Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 20.41 " Longitude: 76 ° 26 ' 45.1 "

Depth to Water Level: _____ ft Measured from: Land Surface TOC

Casing Stickup: _____ ft Elevation of Water Level: #Error ft./MSL

Sampling Depth: 0 ft Volume of Water Column: #Error gal

Total Well Depth: _____ ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/22/2013 Sample Collection Time: 9:28

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1008537001 Final Lab Analysis CompletionDate: 2/5/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP017S

Sample Date 1/22/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	59	SM18-2321
CALCIUM, TOTAL	34	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	144	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	210	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	21.4	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	120	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	14	EPA 300.0
pH-FIELD (SU)	7.15	FIELD
pH-LAB (SU)	6.97	EPA 150.1
POTASSIUM, TOTAL	7.1	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	73	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	755	FIELD
SPEC. COND., LAB (umhos/cm)	741	EPA 120.1
SULFATE	24	EPA 300.0
ALKALINITY	59	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	368	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	2.6	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	1.47	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).
Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP017S

Sample Date 1/22/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP018S Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor

Sampling Point Latitude: 39 ° 56 ' 55.11 " Longitude: 76 ° 26 ' 51.66 "

Depth to Water Level: _____ ft Measured from: Land Surface TOC

Casing Stickup: _____ ft Elevation of Water Level: #Error ft./MSL

Sampling Depth: 0 ft Volume of Water Column: #Error gal

Total Well Depth: _____ ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/22/2013 Sample Collection Time: 10:03

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1008537002 Final Lab Analysis CompletionDate: 2/5/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP018S

Sample Date 1/22/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.19	EPA 350.3
BICARBONATE	119	SM18-2321
CALCIUM, TOTAL	60.5	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	286	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	170	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	38.1	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	230	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	19.5	EPA 300.0
pH-FIELD (SU)	7.33	FIELD
pH-LAB (SU)	7.9	EPA 150.1
POTASSIUM, TOTAL	14.5	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	142	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1401	FIELD
SPEC. COND., LAB (umhos/cm)	1350	EPA 120.1
SULFATE	34.4	EPA 300.0
ALKALINITY	119	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	634	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	7.1	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	1.83	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).

Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP018S

Sample Date 1/22/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP012W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 1.48 " Longitude: 76 ° 26 ' 36.02 "

Depth to Water Level: 48.12 ft Measured from: Land Surface TOC

Casing Stickup: 1.90 ft Elevation of Water Level: 334.58 ft./MSL

Sampling Depth: 0 ft Volume of Water Column: 78.98 gal

Total Well Depth: 101.9 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/23/2013 Sample Collection Time: 10:14

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1008737001 Final Lab Analysis CompletionDate: 2/7/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	71	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	35.1	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	33.9	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	210	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	9.6	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	740	SW846 6010B
NITRATE-NITROGEN	11.4	EPA 300.0
pH-FIELD (SU)	5.5	FIELD
pH-LAB (SU)	6.31	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	1.5	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	12.5	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	366	FIELD
SPEC. COND., LAB (umhos/cm)	318	EPA 120.1
SULFATE	4.8	EPA 300.0
ALKALINITY	71	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	230	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	1 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	251	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).
Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP012W

Sample Date 1/23/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	2.8	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

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General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP002W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 19.97 " Longitude: 76 ° 26 ' 12.3 "

Depth to Water Level: 63.71 ft Measured from: Land Surface TOC

Casing Stickup: -1.19 ft Elevation of Water Level: 462.10 ft./MSL

Sampling Depth: 85 ft Volume of Water Column: 53.30 gal

Total Well Depth: 100 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/23/2013 Sample Collection Time: 11:22

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1008737002 Final Lab Analysis CompletionDate: 2/7/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP002W

Sample Date 1/23/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	77	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	58.4	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	127	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	60 ND	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	17.5	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	900	SW846 6010B
NITRATE-NITROGEN	3.4	EPA 300.0
pH-FIELD (SU)	5.92	FIELD
pH-LAB (SU)	6.14	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	2.9	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	24.8	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	630	FIELD
SPEC. COND., LAB (umhos/cm)	627	EPA 120.1
SULFATE	23.1	EPA 300.0
ALKALINITY	77	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	358	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	7.5	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).
Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP002W

Sample Date 1/23/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	42.6	SW846 8260B
1,1-DICHLOROETHENE	1.2	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1.5	SW846 8260B
1,1,1-TRICHLOROETHANE	5.3	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

Date Prepared/Revised
03/20/2013

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form 19, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP004W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 17.9 " Longitude: 76 ° 26 ' 7.05 "

Depth to Water Level: 73.43 ft Measured from: Land Surface TOC

Casing Stickup: -1.37 ft Elevation of Water Level: 456.10 ft./MSL

Sampling Depth: 80 ft Volume of Water Column: 97.77 gal

Total Well Depth: 140 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/23/2013 Sample Collection Time: 12:10

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1008737003 Final Lab Analysis CompletionDate: 2/7/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP004W

Sample Date 1/23/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	24	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	20.8	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	37.8	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	60 ND	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	6.4	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	5.8	SW846 6010B
NITRATE-NITROGEN	8.8	EPA 300.0
pH-FIELD (SU)	5.95	FIELD
pH-LAB (SU)	6.44	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	1.3	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	13.3	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	261	FIELD
SPEC. COND., LAB (umhos/cm)	233	EPA 120.1
SULFATE	5	EPA 300.0
ALKALINITY	24	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	180	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	1 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	0.35	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).
Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP004W

Sample Date 1/23/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1.8	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

Date Prepared/Revised
03/20/2013

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Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP003W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 20.17 " Longitude: 76 ° 26 ' 8.37 "

Depth to Water Level: 85.87 ft Measured from: Land Surface TOC

Casing Stickup: -1.29 ft Elevation of Water Level: 438.34 ft./MSL

Sampling Depth: 100 ft Volume of Water Column: -15.96 gal

Total Well Depth: 75 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/23/2013 Sample Collection Time: 12:23

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1008737004 Final Lab Analysis CompletionDate: 2/7/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP003W

Sample Date 1/23/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	17	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	26.6	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	61.1	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	60 ND	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	9.4	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	6.5	SW846 6010B
NITRATE-NITROGEN	10.7	EPA 300.0
pH-FIELD (SU)	5.68	FIELD
pH-LAB (SU)	6.26	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	1.7	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	16.2	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	351	FIELD
SPEC. COND., LAB (umhos/cm)	316	EPA 120.1
SULFATE	4.6	EPA 300.0
ALKALINITY	17	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	219	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	1 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).
Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP003W

Sample Date 1/23/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	6.3	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1.6	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

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Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP005W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 11.17 " Longitude: 76 ° 26 ' 7.08 "

Depth to Water Level: 41.63 ft Measured from: Land Surface TOC

Casing Stickup: -0.37 ft Elevation of Water Level: 471.8 ft./MSL

Sampling Depth: 130 ft Volume of Water Column: 144.47 gal

Total Well Depth: 140 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/24/2013 Sample Collection Time: 10:36

Sample Collector's Name: CBC

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1008967001 Final Lab Analysis CompletionDate: 2/11/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP005W

Sample Date 1/24/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	13	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	21.7	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	73	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	60 ND	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	11.7	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	82	SW846 6010B
NITRATE-NITROGEN	13.6	EPA 300.0
pH-FIELD (SU)	4.65	FIELD
pH-LAB (SU)	5.97	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	2.5	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	30.8	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	401	FIELD
SPEC. COND., LAB (umhos/cm)	356	EPA 120.1
SULFATE	2	EPA 300.0
ALKALINITY	13	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	292	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	1 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	1.84	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).

Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP005W

Sample Date 1/24/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP016W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 56 ' 55.57 " Longitude: 76 ° 26 ' 50.59 "

Depth to Water Level: 8.46 ft Measured from: Land Surface TOC

Casing Stickup: 2.53 ft Elevation of Water Level: 303.51 ft./MSL

Sampling Depth: 71 ft Volume of Water Column: _____ gal

Total Well Depth: 78.03 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/25/2013 Sample Collection Time: 9:54

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1009220001 Final Lab Analysis CompletionDate: 2/12/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP016W

Sample Date 1/25/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	8	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	4.7	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	2.5	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	60 ND	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	1.1	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	13	SW846 6010B
NITRATE-NITROGEN	0.2	EPA 300.0
pH-FIELD (SU)	3.31	FIELD
pH-LAB (SU)	6.11	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	0.5 ND	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	3.2	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	58	FIELD
SPEC. COND., LAB (umhos/cm)	52	EPA 120.1
SULFATE	12.2	EPA 300.0
ALKALINITY	8	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	44	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	1 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	3.63	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).
Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP016W

Sample Date 1/25/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

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MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form 19, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General Reference: Section 273.284
Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

Monitoring Wells must be designed and constructed in accordance with Department Standards. INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (D° MM' SS.S")

Monitoring Point Number: CWMP010W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 2.38 " Longitude: 76 ° 26 ' 57.92 "

Depth to Water Level: 8.79 ft Measured from: Land Surface TOC

Casing Stickup: 2.10 ft Elevation of Water Level: 352.11 ft./MSL

Sampling Depth: 17 ft Volume of Water Column: 7.06 gal

Total Well Depth: 19.6 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/25/2013 Sample Collection Time: 12:42

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1009220002 Final Lab Analysis CompletionDate: 2/12/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	EPA 350.3
BICARBONATE	62	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	28.9	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	141	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	60 ND	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	17.1	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	240	SW846 6010B
NITRATE-NITROGEN	6.1	EPA 300.0
pH-FIELD (SU)	6.2	FIELD
pH-LAB (SU)	6.94	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	7	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	86.5	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	836	FIELD
SPEC. COND., LAB (umhos/cm)	688	EPA 120.1
SULFATE	30.3	EPA 300.0
ALKALINITY	62	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	366	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	3.7	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	3.77	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

** Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).
Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP010W

Sample Date 1/25/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE

Date Prepared/Revised
03/20/2013

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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Site Name: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

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Monitoring Point Number: CWMP009W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 10.82 " Longitude: 76 ° 26 ' 55.8 "

Depth to Water Level: 9.17 ft Measured from: Land Surface TOC

Casing Stickup: 2.70 ft Elevation of Water Level: 395.03 ft./MSL

Sampling Depth: 16 ft Volume of Water Column: 6.87 gal

Total Well Depth: 19.7 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

Sample Field Filtered (must be 0.45 micron)?: Yes No

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/25/2013 Sample Collection Time: 13:04

Sample Collector's Name: BGS

Sample Collector's Affiliation: ALS ENVIRONMENTAL

Laboratory(ies) Performing Analysis: ALS Environmental

Were any holding times exceeded?: Yes No If yes, please explain in comments field.

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 1009220003 Final Lab Analysis CompletionDate: 2/12/2013

Name/Affiliation of Person who Filled Out Form: Brooks K. Norris

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP009W

Sample Date 1/25/2013

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	16.7	EPA 350.3
BICARBONATE	546	SM18-2321
CALCIUM, TOTAL		SW846 6010B
CALCIUM, DISSOLVED	137	SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	88	EPA 410.4
CHLORIDE	402	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)		SW846 6010B
IRON, DISSOLVED (ug/l)	32400	SW846 6010B
MAGNESIUM, TOTAL		SW846 6010B
MAGNESIUM, DISSOLVED	66.4	SW846 6010B
MANGANESE, TOTAL (ug/l)		SW846 6010B
MANGANESE, DISSOLVED (ug/l)	11100	SW846 6010B
NITRATE-NITROGEN	0.2 ND	EPA 300.0
pH-FIELD (SU)	6.1	FIELD
pH-LAB (SU)	6.51	EPA 150.1
POTASSIUM, TOTAL		SW846 6010B
POTASSIUM, DISSOLVED	32.4	SW846 6010B
SODIUM, TOTAL		SW846 6010B
SODIUM, DISSOLVED	144	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	2282	FIELD
SPEC. COND., LAB (umhos/cm)	2190	EPA 120.1
SULFATE	3.5	EPA 300.0
ALKALINITY	546	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	1140	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	34.3	SM18-5310B
TOTAL PHENOLICS (ug/l)	10 ND	SW846 9066
TURBIDITY (N.T.U.)	46	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP009W

Sample Date 1/25/2013

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****2-Q. Organics (Enter all data in ug/l)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	4	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.