LCSWMA

1299 HARRISBURG PIKE | PO BOX 4425 | LANCASTER, PA 17604
PHONE: 717-397-9968 | FAX: 717-397-9973
www.lcswma.org

September 4, 2018

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; 3rd Quarter 2018

Dear Ms. Sauls:

Enclosed, as a PDF file, are the Form 19 reports for the sampling period completed at the above referenced facility. The laboratory results were reviewed to evaluate the quality of the data and historic trends.

- This sampling event was for the "Annual" Form 19 parameters, all the thirteen (13) GWMP locations were sampled.
- Enclosed, on CD, is a csv file that should be in the format compatible with your LandLinks software. Additionally, the CD includes a PDF file of all the Forms 19, PDF files of the laboratory reports, MCL and SMCL exceedance reports as you have requested.
- Up gradient well samples where below MCL and SMCL except for nitrate, iron, and manganese on well 1.
- Down gradient wells had similar results with 17 &18 (surface Mann's Run) showing high concentration of chlorides, TDS and nitrate-nitrogen related to surface influences and Turkey Hill discharge. Wells 5 & 7 exceeded MCL for nitrate. Wells 9 and 10 had elevated TDS and chlorides which shows surface influence of Mann's Run. Wells 2 & 5 show manganese, 8 thru 12 show iron and manganese above the SMCL which is due to natural geologic parent material.
- Wells 2,3,4,8,9 and 12 with historic VOCs concentrations detected either stabilized or continue to decrease.

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In summary, we observed no unusual trends, and the values reported are generally consistent with historic or seasonal results.

Please do not hesitate in contacting me if you have any questions or concerns at mreider@lcswma.org.

Respectfully Submitted,

Mark D. Reider
Deputy Chief of Operations and Environmental Compliance

Enclosures

cc: Bob Zorbaugh; Daniel Brown; Bob Eshbach; Jeff Musser; Jordan Gallagher
Randy Weiss (PA DEP)

2540-FM-BWM0041 Rev. 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
08/29/2018
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

Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X 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: 69.98 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: -1.19 ft — Elevation of Water Level: 455.83 ft./MSL

Sampling Depth: 85 ft — Volume of Water Column: 44.09 gal

Total Well Depth: 100 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: ___

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/16/2018 — Sample Collection Time: 11:02

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2326539001 — Final Lab Analysis CompletionDate: 8/3/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP002W
Sample Date	7/16/2018

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	0.805	EPA 350.3
BICARBONATE	70	SM18-2321
CALCIUM, TOTAL	51.9	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	123	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	67 ND	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	16.4	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	1000	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	3.5	EPA 300.0
pH-FIELD (SU)	5.05	FIELD
pH-LAB (SU)	5.97	EPA 150.1
POTASSIUM, TOTAL	2.7	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	21.7	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	605	FIELD
SPEC. COND., LAB (umhos/cm)	600	EPA 120.1
SULFATE	26.7	EPA 300.0
ALKALINITY	70	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	385	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	3.2	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 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.	CWMP002W
Sample Date	7/16/2018

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	7.3	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 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.

2540-FM-BWM0041 Rev. 6/2005

COMMONWEALTH OF PENNSYLVANIA
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Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X 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: 79.88 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: -1.37 ft — Elevation of Water Level: 449.65 ft./MSL

Sampling Depth: 130 ft — Volume of Water Column: 88.30 gal

Total Well Depth: 140 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: ___

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/16/2018 — Sample Collection Time: 13:27

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2326539002 — Final Lab Analysis CompletionDate: 8/3/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP004W
Sample Date	7/16/2018

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	0.864	EPA 350.3
BICARBONATE	30	SM18-2321
CALCIUM, TOTAL	21.6	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	46.4	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	67 ND	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	6.6	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	6.4	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	6.1	EPA 300.0
pH-FIELD (SU)	5.15	FIELD
pH-LAB (SU)	6.28	EPA 150.1
POTASSIUM, TOTAL	1.2	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	14.7	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	290	FIELD
SPEC. COND., LAB (umhos/cm)	280	EPA 120.1
SULFATE	6.1	EPA 300.0
ALKALINITY	30	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	166	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.96	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 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.	CWMP004W
Sample Date	7/16/2018

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	1.2	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.

2540-FM-BWM0041 Rev. 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

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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

Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X 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: 93.73 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: -1.29 ft — Elevation of Water Level: 430.48 ft./MSL

Sampling Depth: 100 ft — Volume of Water Column: -27.51 gal

Total Well Depth: 75 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: ___

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/16/2018 — Sample Collection Time: 13:30

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2326539003 — Final Lab Analysis CompletionDate: 7/16/2019

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP003W
Sample Date	7/16/2018

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	0.814	EPA 350.3
BICARBONATE	20	SM18-2321
CALCIUM, TOTAL	31.5	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	92.9	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	67 ND	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	11.1	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	5.6 ND	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	9.3	EPA 300.0
pH-FIELD (SU)	4.87	FIELD
pH-LAB (SU)	6.18	EPA 150.1
POTASSIUM, TOTAL	1.6	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	22.7	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	455	FIELD
SPEC. COND., LAB (umhos/cm)	450	EPA 120.1
SULFATE	6.5	EPA 300.0
ALKALINITY	20	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	276	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.62	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 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.
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I.D. No	100008
Monitoring Point No.	CWMP003W
Sample Date	7/16/2018

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 WASTE MANAGEMENT

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Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Creswell Landfill

Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X 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: 55.98 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: 1.90 ft — Elevation of Water Level: 326.72 ft./MSL

Sampling Depth: 0 ft — Volume of Water Column: 67.44 gal

Total Well Depth: 101.9 ft — Sampling Method: ___Pumped ___Bailed X Grab

Well Purged: X Yes ___ No — Well Volumes Purged: ___

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/18/2018 — Sample Collection Time: 12:15

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327049001 — Final Lab Analysis CompletionDate: 8/13/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP012W
Sample Date	7/18/2018

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	0.11	EPA 350.3
BICARBONATE	67	SM18-2321
CALCIUM, TOTAL	34.2	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	40.5	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	152000	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	9.4	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	870	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	10.6	EPA 300.0
pH-FIELD (SU)	5.19	FIELD
pH-LAB (SU)	6.38	EPA 150.1
POTASSIUM, TOTAL	1.5	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	13.5	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	334	FIELD
SPEC. COND., LAB (umhos/cm)	360	EPA 120.1
SULFATE	4.8	EPA 300.0
ALKALINITY	67	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	187	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	1.7	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	50.1	SM 2130B

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I.D. No	100008
Monitoring Point No.	CWMP012W
Sample Date	7/18/2018

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	1.3	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 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.

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Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

X 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: 37.89 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: -0.37 ft — Elevation of Water Level: 475.54 ft./MSL

Sampling Depth: 130 ft — Volume of Water Column: 149.96 gal

Total Well Depth: 140 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: 1.9

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/19/2018 — Sample Collection Time: 10:20

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327622001 — Final Lab Analysis CompletionDate: 7/19/2019

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP005W
Sample Date	7/19/2018

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	0.723	EPA 350.3
BICARBONATE	14	SM18-2321
CALCIUM, TOTAL	18.5	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	83.5	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	81	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	9.4	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	62	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	11	EPA 300.0
pH-FIELD (SU)	3.64	FIELD
pH-LAB (SU)	6.05	EPA 150.1
POTASSIUM, TOTAL	2.7	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	42.8	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	434	FIELD
SPEC. COND., LAB (umhos/cm)	430	EPA 120.1
SULFATE	2.8	EPA 300.0
ALKALINITY	14	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	233	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.52	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.15	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	7/19/2018

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.

2540-FM-BWM0041 Rev. 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
08/29/2018
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

Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

X 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: 25.43 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: 1.23 ft — Elevation of Water Level: 489.70 ft./MSL

Sampling Depth: 57 ft — Volume of Water Column: 60.02 gal

Total Well Depth: 66.3 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: 2.0

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/19/2018 — Sample Collection Time: 12:53

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327622002 — Final Lab Analysis CompletionDate: 8/13/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP001W
Sample Date	7/19/2018

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	0.538	EPA 350.3
BICARBONATE	8	SM18-2321
CALCIUM, TOTAL	18.8	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	32.8	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	1900	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	12.3	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	95	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	21.3	EPA 300.0
pH-FIELD (SU)	4.74	FIELD
pH-LAB (SU)	6.06	EPA 150.1
POTASSIUM, TOTAL	2.8	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	16.4	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	326	FIELD
SPEC. COND., LAB (umhos/cm)	310	EPA 120.1
SULFATE	2.2	EPA 300.0
ALKALINITY	8	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	141	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	77.4	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	7/19/2018

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 WASTE MANAGEMENT

Date Prepared/Revised
08/29/2018
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

Facitlity 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: CWMP007W — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County — Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 24.53 " — Longitude: 76 ° 26 ' 33.28 "

Depth to Water Level: 7 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: 1.50 ft — Elevation of Water Level: 446.4 ft./MSL

Sampling Depth: 33 ft — Volume of Water Column: 43.33 gal

Total Well Depth: 36.5 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: 2.3

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/19/2018 — Sample Collection Time: 14:05

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327622003 — Final Lab Analysis CompletionDate: 8/13/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP007W
Sample Date	7/19/2018

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	0.556	EPA 350.3
BICARBONATE	13	SM18-2321
CALCIUM, TOTAL	20.4	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	70.6	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	67 ND	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	10.2	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	7.2	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	10.6	EPA 300.0
pH-FIELD (SU)	4.9	FIELD
pH-LAB (SU)	6.07	EPA 150.1
POTASSIUM, TOTAL	2.4	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	34.2	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	411	FIELD
SPEC. COND., LAB (umhos/cm)	400	EPA 120.1
SULFATE	20.8	EPA 300.0
ALKALINITY	13	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	192	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 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.	CWMP007W
Sample Date	7/19/2018

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.

2540-FM-BWM0041 Rev. 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
08/29/2018
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

Facitlity 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: CWMP009W — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X 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: 7.22 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: 2.70 ft — Elevation of Water Level: 396.98 ft./MSL

Sampling Depth: 16 ft — Volume of Water Column: 8.15 gal

Total Well Depth: 19.7 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: 10.0

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/19/2018 — Sample Collection Time: 14:47

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327622004 — Final Lab Analysis CompletionDate: 8/13/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP009W
Sample Date	7/19/2018

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	26.1	EPA 350.3
BICARBONATE	544	SM18-2321
CALCIUM, TOTAL	172	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	113	EPA 410.4
CHLORIDE	612	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	39000	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	83.3	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	13800	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	0.2 ND	EPA 300.0
pH-FIELD (SU)	5.96	FIELD
pH-LAB (SU)	6.61	EPA 150.1
POTASSIUM, TOTAL	38	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	180	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	2881	FIELD
SPEC. COND., LAB (umhos/cm)	2800	EPA 120.1
SULFATE	6.5	EPA 300.0
ALKALINITY	544	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	1340	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	31.8	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	75.2	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.	CWMP009W
Sample Date	7/19/2018

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

2-Q. Organics (Enter all data in ug/l)

ANALYTE	VALUE[T]	ANALYSIS METHOD NUMBER
BENZENE	2.4	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	2.1	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.

2540-FM-BWM0041 Rev. 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
08/29/2018
DEP USE ONLY
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

Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X 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: 11.78 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: 2.53 ft — Elevation of Water Level: 300.19 ft./MSL

Sampling Depth: 71 ft — Volume of Water Column: ___ gal

Total Well Depth: 78.03 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: 1.5

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/20/2018 — Sample Collection Time: 10:14

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327703001 — Final Lab Analysis CompletionDate: 8/13/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP016W
Sample Date	7/20/2018

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	0.458	EPA 350.3
BICARBONATE	9	SM18-2321
CALCIUM, TOTAL	5.3	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	2.6	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	340	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	1.2	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	11	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	0.66	EPA 300.0
pH-FIELD (SU)	5.01	FIELD
pH-LAB (SU)	6.76	EPA 150.1
POTASSIUM, TOTAL	0.56 ND	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	3.5	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	66	FIELD
SPEC. COND., LAB (umhos/cm)	60	EPA 120.1
SULFATE	12.2	EPA 300.0
ALKALINITY	9	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	58	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.57	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	2.26	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	7/20/2018

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.

2540-FM-BWM0041 Rev. 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
08/29/2018
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

Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X 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 X 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 X Grab

Well Purged: X Yes ___ No — Well Volumes Purged: ___

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/20/2018 — Sample Collection Time: 10:32

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327703002 — Final Lab Analysis CompletionDate: 8/13/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP018S
Sample Date	7/20/2018

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	1.34	EPA 350.3
BICARBONATE	370	SM18-2321
CALCIUM, TOTAL	75.4	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	25	EPA 410.4
CHLORIDE	495	EPA 300.0
FLUORIDE	0.5 ND	EPA 300.0
IRON, TOTAL (ug/l)	180	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	84.7	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	52	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	21.5	EPA 300.0
pH-FIELD (SU)	8.02	FIELD
pH-LAB (SU)	8.53	EPA 150.1
POTASSIUM, TOTAL	18.3	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	314	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	2519	FIELD
SPEC. COND., LAB (umhos/cm)	2500	EPA 120.1
SULFATE	55.4	EPA 300.0
ALKALINITY	410	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	1330	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	7.8	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	23.8	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	7/20/2018

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 WASTE MANAGEMENT

Date Prepared/Revised
08/29/2018
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

Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X 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: 8.64 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: 2.10 ft — Elevation of Water Level: 352.26 ft./MSL

Sampling Depth: 17 ft — Volume of Water Column: 7.15 gal

Total Well Depth: 19.6 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: 1.5

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/20/2018 — Sample Collection Time: 10:54

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327703003 — Final Lab Analysis CompletionDate: 8/13/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP010W
Sample Date	7/20/2018

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	0.941	EPA 350.3
BICARBONATE	275	SM18-2321
CALCIUM, TOTAL	63.3	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	19	EPA 410.4
CHLORIDE	428	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	510	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	58.8	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	360	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	11	EPA 300.0
pH-FIELD (SU)	6.65	FIELD
pH-LAB (SU)	7.61	EPA 150.1
POTASSIUM, TOTAL	12.7	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	227	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	2021	FIELD
SPEC. COND., LAB (umhos/cm)	1900	EPA 120.1
SULFATE	42.2	EPA 300.0
ALKALINITY	275	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	1000	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	4.7	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	3.21	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	7/20/2018

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.

2540-FM-BWM0041 Rev. 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
08/29/2018
DEP USE ONLY
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

Facitlity 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: CWMP008W — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County — Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 16.97 " — Longitude: 76 ° 26 ' 47.58 "

Depth to Water Level: 3.39 ft — Measured from: ___ Land Surface X TOC

Casing Stickup: 2.80 ft — Elevation of Water Level: 418.91 ft./MSL

Sampling Depth: 19 ft — Volume of Water Column: 3.17 gal

Total Well Depth: 22.8 ft — Sampling Method: X Pumped ___ Bailed ___ Grab

Well Purged: X Yes ___ No — Well Volumes Purged: 6.7

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

Spring Flow Rate: ___ gpm

Sample Date (mm/dd/yy): 7/20/2018 — Sample Collection Time: 11:30

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327703004 — Final Lab Analysis CompletionDate: 8/13/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP008W
Sample Date	7/20/2018

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	5.55	EPA 350.3
BICARBONATE	493	SM18-2321
CALCIUM, TOTAL	78.5	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	41	EPA 410.4
CHLORIDE	45.8	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	30300	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	36	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	18300	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	0.2 ND	EPA 300.0
pH-FIELD (SU)	5.9	FIELD
pH-LAB (SU)	6.6	EPA 150.1
POTASSIUM, TOTAL	8.9	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	50	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1041	FIELD
SPEC. COND., LAB (umhos/cm)	940	EPA 120.1
SULFATE	6.4	EPA 300.0
ALKALINITY	493	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	538	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	11.5	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	31.5	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.	CWMP008W
Sample Date	7/20/2018

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

2-Q. Organics (Enter all data in ug/l)

ANALYTE	VALUE[T]	ANALYSIS METHOD NUMBER
BENZENE	2.8	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	3.7	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.

2540-FM-BWM0041 Rev. 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
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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

Facitlity 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 — X Well ___ Spring ___ Stream ___ Other

___ Upgradient/Upstream X 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 X 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 X Grab

Well Purged: X Yes ___ No — Well Volumes Purged: _____

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

Spring Flow Rate: _ gpm

Sample Date (mm/dd/yy): 7/20/2018 — Sample Collection Time: 11:48

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2327703005 — Final Lab Analysis CompletionDate: 8/13/2018

Name/Affiliation of Person who Filled Out Form: Mark D. Reider

Comments:

I.D. No	100008
Monitoring Point No.	CWMP017S
Sample Date	7/20/2018

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	1.98	EPA 350.3
BICARBONATE	587	SM18-2321
CALCIUM, TOTAL	76.7	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	22	EPA 410.4
CHLORIDE	708	EPA 300.0
FLUORIDE	0.5 ND	EPA 300.0
IRON, TOTAL (ug/l)	280	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	114	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	73	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	27.2	EPA 300.0
pH-FIELD (SU)	6.17	FIELD
pH-LAB (SU)	8.3	EPA 150.1
POTASSIUM, TOTAL	19.4	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	437	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	3430	FIELD
SPEC. COND., LAB (umhos/cm)	3200	EPA 120.1
SULFATE	64	EPA 300.0
ALKALINITY	590	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	1740	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	4.6	SM18-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.92	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	7/20/2018

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	1.1	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.

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: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

August 20, 2018

Mr. Daniel Brown
Lancaster County Solid Waste Authority
1299 Hbg Pike, P.O. Box 4425
Lancaster, PA 17604

Certificate of Analysis

Project Name:	**2018-CRESWELL**	Workorder:	**2327622**
Purchase Order:	**PO1000127**	Workorder ID:	**3RD QTR 2018 CWMP-FORM 19Q**

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory between Thursday, July 19, 2018 and Friday, July 20, 2018.

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

If you have any questions regarding this certificate of analysis, please contact Ms. Susan J Scherer (Project Coordinator) 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.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Ms. Jordan Gallagher , Mr. Mark Reider , Mr. Jeff Musser

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

Susan J. Scherer

Ms. Susan J Scherer
Project Coordinator

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: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

Re: Power Outage at ALS – Middletown Facility

To Whom It May Concern,

During the recent weather event in the Northeast and related flooding in our area, ALS–Middletown lost power the evening of Monday, July 23, 2018. Numerous trees damaged both utility poles and fell on power lines in the flooded areas making repair that much more difficult for the emergency repair groups. The laboratory was without power until the afternoon of Wednesday, July 25, 2018.

This power outage prevented ALS from operating our business in a normal manner during this period. The analysis and reporting of samples during this time period was significantly reduced. In addition to continuing to receive samples from our clients, our field service staff and sample receiving groups continued to collect, process and receive samples during this period. Analysis of short hold parameters was accomplished under emergency generator power. As power was restored to our facility, we have brought all systems back online with minimal damage to instruments and computers. In this situation a sudden loss of power can cause damage to sensitive electronic equipment so care is being taken to ensure the instruments are operating at optimal conditions.

As we return to full operational status, we will experience backlogs in our data analysis and processing. The lab staff is working diligently 24/7 to get all delayed projects, results and reports out as quickly as possible to prevent any further delays. If any data was compromised due to the power loss, an appropriate comment will be notated on your laboratory report.

If you have any questions or concerns regarding your sample results, please feel free to contact your ALS Project Manager or our Client Services Manager, Shiloh Summy at Shiloh.summy@alsglobal.com or (717)-577-3515.

Thank you for choosing ALS–Middletown to meet your analytical needs. We are committed to ensuring all data meets our stringent quality standards even in these unfortunate circumstances.

Sincerely,

Scott Brunk

Laboratory Director

ALS Environmental, Middletown

ALS Environmental

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SAMPLE SUMMARY

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2327622001	CWMP005W	Ground Water	7/19/2018 10:20	7/19/2018 15:49	Mr. Brian G Shade
2327622002	CWMP001W	Ground Water	7/19/2018 12:53	7/19/2018 15:49	Mr. Brian G Shade
2327622003	CWMP007W	Ground Water	7/19/2018 14:05	7/19/2018 15:49	Mr. Brian G Shade
2327622004	CWMP009W	Ground Water	7/19/2018 14:47	7/19/2018 15:49	Mr. Brian G Shade
2327622005	Trip Blank	Water	7/19/2018 15:49	7/19/2018 15:49	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

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 preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	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
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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PROJECT SUMMARY

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Workorder Comments

See attached subcontracted results from ALS-Holland for specific conductance results. Results not related to this work order were removed from the ALS Holland report. SB 08/15/18

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ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327622001** Date Collected: 7/19/2018 10:20 Matrix: Ground Water

Sample ID: **CWMP005W** Date Received: 7/19/2018 15:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/28/18 03:28	PDK	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/28/18 03:28	PDK	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	80.5		%	62 - 133	SW846 8260B			7/28/18 03:28	PDK	G
4-Bromofluorobenzene (S)	102		%	79 - 114	SW846 8260B			7/28/18 03:28	PDK	G
Dibromofluoromethane (S)	83.9		%	78 - 116	SW846 8260B			7/28/18 03:28	PDK	G
Toluene-d8 (S)	98.7		%	76 - 127	SW846 8260B			7/28/18 03:28	PDK	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	14		mg/L	5	S2320B-97			7/21/18 15:09	MBW	B
Alkalinity, Total	14	3	mg/L	5	S2320B-97			7/21/18 15:09	MBW	B
Ammonia-N	0.723		mg/L	0.100	D6919-09			7/30/18 02:29	TES	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	83.5		mg/L	2.0	EPA 300.0			7/20/18 09:01	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/20/18 09:01	CHW	B
Nitrate-N	11.0		mg/L	0.20	EPA 300.0			7/20/18 09:01	CHW	B
pH	6.05	1	pH_Units		S4500HB-11			7/21/18 15:09	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	7/31/18 13:56	RXB	F
Sulfate	2.8		mg/L	2.0	EPA 300.0			7/20/18 09:01	CHW	B
Total Dissolved Solids	233		mg/L	5	S2540C-11			7/26/18 12:50	BMK	B
Total Organic Carbon (TOC)	0.52	2	mg/L	0.50	SW846 9060A			8/6/18 20:51	PAG	D
Turbidity	1.15		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

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ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327622001** Date Collected: 7/19/2018 10:20 Matrix: Ground Water

Sample ID: **CWMP005W** Date Received: 7/19/2018 15:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	18.5		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:23	SRT	J1
Iron, Total	0.081		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:23	SRT	J1
Magnesium, Total	9.4		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:23	SRT	J1
Manganese, Total	0.062		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:23	SRT	J1
Potassium, Total	2.7		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:23	SRT	J1
Sodium, Total	42.8		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:23	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	37.890		Feet		Field			7/19/19 10:20	BGS	C
Elev Top MW Casing above MSL	513.43		Feet		Field			7/19/19 10:20	BGS	C
Flow Rate	3.92		gal/min		Field			7/19/19 10:20	BGS	C
Ground Water Elevation	475.540		ft/MSL		Field			7/19/19 10:20	BGS	C
pH, Field (SM4500B)	3.640		pH_Units		Field			7/19/19 10:20	BGS	C
Sample Depth	130.000		Feet		Field			7/19/19 10:20	BGS	C
Specific Conductance, Field	434		umhos/cm	1	Field			7/19/19 10:20	BGS	C
Temperature	10.93		Deg. C		Field			7/19/19 10:20	BGS	C
Total Well Depth	138.920		Feet		Field			7/19/19 10:20	BGS	C
Volume in Water Column	148.514		Gallons		Field			7/19/19 10:20	BGS	C
Water Level After Purge	39.730		Feet		Field			7/19/19 10:20	BGS	C
Well Volumes Purged	1.85		Vol		Field			7/19/19 10:20	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 09:45	SUB	

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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327622002** Date Collected: 7/19/2018 12:53 Matrix: Ground Water

Sample ID: **CWMP001W** Date Received: 7/19/2018 15:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/28/18 03:50	PDK	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/28/18 03:50	PDK	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	82.7		%	62 - 133	SW846 8260B			7/28/18 03:50	PDK	G
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			7/28/18 03:50	PDK	G
Dibromofluoromethane (S)	84.6		%	78 - 116	SW846 8260B			7/28/18 03:50	PDK	G
Toluene-d8 (S)	97.2		%	76 - 127	SW846 8260B			7/28/18 03:50	PDK	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	8		mg/L	5	S2320B-97			7/21/18 15:24	MBW	B
Alkalinity, Total	8	3	mg/L	5	S2320B-97			7/21/18 15:24	MBW	B
Ammonia-N	0.538		mg/L	0.100	D6919-09			7/30/18 02:44	TES	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	32.8		mg/L	2.0	EPA 300.0			7/20/18 09:13	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/20/18 09:13	CHW	B
Nitrate-N	21.3	4	mg/L	0.50	EPA 300.0			7/21/18 13:14	CHW	B
pH	6.06	1	pH_Units		S4500HB-11			7/21/18 15:24	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	7/31/18 13:56	RXB	F
Sulfate	2.2		mg/L	2.0	EPA 300.0			7/20/18 09:13	CHW	B
Total Dissolved Solids	141		mg/L	5	S2540C-11			7/26/18 12:50	BMK	B
Total Organic Carbon (TOC)	ND	2	mg/L	0.50	SW846 9060A			8/6/18 20:51	PAG	D
Turbidity	77.4		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

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ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327622002** Date Collected: 7/19/2018 12:53 Matrix: Ground Water

Sample ID: **CWMP001W** Date Received: 7/19/2018 15:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	18.8		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:27	SRT	J1
Iron, Total	1.9		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:27	SRT	J1
Magnesium, Total	12.3		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:27	SRT	J1
Manganese, Total	0.095		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:27	SRT	J1
Potassium, Total	2.8		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:27	SRT	J1
Sodium, Total	16.4		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:27	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	25.430		Feet		Field			7/19/18 12:53	BGS	C
Elev Top MW Casing above MSL	515.13		Feet		Field			7/19/18 12:53	BGS	C
Flow Rate	2.00		gal/min		Field			7/19/18 12:53	BGS	C
Ground Water Elevation	489.700		ft/MSL		Field			7/19/18 12:53	BGS	C
pH, Field (SM4500B)	4.740		pH_Units		Field			7/19/18 12:53	BGS	C
Sample Depth	57.000		Feet		Field			7/19/18 12:53	BGS	C
Specific Conductance, Field	326		umhos/cm	1	Field			7/19/18 12:53	BGS	C
Temperature	11.55		Deg. C		Field			7/19/18 12:53	BGS	C
Total Well Depth	66.300		Feet		Field			7/19/18 12:53	BGS	C
Volume in Water Column	60.079		Gallons		Field			7/19/18 12:53	BGS	C
Water Level After Purge	48.300		Feet		Field			7/19/18 12:53	BGS	C
Well Volumes Purged	2.00		Vol		Field			7/19/18 12:53	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 09:45	SUB	

Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327622003** Date Collected: 7/19/2018 14:05 Matrix: Ground Water

Sample ID: **CWMP007W** Date Received: 7/19/2018 15:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/28/18 04:12	PDK	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/28/18 04:12	PDK	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	83.4		%	62 - 133	SW846 8260B			7/28/18 04:12	PDK	G
4-Bromofluorobenzene (S)	104		%	79 - 114	SW846 8260B			7/28/18 04:12	PDK	G
Dibromofluoromethane (S)	86.7		%	78 - 116	SW846 8260B			7/28/18 04:12	PDK	G
Toluene-d8 (S)	98.5		%	76 - 127	SW846 8260B			7/28/18 04:12	PDK	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	13		mg/L	5	S2320B-97			7/21/18 15:32	MBW	B
Alkalinity, Total	13	4	mg/L	5	S2320B-97			7/21/18 15:32	MBW	B
Ammonia-N	0.556		mg/L	0.100	D6919-09			7/30/18 02:58	TES	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	70.6		mg/L	2.0	EPA 300.0			7/20/18 09:26	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/20/18 09:26	CHW	B
Nitrate-N	10.6		mg/L	0.20	EPA 300.0			7/20/18 09:26	CHW	B
pH	6.07	1	pH_Units		S4500HB-11			7/21/18 15:32	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	7/31/18 13:56	RXB	F
Sulfate	20.8		mg/L	2.0	EPA 300.0			7/20/18 09:26	CHW	B
Total Dissolved Solids	192	2	mg/L	5	S2540C-11			7/26/18 13:05	BMK	B
Total Organic Carbon (TOC)	ND	3	mg/L	0.50	SW846 9060A			8/6/18 20:51	PAG	D
Turbidity	ND		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

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ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327622003** Date Collected: 7/19/2018 14:05 Matrix: Ground Water

Sample ID: **CWMP007W** Date Received: 7/19/2018 15:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	20.4		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:31	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:31	SRT	J1
Magnesium, Total	10.2		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:31	SRT	J1
Manganese, Total	0.0072		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:31	SRT	J1
Potassium, Total	2.4		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:31	SRT	J1
Sodium, Total	34.2		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:31	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	7.000		Feet		Field			7/19/18 13:55	BGS	C
Elev Top MW Casing above MSL	453.40		Feet		Field			7/19/18 13:55	BGS	C
Flow Rate	1.63		gal/min		Field			7/19/18 13:55	BGS	C
Ground Water Elevation	446.400		ft/MSL		Field			7/19/18 13:55	BGS	C
pH, Field (SM4500B)	4.900		pH_Units		Field			7/19/18 13:55	BGS	C
Sample Depth	33.000		Feet		Field			7/19/18 13:55	BGS	C
Specific Conductance, Field	411		umhos/cm	1	Field			7/19/18 13:55	BGS	C
Temperature	10.63		Deg. C		Field			7/19/18 13:55	BGS	C
Total Well Depth	36.500		Feet		Field			7/19/18 13:55	BGS	C
Volume in Water Column	43.365		Gallons		Field			7/19/18 13:55	BGS	C
Water Level After Purge	17.220		Feet		Field			7/19/18 13:55	BGS	C
Well Volumes Purged	2.25		Vol		Field			7/19/18 13:55	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 09:45	SUB	

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ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327622004** Date Collected: 7/19/2018 14:47 Matrix: Ground Water
Sample ID: **CWMP009W** Date Received: 7/19/2018 15:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	2.4		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
1,1-Dichloroethane	2.1		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/28/18 04:34	PDK	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/28/18 04:34	PDK	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	76.8		%	62 - 133	SW846 8260B			7/28/18 04:34	PDK	G
4-Bromofluorobenzene (S)	98.2		%	79 - 114	SW846 8260B			7/28/18 04:34	PDK	G
Dibromofluoromethane (S)	79		%	78 - 116	SW846 8260B			7/28/18 04:34	PDK	G
Toluene-d8 (S)	97.1		%	76 - 127	SW846 8260B			7/28/18 04:34	PDK	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	544		mg/L	5	S2320B-97			7/21/18 15:44	MBW	B
Alkalinity, Total	544	3	mg/L	5	S2320B-97			7/21/18 15:44	MBW	B
Ammonia-N	26.1		mg/L	0.100	D6919-09			7/30/18 03:42	TES	A
Chemical Oxygen Demand (COD)	113		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	612		mg/L	10.0	EPA 300.0			7/21/18 13:29	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/20/18 09:39	CHW	B
Nitrate-N	ND		mg/L	0.20	EPA 300.0			7/20/18 09:39	CHW	B
pH	6.61	1	pH_Units		S4500HB-11			7/21/18 15:44	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	7/31/18 13:56	RXB	F
Sulfate	6.5		mg/L	2.0	EPA 300.0			7/20/18 09:39	CHW	B
Total Dissolved Solids	1340	2	mg/L	5	S2540C-11			7/26/18 13:05	BMK	B
Total Organic Carbon (TOC)	31.8	4	mg/L	12.5	SW846 9060A			8/8/18 07:07	PAG	D
Turbidity	75.2		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

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ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327622004** Date Collected: 7/19/2018 14:47 Matrix: Ground Water

Sample ID: **CWMP009W** Date Received: 7/19/2018 15:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	172		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:34	SRT	J1
Iron, Total	39.0		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:34	SRT	J1
Magnesium, Total	83.3		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:34	SRT	J1
Manganese, Total	13.8		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:34	SRT	J1
Potassium, Total	38.0		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:34	SRT	J1
Sodium, Total	180		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:34	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	7.220		Feet		Field			7/19/18 14:47	BGS	C
Elev Top MW Casing above MSL	404.20		Feet		Field			7/19/18 14:47	BGS	C
Flow Rate	4.05		gal/min		Field			7/19/18 14:47	BGS	C
Ground Water Elevation	396.980		ft/MSL		Field			7/19/18 14:47	BGS	C
pH, Field (SM4500B)	5.960		pH_Units		Field			7/19/18 14:47	BGS	C
Sample Depth	16.000		Feet		Field			7/19/18 14:47	BGS	C
Specific Conductance, Field	2881		umhos/cm	1	Field			7/19/18 14:47	BGS	C
Temperature	12.34		Deg. C		Field			7/19/18 14:47	BGS	C
Total Well Depth	19.700		Feet		Field			7/19/18 14:47	BGS	C
Volume in Water Column	8.112		Gallons		Field			7/19/18 14:47	BGS	C
Water Level After Purge	11.600		Feet		Field			7/19/18 14:47	BGS	C
Well Volumes Purged	9.98		Vol		Field			7/19/18 14:47	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 09:45	SUB	

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ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327622005** Date Collected: 7/19/2018 15:49 Matrix: Water

Sample ID: **Trip Blank** Date Received: 7/19/2018 15:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
Toluene	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/27/18 22:46	PDK	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/27/18 22:46	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	76.9		%	62 - 133	SW846 8260B			7/27/18 22:46	PDK	A
4-Bromofluorobenzene (S)	103		%	79 - 114	SW846 8260B			7/27/18 22:46	PDK	A
Dibromofluoromethane (S)	80.2		%	78 - 116	SW846 8260B			7/27/18 22:46	PDK	A
Toluene-d8 (S)	99.6		%	76 - 127	SW846 8260B			7/27/18 22:46	PDK	A

Susan J. Scherer

Ms. Susan J Scherer
Project Coordinator

ANALYTICAL RESULTS

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2327622001	1	CWMP005W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327622001	2	CWMP005W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327622001	3	CWMP005W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327622002	1	CWMP001W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327622002	2	CWMP001W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327622002	3	CWMP001W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327622002	4	CWMP001W	EPA 300.0	Nitrate-N
The sample was originally run within hold time, but required further analysis that exceeded hold time.				
2327622003	1	CWMP007W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327622003	2	CWMP007W	S2540C-11	Total Dissolved Solids
The method blank associated with the sample was recovered at 5 mg/L. The method reporting limit for this analysis is <5 mg/L. A bias may exist with the result.				
2327622003	3	CWMP007W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327622003	4	CWMP007W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327622004	1	CWMP009W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327622004	2	CWMP009W	S2540C-11	Total Dissolved Solids
The method blank associated with the sample was recovered at 5 mg/L. The method reporting limit for this analysis is <5 mg/L. A bias may exist with the result.				
2327622004	3	CWMP009W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327622004	4	CWMP009W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2327622001	CWMP005W	D6919-09	
2327622001	CWMP005W	EPA 300.0	
2327622001	CWMP005W	EPA 410.4	
2327622001	CWMP005W	Field	
2327622001	CWMP005W	S2130B-01	
2327622001	CWMP005W	S2320B-97	
2327622001	CWMP005W	S2540C-11	
2327622001	CWMP005W	S4500HB-11	
2327622001	CWMP005W	SW846 6010C	SW846 3015
2327622001	CWMP005W	SW846 8260B	
2327622001	CWMP005W	SW846 9060A	
2327622001	CWMP005W	SW846 9066	420.4/9066
2327622001	CWMP005W	Subcontract	
2327622002	CWMP001W	D6919-09	
2327622002	CWMP001W	EPA 300.0	
2327622002	CWMP001W	EPA 410.4	
2327622002	CWMP001W	Field	
2327622002	CWMP001W	S2130B-01	
2327622002	CWMP001W	S2320B-97	
2327622002	CWMP001W	S2540C-11	
2327622002	CWMP001W	S4500HB-11	
2327622002	CWMP001W	SW846 6010C	SW846 3015
2327622002	CWMP001W	SW846 8260B	
2327622002	CWMP001W	SW846 9060A	
2327622002	CWMP001W	SW846 9066	420.4/9066
2327622002	CWMP001W	Subcontract	
2327622003	CWMP007W	D6919-09	
2327622003	CWMP007W	EPA 300.0	
2327622003	CWMP007W	EPA 410.4	
2327622003	CWMP007W	Field	
2327622003	CWMP007W	S2130B-01	
2327622003	CWMP007W	S2320B-97	
2327622003	CWMP007W	S2540C-11	
2327622003	CWMP007W	S4500HB-11	
2327622003	CWMP007W	SW846 6010C	SW846 3015
2327622003	CWMP007W	SW846 8260B	
2327622003	CWMP007W	SW846 9060A	
2327622003	CWMP007W	SW846 9066	420.4/9066
2327622003	CWMP007W	Subcontract	
2327622004	CWMP009W	D6919-09	
2327622004	CWMP009W	EPA 300.0	
2327622004	CWMP009W	EPA 410.4	
2327622004	CWMP009W	Field	
2327622004	CWMP009W	S2130B-01	
2327622004	CWMP009W	S2320B-97	
2327622004	CWMP009W	S2540C-11	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2327622 3RD QTR 2018 CWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2327622004	CWMP009W	S4500HB-11	
2327622004	CWMP009W	SW846 6010C	SW846 3015
2327622004	CWMP009W	SW846 8260B	
2327622004	CWMP009W	SW846 9060A	
2327622004	CWMP009W	SW846 9066	420.4/9066
2327622004	CWMP009W	Subcontract	
2327622005	Trip Blank	SW846 8260B	

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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1 of 1

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

Client Name: Lancaster County Solid Waste MA

Address: 1299 Harrisburg Pike, P.O. Box 4424
Lancaster, PA 17604

Contact: Mark Reider

Phone#: (717) 735-0193

Project Name/#: Creswell/GWMP Form 19Q Wells

Bill To: Lancaster County Solid Waste MA

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: _____ Approved By: _____

Email? [X]-Y mreider@LCSWMA.com

Fax? [X]-Y No.: (717) 397-9973

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix
1. CWMP005W	7-19-18	1020	G	GW
2 CWMP001W		1252		
3 CWMP007W		1405		
4 CWMP008W		1447		
5 Trip Blank		1549		
6				
7				
8				
9				
10				

Container Type	AG	AN	CG	—	—	PL	PL	PL	PL	
Container Size	40 ml	~~500 ml~~ 125	40 ml	—	—	~~500 ml~~ 250	~~500 ml~~ 250	1 L	500 ml	
Preservative	HCl	H2SO4	HCl	—	—	H2SO4	HNO3	None	None	

ANALYSES/METHOD REQUESTED

TOC	O-OH	8260 VOCs - Form 19Q	Field Measurements	Sample Depth for AUX Data	NH3-N, COD	Total Metals: Ca, Fe, Mn, Mg, K, Na	pH, NO3, Cl, F, SpC, SO4, Turb, TDS	Alkalinity, HCO3	
Enter Number of Containers Per Sample or Field Results Below.									
2	1	2	X	X	1	1	1	1	

Receipt Information (completed by Receiving Lab)

Cooler Temp: 1 °C Therm ID: 402

No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?		X	
(If present) Seals Intact?			
Received on Ice?	X		
COC/Labels Complete/Accurate?		X	
Cont. in Good Cond.?	X		
Correct Containers?	X		
Correct Sample Volumes?	X		
Correct Preservation?	X		
Headspace/Volatiles?	X		

Courier/Tracking #:

Sample/COC Comments

ALS Field Services: ☐Pickup ☐Labor ☐Composite_Sampling ☐Rental_Equipment ☐Other: _____

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 ALS	7-19-18	1549	2	7/19/18	1549
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ]

Reportable to PADEP? Yes [ ]

PWSID # _____

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type- _____

* G=Grab; C=Composite

**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Of=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 8/04

14-Aug-2018

Shannon Butler
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Re: **Specific Conductance** Work Order: **1808591**

Dear Shannon,

ALS Environmental received 37 samples on 09-Aug-2018 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 48.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Tom Beamish

Tom Beamish
Senior Project Manager

Report of Laboratory Analysis

Certificate No: PA: 68-03827

Client: ALS Environmental
Project: Specific Conductance
Work Order: 1808591

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1808591-01	2326836001	Water		07/18/18 11:35	08/09/18 09:30	☐
1808591-02	2326837001	Water		07/18/18 12:30	08/09/18 09:30	☐
1808591-03	2326959001	Water		07/17/18 12:35	08/09/18 09:30	☐
1808591-04	2326959002	Water		07/17/18 13:26	08/09/18 09:30	☐
1808591-05	2326959003	Water		07/17/18 10:20	08/09/18 09:30	☐
1808591-06	2327049001	Water		07/18/18 12:15	08/09/18 09:30	☐
1808591-07	2327411001	Water		07/18/18 10:55	08/09/18 09:30	☐
1808591-08	2327411002	Water		07/18/18 13:30	08/09/18 09:30	☐
1808591-09	2327414001	Water		07/18/18 11:20	08/09/18 09:30	☐
1808591-10	2327497001	Water		07/18/18 11:30	08/09/18 09:30	☐
1808591-11	2327497002	Water		07/18/18 11:20	08/09/18 09:30	☐
1808591-12	2327497003	Water		07/18/18 12:30	08/09/18 09:30	☐
1808591-13	2327497004	Water		07/18/18 11:55	08/09/18 09:30	☐
1808591-14	2327497005	Water		07/18/18 12:05	08/09/18 09:30	☐
1808591-15	2327497006	Water		07/18/18 12:12	08/09/18 09:30	☐
1808591-16	2327497007	Water		07/18/18 12:50	08/09/18 09:30	☐
1808591-17	2327497008	Water		07/18/18 13:00	08/09/18 09:30	☐
1808591-18	2327497009	Water		07/18/18 13:10	08/09/18 09:30	☐
1808591-19	2327497010	Water		07/18/18 13:17	08/09/18 09:30	☐
1808591-20	2327497011	Water		07/18/18 13:30	08/09/18 09:30	☐
1808591-21	2327500001	Water		07/18/18 08:15	08/09/18 09:30	☐
1808591-22	2327622001	Water		07/19/18 10:20	08/09/18 09:30	☐
1808591-23	2327622002	Water		07/19/18 12:53	08/09/18 09:30	☐
1808591-24	2327622003	Water		07/19/18 14:05	08/09/18 09:30	☐
1808591-25	2327622004	Water		07/19/18 14:47	08/09/18 09:30	☐
1808591-26	2327657001	Water		07/19/18 12:30	08/09/18 09:30	☐
1808591-27	2327703001	Water		07/20/18 10:14	08/09/18 09:30	☐
1808591-28	2327703002	Water		07/20/18 10:32	08/09/18 09:30	☐
1808591-29	2327703003	Water		07/20/18 10:54	08/09/18 09:30	☐
1808591-30	2327703004	Water		07/20/18 11:30	08/09/18 09:30	☐
1808591-31	2327703005	Water		07/20/18 11:48	08/09/18 09:30	☐
1808591-32	2327703006	Water		07/20/18 12:01	08/09/18 09:30	☐
1808591-33	2327709001	Water		07/20/18 08:32	08/09/18 09:30	☐
1808591-34	2327709002	Water		07/20/18 08:35	08/09/18 09:30	☐
1808591-35	2327988001	Water		07/23/18 13:35	08/09/18 09:30	☐
1808591-36	2328534001	Water		07/25/18 11:30	08/09/18 09:30	☐
1808591-37	2328536001	Water		07/25/18 11:00	08/09/18 09:30	☐

Client: ALS Environmental
Project: Specific Conductance
WorkOrder: 1808591

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µmhos/cm	Micromhos per Centimeter

ALS Group, USA

Date: *14-Aug-18*

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327622001
Collection Date: 07/19/18 10:20 AM

Work Order: 1808591
Lab ID: 1808591-22
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	430		0.97	5.0	µmhos/cm	1	08/13/18 09:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327622002
Collection Date: 07/19/18 12:53 PM

Work Order: 1808591
Lab ID: 1808591-23
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	310		0.97	5.0	µmhos/cm	1	08/13/18 09:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327622003
Collection Date: 07/19/18 02:05 PM

Work Order: 1808591
Lab ID: 1808591-24
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	400		0.97	5.0	µmhos/cm	1	08/13/18 09:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA **Date:** *14-Aug-18*

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327622004
Collection Date: 07/19/18 02:47 PM

Work Order: 1808591
Lab ID: 1808591-25
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	2,800		0.97	5.0	µmhos/cm	1	08/13/18 09:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **R242100** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180813-R242100** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: Run ID: **WETCHEM_180813A** SeqNo: **5197691** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	0.97	5.0								

DUP Sample ID: **1808591-01A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: **2326836001** Run ID: **WETCHEM_180813A** SeqNo: **5197694** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	466000	9.7	50	0	0	0	0-0	468000	0.428	5	

DUP Sample ID: **1808591-10A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: **2327497001** Run ID: **WETCHEM_180813A** SeqNo: **5197704** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	319	0.97	5.0	0	0	0	0-0	315	1.26	5	

LCS1 Sample ID: **WLCS1W-180813-R242100** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: Run ID: **WETCHEM_180813A** SeqNo: **5197692** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.74	0.97	5.0	14.9	0	98.9	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242100** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: Run ID: **WETCHEM_180813A** SeqNo: **5197712** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	614	0.97	5.0	592	0	104	85-107	0			

The following samples were analyzed in this batch:

1808591-01A	1808591-02A	1808591-03A
1808591-04A	1808591-05A	1808591-06A
1808591-07A	1808591-08A	1808591-09A
1808591-10A	1808591-11A	1808591-12A
1808591-13A	1808591-14A	1808591-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1808591
Project: Specific Conductance

QC BATCH REPORT

Batch ID: **R242101** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180813-R242101** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: Run ID: **WETCHEM_180813B** SeqNo: **5197720** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	0.98	0.97	5.0								J

DUP Sample ID: **1808591-16A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: **2327497007** Run ID: **WETCHEM_180813B** SeqNo: **5197723** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	35.8	0.97	5.0	0	0	0	0-0	35.8	0	5	

DUP Sample ID: **1808591-26A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: **2327657001** Run ID: **WETCHEM_180813B** SeqNo: **5197734** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	72	0.97	5.0	0	0	0	0-0	71.9	0.139	5	

LCS1 Sample ID: **WLCS1W1-180813-R242101** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: Run ID: **WETCHEM_180813B** SeqNo: **5197721** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.13	0.97	5.0	14.9	0	94.8	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242101** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: Run ID: **WETCHEM_180813B** SeqNo: **5197739** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	601	0.97	5.0	592	0	102	85-107	0			

The following samples were analyzed in this batch:

1808591-16A	1808591-17A	1808591-18A
1808591-19A	1808591-20A	1808591-21A
1808591-22A	1808591-23A	1808591-24A
1808591-25A	1808591-26A	1808591-27A
1808591-28A	1808591-29A	1808591-30A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1808591
Project: Specific Conductance

QC BATCH REPORT

Batch ID: **R242104** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180813-R242104** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197787** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	0.97	5.0								

MBLK Sample ID: **WBLKW1-180813-R242104** Units: **µmhos/cm @ 25°** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197799** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	0.97	5.0								

DUP Sample ID: **1808591-31A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: **2327703005** Run ID: **WETCHEM_180813C** SeqNo: **5197790** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3260	0.97	5.0	0	0	0	0-0	3250	0.307	5	

LCS1 Sample ID: **WLCS1W1-180813-R242104** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197788** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.71	0.97	5.0	14.9	0	98.7	85-107	0			

LCS1 Sample ID: **WLCS1W1-180813-R242104** Units: **µmhos/cm @ 25°** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197800** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.71	0.97	5.0	14.9	0	98.7	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242104** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197798** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	581	0.97	5.0	592	0	98.1	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242104** Units: **µmhos/cm @ 25°** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197802** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	581	0.97	5.0	592	0	98.1	85-107	0			

The following samples were analyzed in this batch:

1808591-31A	1808591-32A	1808591-33A
1808591-34A	1808591-35A	1808591-36A
1808591-37A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALSI

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

COC #: 1808591 — 1 of 4

ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown PA 17057
Contact: Shannon Butler
Phone#: 717-944-5541
Project Name/#: Specific Conductance
Bill To: Same

TAT: Normal-Standard TAT is 10-12 business days. / Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:
Email? [x] -Y shannon.butler@alsglobal.com
Fax? -Y No.:

Container Type: Plastic
Container Size:
Preservative: none

ANALYSES/METHOD REQUESTED: Specific Conductance

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Specific Conductance	Sample/COC Comments
1	2326838001	07/18/18	11335	G	WT	1	
2	2326837001	07/18/18	1230	G	WT	1	
3	2326959001	07/17/18	1235	G	WT	1	
4	2326959002	07/17/18	1315	G	WT	1	
5	2326959003	07/17/18	1020	G	WT	1	Sub to: ALS - Holland
6	2327049001	07/18/18	1215	G	WT	1	SKZ 60C
7	2327411001	07/18/18	1055	G	WT	1	pH12
8	2327411002	07/18/18	1330	G	WT	1	
9	2327414001	07/18/18	1120	G	WT	1	ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment
10	2327497001	07/18/18	1130	G	WT	1	oOther:

Receipt Information (completed by Receiving Lab)
Cooler Temp: 6.0 Therm ID:
No. of Coolers: Y N Initial
Custody Seals Present?
(if present) Seals Intact?
Received on Ice?
COC/Labels Complete/Accurate?
Cont. in Good Cond.?
Correct Containers?
Correct Sample Volumes?
Correct Preservation?
Headspace/Volatiles?
Courier/Tracking #:

Project Comments:
LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/18/18	1450	2 FedEX		1730
3 Fedex	8/19/18	0920	4 [signature]	8/9/18	1355
5			6		
7			8		
9			10		

Data Deliverables: [x] Standard / CLP-like / USACE
Special Processing: USACE / Navy
State Samples Collected In: NY / NJ / [x] PA / NC / MD
Reportable to PADEP? Yes
PWSID #
Sample Disposal: Lab / Special
EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER MAILING PINK - FILE GOLDENROD - CUSTOMER COPY Rev 8/04

ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALSI

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

COC #: 1808591 | 2 of 4

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

Container Type	Container Size	Preservative
Plastic		None

ANALYSES/METHOD REQUESTED

Specific Conductance

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
11 2327497002	07/18/18	1120	G	WT	1	
12 2327497003	07/18/18	1230	G	WT	1	
13 2327497004	07/18/18	1155	G	WT	1	
14 2327497005	07/18/18	1205	G	WT	1	
15 2327497006	07/18/18	1212	G	WT	1	Sub to: ALS - Holland
16 2327497007	07/18/18	1250	G	WT	1	8R2 60C
17 2327497008	07/18/18	1300	G	WT	1	pH12
18 2327497009	07/18/18	1310	G	WT	1	
19 2327497010	07/18/18	1317	G	WT	1	
20 2327497011	07/18/18	1330	G	WT	1	

Receipt Information (completed by Receiving Lab)

Cooler Temp: 6.0 Therm ID:

No. of Coolers: Y N Initial

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/18/18	1450	2 FedEx		
3 FedEx	8.9.18	9:30	4	8/9/18	12:55
5			6		
7			8		
9			10		

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

ALS Environmental

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALSI

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

COC #: 1808591 — 3 of 4

ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane, Middletown PA 17057
Contact: Shannon Butler
Phone#: 717-944-5541
Project Name/#: Specific Conductance
Bill To: Same

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

Container Type: Plastic | Container Size: | Preservative: none

ANALYSES/METHOD REQUESTED: Specific Conductance

Receipt Information (completed by Receiving Lab)
Cooler Temp: 6.0C Therm ID: SR-2
No. of Coolers: Y N Initial
Custody Seals Present?
(if present) Seals Intact?
Received on Ice?
COC/Labels Complete/Accurate?
Cont. in Good Cond.?
Correct Containers?
Correct Sample Volumes?
Correct Preservation?
Headspace/Volatiles?
Courier/Tracking #:

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Specific Conductance	Sample/COC Comments
21	2327500001	07/18/18	0815	G	WT	1	
22	2327622001	07/19/18	1020	G	WT	1	
23	2327622002	07/19/18	1253	G	WT	1	
24	2327622003	07/19/18	1405	G	WT	1	
25	2327622004	07/19/18	1447	G	WT	1	Sub to: ALS - Holland
26	2327657001	07/19/18	1230	G	WT	1	
27	2327703001	07/20/18	1014	G	WT	1	
28	2327703002	07/20/18	1032	G	WT	1	
29	2327703003	07/20/18	1054	G	WT	1	ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:
30	2327703004	07/20/18	1130	G	WT	1	

Project Comments:

LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/8/18	1450	2 FedEx		
3 FedEx	8/9/18	0930	4 [signature]	8/9/18	12:55
5			6		
7			8		
9			10		

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Reportable to PADEP? Yes [ ]
PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALSI

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

COC #: 1808591

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

Container Type: Plastic
Container Size:
Preservative: None

ANALYSES/METHOD REQUESTED

Specific Conductance

Receipt Information (completed by Receiving Lab)

Cooler Temp: 6.0 Therm ID: SR2

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
31	2327703005	07/20/18	1148	G	WT	1	
32	2327703006	07/20/18	1201	G	WT	1	
33	2327709001	07/20/18	0832	G	WT	1	
34	2327709002	07/20/18	0835	G	WT	1	
35	2327988001	07/23/18	1335	G	WT	1	Sub to: ALS - Holland
36	2328534001	07/25/18	1130	G	WT	1	
37	2328536001	07/25/18	1100	G	WT	1	
				G	WT	1	
				G	WT	1	
				G	WT	1	

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/8/18	1450	2 FedEX		
3 FedEX	8/9/18	0930	4	8/9/18	1255
5			6		
7			8		
9			10		

Reportable to PADEP? Yes [ ] PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

* G=Grab, C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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ALS Group, USA

Sample Receipt Checklist

Client Name: **ALS - MIDDLETOWN** Date/Time Received: **09-Aug-18 09:30**

Work Order: **1808591** Received by: **BNF**

Checklist completed by *Bonnie France* 09-Aug-18 Reviewed by: *Tom Barnish* 09-Aug-18
eSignature Date eSignature Date

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	6.0 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	8/9/2018 1:24:26 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

August 20, 2018

Mr. Daniel Brown
Lancaster County Solid Waste Authority
1299 Hbg Pike, P.O. Box 4425
Lancaster, PA 17604

Certificate of Analysis

Project Name:	**2018-CRESWELL**	Workorder:	**2326539**
Purchase Order:	**PO1000127**	Workorder ID:	**3RD QTR 2018 CWMP-FORM 19Q/RR**

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Monday, July 16, 2018.

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

If you have any questions regarding this certificate of analysis, please contact Ms. Susan J Scherer (Project Coordinator) 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.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Ms. Jordan Gallagher , Mr. Mark Reider , Mr. Jeff Musser

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

Susan J. Scherer

Ms. Susan J Scherer
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

Re: Power Outage at ALS – Middletown Facility

To Whom It May Concern,

During the recent weather event in the Northeast and related flooding in our area, ALS–Middletown lost power the evening of Monday, July 23, 2018. Numerous trees damaged both utility poles and fell on power lines in the flooded areas making repair that much more difficult for the emergency repair groups. The laboratory was without power until the afternoon of Wednesday, July 25, 2018.

This power outage prevented ALS from operating our business in a normal manner during this period. The analysis and reporting of samples during this time period was significantly reduced. In addition to continuing to receive samples from our clients, our field service staff and sample receiving groups continued to collect, process and receive samples during this period. Analysis of short hold parameters was accomplished under emergency generator power. As power was restored to our facility, we have brought all systems back online with minimal damage to instruments and computers. In this situation a sudden loss of power can cause damage to sensitive electronic equipment so care is being taken to ensure the instruments are operating at optimal conditions.

As we return to full operational status, we will experience backlogs in our data analysis and processing. The lab staff is working diligently 24/7 to get all delayed projects, results and reports out as quickly as possible to prevent any further delays. If any data was compromised due to the power loss, an appropriate comment will be notated on your laboratory report.

If you have any questions or concerns regarding your sample results, please feel free to contact your ALS Project Manager or our Client Services Manager, Shiloh Summy at Shiloh.summy@alsglobal.com or (717)-577-3515.

Thank you for choosing ALS–Middletown to meet your analytical needs. We are committed to ensuring all data meets our stringent quality standards even in these unfortunate circumstances.

Sincerely,

Scott Brunk

Laboratory Director

ALS Environmental, Middletown

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2326539001	CWMP002W	Ground Water	7/16/2018 11:02	7/16/2018 16:56	Mr. Brian G Shade
2326539002	CWMP004W	Ground Water	7/16/2018 13:27	7/16/2018 16:56	Mr. Brian G Shade
2326539003	CWMP003W	Ground Water	7/16/2018 13:30	7/16/2018 16:56	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

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 preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	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
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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PROJECT SUMMARY

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Workorder Comments

See attached subcontracted results from ALS-Holland for specific conductance results. Results not related to this work order were removed from the ALS Holland report. SB 08/07/18

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ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID: **2326539001** Date Collected: 7/16/2018 11:02 Matrix: Ground Water

Sample ID: **CWMP002W** Date Received: 7/16/2018 16:56

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Bromoform	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Bromomethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Chloroethane	5.8		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Chloroform	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Chloromethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,1-Dichloroethane	7.3		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,3-Dichloropropene, Total	ND		ug/L	2.0	SW846 8260B			7/19/18 17:21	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Styrene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/19/18 17:21	TMP	G
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B			7/19/18 17:21	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			7/19/18 17:21	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/19/18 17:21	TMP	G

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID: **2326539001** Date Collected: 7/16/2018 11:02 Matrix: Ground Water

Sample ID: **CWMP002W** Date Received: 7/16/2018 16:56

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	114		%	62 - 133	SW846 8260B			7/19/18 17:21	TMP	G
4-Bromofluorobenzene (S)	98.6		%	79 - 114	SW846 8260B			7/19/18 17:21	TMP	G
Dibromofluoromethane (S)	106		%	78 - 116	SW846 8260B			7/19/18 17:21	TMP	G
Toluene-d8 (S)	107		%	76 - 127	SW846 8260B			7/19/18 17:21	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	70		mg/L	5	S2320B-97			7/18/18 16:51	MSA	B
Alkalinity, Total	70	4	mg/L	5	S2320B-97			7/18/18 16:51	MSA	B
Ammonia-N	0.805		mg/L	0.100	D6919-09			7/30/18 21:03	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			7/18/18 12:31	AK	A
Chloride	123		mg/L	2.0	EPA 300.0			7/17/18 16:57	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/17/18 16:57	CHW	B
Nitrate-N	3.5		mg/L	0.20	EPA 300.0			7/17/18 16:57	CHW	B
pH	5.97	1	pH_Units		S4500HB-11			7/18/18 16:51	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/23/18 06:12	C_D	7/28/18 00:00	RXB	F
Sulfate	26.7		mg/L	2.0	EPA 300.0			7/17/18 16:57	CHW	B
Total Dissolved Solids	385	2	mg/L	5	S2540C-11			7/18/18 13:20	BMK	B
Total Organic Carbon (TOC)	3.2	3	mg/L	0.50	SW846 9060A			8/2/18 22:34	AK	D
Turbidity	ND		NTU	0.10	S2130B-01			7/17/18 00:50	MSA	B
METALS										
Calcium, Total	51.9		mg/L	0.11	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:01	DAG	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:01	DAG	J1
Magnesium, Total	16.4		mg/L	0.11	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:01	DAG	J1
Manganese, Total	1.0		mg/L	0.0056	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:01	DAG	J1
Potassium, Total	2.7		mg/L	0.56	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:01	DAG	J1
Sodium, Total	21.7		mg/L	0.56	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:01	DAG	J1
FIELD PARAMETERS										
Depth to Water Level	69.980		Feet		Field			7/16/18 11:02	BGS	C
Elev Top MW Casing above MSL	525.81		Feet		Field			7/16/18 11:02	BGS	C
Ground Water Elevation	455.830		ft/MSL		Field			7/16/18 11:02	BGS	C
pH, Field (SM4500B)	5.050		pH_Units		Field			7/16/18 11:02	BGS	C
Sample Depth	85.000		Feet		Field			7/16/18 11:02	BGS	C
Specific Conductance, Field	605		umhos/cm	1	Field			7/16/18 11:02	BGS	C
Temperature	11.93		Deg. C		Field			7/16/18 11:02	BGS	C
Total Well Depth	100.000		Feet		Field			7/16/18 11:02	BGS	C
SUBCONTRACTED ANALYSIS										

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ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID: **2326539001** Date Collected: 7/16/2018 11:02 Matrix: Ground Water

Sample ID: **CWMP002W** Date Received: 7/16/2018 16:56

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Subcontracted Analysis	See Attached				Subcontract			8/3/18 16:00	SUB	

Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID: **2326539002** Date Collected: 7/16/2018 13:27 Matrix: Ground Water

Sample ID: **CWMP004W** Date Received: 7/16/2018 16:56

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Bromoform	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Bromomethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Chloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Chloroform	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Chloromethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,1-Dichloroethane	1.2		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,3-Dichloropropene, Total	ND		ug/L	2.0	SW846 8260B			7/19/18 17:44	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Styrene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/19/18 17:44	TMP	G
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B			7/19/18 17:44	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			7/19/18 17:44	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/19/18 17:44	TMP	G

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*

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ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID: **2326539002** Date Collected: 7/16/2018 13:27 Matrix: Ground Water

Sample ID: **CWMP004W** Date Received: 7/16/2018 16:56

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
1,2-Dichloroethane-d4 (S)	117		%	62 - 133	SW846 8260B			7/19/18 17:44	TMP	G
4-Bromofluorobenzene (S)	99		%	79 - 114	SW846 8260B			7/19/18 17:44	TMP	G
Dibromofluoromethane (S)	104		%	78 - 116	SW846 8260B			7/19/18 17:44	TMP	G
Toluene-d8 (S)	106		%	76 - 127	SW846 8260B			7/19/18 17:44	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	30		mg/L	5	S2320B-97			7/18/18 16:59	MSA	B
Alkalinity, Total	30	3	mg/L	5	S2320B-97			7/18/18 16:59	MSA	B
Ammonia-N	0.864		mg/L	0.100	D6919-09			7/30/18 21:47	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			7/18/18 12:31	AK	A
Chloride	46.4		mg/L	2.0	EPA 300.0			7/17/18 17:15	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/17/18 17:15	CHW	B
Nitrate-N	6.1		mg/L	0.20	EPA 300.0			7/17/18 17:15	CHW	B
pH	6.28	1	pH_Units		S4500HB-11			7/18/18 16:59	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/23/18 06:12	C_D	7/28/18 00:00	RXB	F
Sulfate	6.1		mg/L	2.0	EPA 300.0			7/17/18 17:15	CHW	B
Total Dissolved Solids	166		mg/L	5	S2540C-11			7/18/18 13:20	BMK	B
Total Organic Carbon (TOC)	0.96	2	mg/L	0.50	SW846 9060A			8/2/18 22:34	AK	D
Turbidity	ND		NTU	0.10	S2130B-01			7/17/18 00:50	MSA	B
METALS										
Calcium, Total	21.6		mg/L	0.11	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:05	DAG	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:05	DAG	J1
Magnesium, Total	6.6		mg/L	0.11	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:05	DAG	J1
Manganese, Total	0.0064		mg/L	0.0056	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:05	DAG	J1
Potassium, Total	1.2		mg/L	0.56	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:05	DAG	J1
Sodium, Total	14.7		mg/L	0.56	SW846 6010C	7/17/18 10:20	DXC	7/18/18 14:05	DAG	J1
FIELD PARAMETERS										
Depth to Water Level	79.880		Feet		Field			7/16/18 13:27	BGS	C
Elev Top MW Casing above MSL	529.53		Feet		Field			7/16/18 13:27	BGS	C
Ground Water Elevation	449.650		ft/MSL		Field			7/16/18 13:27	BGS	C
pH, Field (SM4500B)	5.150		pH_Units		Field			7/16/18 13:27	BGS	C
Sample Depth	130.000		Feet		Field			7/16/18 13:27	BGS	C
Specific Conductance, Field	290		umhos/cm	1	Field			7/16/18 13:27	BGS	C
Temperature	12.65		Deg. C		Field			7/16/18 13:27	BGS	C
Total Well Depth	140.000		Feet		Field			7/16/18 13:27	BGS	C
SUBCONTRACTED ANALYSIS										

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ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID: **2326539002** Date Collected: 7/16/2018 13:27 Matrix: Ground Water

Sample ID: **CWMP004W** Date Received: 7/16/2018 16:56

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Subcontracted Analysis	See Attached				Subcontract			8/3/18 16:00	SUB	

Ms. Susan J Scherer
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ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID: **2326539003** Date Collected: 7/16/2018 13:30 Matrix: Ground Water

Sample ID: **CWMP003W** Date Received: 7/16/2018 16:56

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Bromoform	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Bromomethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Chloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Chloroform	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Chloromethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,1-Dichloroethane	1.8		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,3-Dichloropropene, Total	ND		ug/L	2.0	SW846 8260B			7/19/18 18:07	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Styrene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/19/18 18:07	TMP	G
1,2,4-Trichlorobenzene	ND		ug/L	2.0	SW846 8260B			7/19/18 18:07	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			7/19/18 18:07	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/19/18 18:07	TMP	G

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*

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ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID: **2326539003** Date Collected: 7/16/2018 13:30 Matrix: Ground Water

Sample ID: **CWMP003W** Date Received: 7/16/2018 16:56

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
1,2-Dichloroethane-d4 (S)	117		%	62 - 133	SW846 8260B			7/19/18 18:07	TMP	G
4-Bromofluorobenzene (S)	99.2		%	79 - 114	SW846 8260B			7/19/18 18:07	TMP	G
Dibromofluoromethane (S)	107		%	78 - 116	SW846 8260B			7/19/18 18:07	TMP	G
Toluene-d8 (S)	108		%	76 - 127	SW846 8260B			7/19/18 18:07	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	20		mg/L	5	S2320B-97			7/18/18 17:08	MSA	B
Alkalinity, Total	20	3	mg/L	5	S2320B-97			7/18/18 17:08	MSA	B
Ammonia-N	0.814		mg/L	0.100	D6919-09			7/30/18 22:01	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			7/18/18 12:31	AK	A
Chloride	92.9		mg/L	2.0	EPA 300.0			7/17/18 17:33	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/17/18 17:33	CHW	B
Nitrate-N	9.3		mg/L	0.20	EPA 300.0			7/17/18 17:33	CHW	B
pH	6.18	1	pH_Units		S4500HB-11			7/18/18 17:08	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/23/18 06:12	C_D	7/28/18 00:00	RXB	F
Sulfate	6.5		mg/L	2.0	EPA 300.0			7/17/18 17:33	CHW	B
Total Dissolved Solids	276		mg/L	5	S2540C-11			7/18/18 13:20	BMK	B
Total Organic Carbon (TOC)	0.62	2	mg/L	0.50	SW846 9060A			8/2/18 22:34	AK	D
Turbidity	ND		NTU	0.10	S2130B-01			7/17/18 00:50	MSA	B
METALS										
Calcium, Total	31.5		mg/L	0.11	SW846 6010C	7/19/18 11:30	DXC	7/27/18 16:19	DAG	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	7/19/18 11:30	DXC	7/27/18 16:19	DAG	J1
Magnesium, Total	11.1		mg/L	0.11	SW846 6010C	7/19/18 11:30	DXC	7/27/18 16:19	DAG	J1
Manganese, Total	ND		mg/L	0.0056	SW846 6010C	7/19/18 11:30	DXC	7/27/18 16:19	DAG	J1
Potassium, Total	1.6		mg/L	0.56	SW846 6010C	7/19/18 11:30	DXC	7/27/18 16:19	DAG	J1
Sodium, Total	22.7		mg/L	0.56	SW846 6010C	7/19/18 11:30	DXC	7/27/18 16:19	DAG	J1
FIELD PARAMETERS										
Depth to Water Level	93.730		Feet		Field			7/16/19 13:38	BGS	C
Elev Top MW Casing above MSL	524.21		Feet		Field			7/16/19 13:38	BGS	C
Ground Water Elevation	430.480		ft/MSL		Field			7/16/19 13:38	BGS	C
pH, Field (SM4500B)	4.870		pH_Units		Field			7/16/19 13:38	BGS	C
Sample Depth	100.000		Feet		Field			7/16/19 13:38	BGS	C
Specific Conductance, Field	455		umhos/cm	1	Field			7/16/19 13:38	BGS	C
Temperature	12.37		Deg. C		Field			7/16/19 13:38	BGS	C
Total Well Depth	140.000		Feet		Field			7/16/19 13:38	BGS	C
SUBCONTRACTED ANALYSIS										

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ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID: **2326539003** Date Collected: 7/16/2018 13:30 Matrix: Ground Water

Sample ID: **CWMP003W** Date Received: 7/16/2018 16:56

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Subcontracted Analysis	See Attached				Subcontract			8/6/18 13:30	SUB	

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ANALYTICAL RESULTS

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2326539001	1	CWMP002W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2326539001	2	CWMP002W	S2540C-11	Total Dissolved Solids
The RPD associated with this sample was recovered at 8.5%. The RPD is outside method acceptance limits of 5.0%. The results used to calculate the RPD were 419 and 385 mg/L.				
2326539001	3	CWMP002W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2326539001	4	CWMP002W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2326539002	1	CWMP004W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2326539002	2	CWMP004W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2326539002	3	CWMP004W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2326539003	1	CWMP003W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2326539003	2	CWMP003W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2326539003	3	CWMP003W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2326539 3RD QTR 2018 CWMP-FORM 19Q/RR

Lab ID	Sample ID	Analysis Method	Prep Method
2326539001	CWMP002W	D6919-09	
2326539001	CWMP002W	EPA 300.0	
2326539001	CWMP002W	EPA 410.4	
2326539001	CWMP002W	Field	
2326539001	CWMP002W	S2130B-01	
2326539001	CWMP002W	S2320B-97	
2326539001	CWMP002W	S2540C-11	
2326539001	CWMP002W	S4500HB-11	
2326539001	CWMP002W	SW846 6010C	SW846 3015
2326539001	CWMP002W	SW846 8260B	
2326539001	CWMP002W	SW846 9060A	
2326539001	CWMP002W	SW846 9066	420.4/9066
2326539001	CWMP002W	Subcontract	
2326539002	CWMP004W	D6919-09	
2326539002	CWMP004W	EPA 300.0	
2326539002	CWMP004W	EPA 410.4	
2326539002	CWMP004W	Field	
2326539002	CWMP004W	S2130B-01	
2326539002	CWMP004W	S2320B-97	
2326539002	CWMP004W	S2540C-11	
2326539002	CWMP004W	S4500HB-11	
2326539002	CWMP004W	SW846 6010C	SW846 3015
2326539002	CWMP004W	SW846 8260B	
2326539002	CWMP004W	SW846 9060A	
2326539002	CWMP004W	SW846 9066	420.4/9066
2326539002	CWMP004W	Subcontract	
2326539003	CWMP003W	D6919-09	
2326539003	CWMP003W	EPA 300.0	
2326539003	CWMP003W	EPA 410.4	
2326539003	CWMP003W	Field	
2326539003	CWMP003W	S2130B-01	
2326539003	CWMP003W	S2320B-97	
2326539003	CWMP003W	S2540C-11	
2326539003	CWMP003W	S4500HB-11	
2326539003	CWMP003W	SW846 6010C	SW846 3015
2326539003	CWMP003W	SW846 8260B	
2326539003	CWMP003W	SW846 9060A	
2326539003	CWMP003W	SW846 9066	420.4/9066
2326539003	CWMP003W	Subcontract	

ALS Environmental

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

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

* 2326539 *

1 of 1

Client Name: Lancaster County Solid Waste MA

Address: 1299 Harrisburg Pike, P.O. Box 4424
Lancaster, PA 17604

Contact: Mark Reider

Phone#: (717) 735-0193

Project Name/#: Creswell/GWMP Form 19Q Wells

Bill To: Lancaster County Solid Waste MA

TAT [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: _____ Approved By: _____

Email? [X]-Y mreider@LCSWMA.com

Fax? [X]-Y No.: (717) 397-9973

Container Type	AG	AN	CG	—	—	PL	PL	PL	PL
Container Size	40 ml	500 ml	40 ml	—	—	500 ml	500 ml	1 L	500 ml
Preservative	HCl	H2SO4	HCl	—	—	H2SO4	HNO3	None	None

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	TOC	O-OH	8260 VOCs - Form 19Q	Field Measurements	Sample Depth for AUX Data	NH3-N, COD	Total Metals: Ca, Fe, Mn, Mg, K, Na	pH, NO3, Cl, F, SpC; SO4, Turb, TDS	Alkalinity, HCO3
			Enter Number of Containers Per Sample or Field Results Below.										
1 CWMP002W	7-16-18	1102	G	GW	2	1	2	X	X	1	1	1	1
2 CWMP004W	"	1327	"	"	"	"	"	"	"	"	"	"	"
3 CWMP003W	"	1338	"	"	"	"	"	"	"	"	"	"	"
4													
5													
6													
7													
8													
9													
10													

Receipt Information (completed by Receiving Lab)

Cooler Temp: 2°C Therm ID: 402

No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?		X	MRA
(If present) Seals Intact?			
Received on Ice?	X		
COC/Labels Complete/Accurate?	X		
Cont. In Good Cond.?	X		
Correct Containers?	X		
Correct Sample Volumes?	X		
Correct Preservation?	X		
Headspace/Volatiles?		X	

Courier/Tracking #:

Sample/COC Comments

ALS Field Services: [ ]Pickup [ ]Labor [ ]Composite_Sampling [ ]Rental_Equipment [ ]Other: _____

Project Comments:

LOGGED BY(signature): _____ DATE 7/16/18 TIME 1653

REVIEWED BY(signature): _____ DATE _____ TIME _____

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [illegible] ALS	7/16/18	1656	2 QNS ALS	7/16/18	1656
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ]

Reportable to PADEP? Yes [ ] PWSID # _____

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type- _____

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 8/04

06-Aug-2018

Shannon Butler
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Re: **Specific Conductance** Work Order: **1808254**

Dear Shannon,

ALS Environmental received 65 samples on 03-Aug-2018 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 82.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Tom Beamish

Tom Beamish
Senior Project Manager

Report of Laboratory Analysis

Certificate No: PA: 68-03827

Client: ALS Environmental
Project: Specific Conductance
Work Order: 1808254

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1808254-01	2325225001	Water		07/09/18 13:25	08/03/18 09:30	☐
1808254-02	2325345001	Water		07/10/18 08:37	08/03/18 09:30	☐
1808254-03	2325345002	Water		07/10/18 10:10	08/03/18 09:30	☐
1808254-04	2325345003	Water		07/10/18 11:12	08/03/18 09:30	☐
1808254-05	2325345004	Water		07/10/18 11:51	08/03/18 09:30	☐
1808254-06	2325345005	Water		07/10/18 13:02	08/03/18 09:30	☐
1808254-07	2325345006	Water		07/10/18 14:07	08/03/18 09:30	☐
1808254-08	2325345007	Water		07/10/18 11:40	08/03/18 09:30	☐
1808254-09	2325345008	Water		07/10/18 12:41	08/03/18 09:30	☐
1808254-10	2325345009	Water		07/10/18 12:41	08/03/18 09:30	☐
1808254-11	2325345010	Water		07/10/18 14:09	08/03/18 09:30	☐
1808254-12	2325359001	Water		07/10/18 12:00	08/03/18 09:30	☐
1808254-13	2325788001	Water		07/10/18 13:00	08/03/18 09:30	☐
1808254-14	2325849001	Water		07/11/18 12:45	08/03/18 09:30	☐
1808254-15	2325896001	Water		07/11/18 10:10	08/03/18 09:30	☐
1808254-16	2325899001	Water		07/11/18 10:56	08/03/18 09:30	☐
1808254-17	2325899002	Water		07/11/18 08:10	08/03/18 09:30	☐
1808254-18	2325899003	Water		07/11/18 11:35	08/03/18 09:30	☐
1808254-19	2325899004	Water		07/11/18 09:45	08/03/18 09:30	☐
1808254-20	2325899005	Water		07/11/18 12:40	08/03/18 09:30	☐
1808254-21	2325899006	Water		07/11/18 12:50	08/03/18 09:30	☐
1808254-22	2325899007	Water		07/11/18 12:57	08/03/18 09:30	☐
1808254-23	2325899008	Water		07/11/18 13:00	08/03/18 09:30	☐
1808254-24	2325899009	Water		07/11/18 17:15	08/03/18 09:30	☐
1808254-25	2325971001	Water		07/12/18 14:04	08/03/18 09:30	☐
1808254-26	2326196001	Water		07/12/18 15:47	08/03/18 09:30	☐
1808254-27	2326196002	Water		07/12/18 13:05	08/03/18 09:30	☐
1808254-28	2326196003	Water		07/12/18 15:01	08/03/18 09:30	☐
1808254-29	2326196004	Water		07/12/18 15:34	08/03/18 09:30	☐
1808254-30	2326226001	Water		07/10/18 14:00	08/03/18 09:30	☐
1808254-31	2326226002	Water		07/10/18 14:27	08/03/18 09:30	☐
1808254-32	2326255001	Water		07/11/18 09:50	08/03/18 09:30	☐
1808254-33	2326255002	Water		07/11/18 10:00	08/03/18 09:30	☐
1808254-34	2326255003	Water		07/11/18 09:40	08/03/18 09:30	☐
1808254-35	2326333001	Water		07/13/18 09:41	08/03/18 09:30	☐
1808254-36	2326333002	Water		07/13/18 09:52	08/03/18 09:30	☐
1808254-37	2326333003	Water		07/13/18 08:20	08/03/18 09:30	☐
1808254-38	2326333004	Water		07/13/18 08:33	08/03/18 09:30	☐
1808254-39	2326334001	Water		07/13/18 07:50	08/03/18 09:30	☐

Client: ALS Environmental
Project: Specific Conductance
Work Order: 1808254

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1808254-40	2326334002	Water		07/13/18 09:08	08/03/18 09:30	☐
1808254-41	2326335001	Water		07/13/18 11:30	08/03/18 09:30	☐
1808254-42	2326335002	Water		07/13/18 10:04	08/03/18 09:30	☐
1808254-43	2326336001	Water		07/13/18 11:25	08/03/18 09:30	☐
1808254-44	2326336002	Water		07/13/18 11:00	08/03/18 09:30	☐
1808254-45	2326336003	Water		07/13/18 10:25	08/03/18 09:30	☐
1808254-46	2326336004	Water		07/13/18 09:55	08/03/18 09:30	☐
1808254-47	2326336005	Water		07/13/18 10:10	08/03/18 09:30	☐
1808254-48	2326336006	Water		07/13/18 07:40	08/03/18 09:30	☐
1808254-49	2326336007	Water		07/13/18 10:35	08/03/18 09:30	☐
1808254-50	2326336008	Water		07/13/18 08:55	08/03/18 09:30	☐
1808254-51	2326336009	Water		07/13/18 09:45	08/03/18 09:30	☐
1808254-52	2326336010	Water		07/13/18 09:10	08/03/18 09:30	☐
1808254-53	2326336011	Water		07/13/18 08:10	08/03/18 09:30	☐
1808254-54	2326336012	Water		07/13/18 09:30	08/03/18 09:30	☐
1808254-55	2326336013	Water		07/13/18 08:30	08/03/18 09:30	☐
1808254-56	2326336014	Water		07/13/18 07:55	08/03/18 09:30	☐
1808254-57	2326336015	Water		07/13/18 11:10	08/03/18 09:30	☐
1808254-58	2326388001	Water		07/13/18 09:30	08/03/18 09:30	☐
1808254-59	2326539001	Water		07/16/18 11:02	08/03/18 09:30	☐
1808254-60	2326539002	Water		07/16/18 13:27	08/03/18 09:30	☐
1808254-61	2326539003	Water		07/16/18 13:30	08/03/18 09:30	☐
1808254-62	2326541001	Water		07/16/18 10:40	08/03/18 09:30	☐
1808254-63	2326541002	Water		07/16/18 09:52	08/03/18 09:30	☐
1808254-64	2326541003	Water		07/16/18 11:34	08/03/18 09:30	☐
1808254-65	2326541004	Water		07/16/18 15:33	08/03/18 09:30	☐

Client: ALS Environmental
Project: Specific Conductance
WorkOrder: 1808254

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time; value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µmhos/cm	Micromhos per Centimeter

ALS Group, USA

Date: 06-Aug-18

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2326539001
Collection Date: 07/16/18 11:02 AM

Work Order: 1808254
Lab ID: 1808254-59
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	600		0.97	5.0	µmhos/cm	1	08/03/18 16:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Aug-18

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2326539002
Collection Date: 07/16/18 01:27 PM

Work Order: 1808254
Lab ID: 1808254-60
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	280		0.97	5.0	µmhos/cm	1	08/03/18 16:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Aug-18

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2326539003
Collection Date: 07/16/18 01:30 PM

Work Order: 1808254
Lab ID: 1808254-61
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	450		0.97	5.0	µmhos/cm	1	08/06/18 13:30

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **R241604** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180803-R241604** Units: **µmhos/cm** Analysis Date: **08/03/18 03:15 PM**
Client ID: Run ID: **WETCHEM_180803J** SeqNo: **5184650** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	5.0								

DUP Sample ID: **1808254-01A DUP** Units: **µmhos/cm** Analysis Date: **08/03/18 03:15 PM**
Client ID: **2325225001** Run ID: **WETCHEM_180803J** SeqNo: **5184653** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	446	5.0	0	0	0	0-0	447	0.224	5	

DUP Sample ID: **1808254-10A DUP** Units: **µmhos/cm** Analysis Date: **08/03/18 03:15 PM**
Client ID: **2325345009** Run ID: **WETCHEM_180803J** SeqNo: **5184663** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	735	5.0	0	0	0	0-0	737	0.272	5	

LCS1 Sample ID: **WLCS1W1-180803-R241604** Units: **µmhos/cm** Analysis Date: **08/03/18 03:15 PM**
Client ID: Run ID: **WETCHEM_180803J** SeqNo: **5184651** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	15.39	5.0	14.9	0	103	85-107	0			

LCS2 Sample ID: **WLCS2W1-180803-R241604** Units: **µmhos/cm** Analysis Date: **08/03/18 03:15 PM**
Client ID: Run ID: **WETCHEM_180803J** SeqNo: **5184674** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	622	5.0	592	0	105	85-107	0			

The following samples were analyzed in this batch:

1808254-01A	1808254-02A	1808254-03A
1808254-04A	1808254-05A	1808254-06A
1808254-07A	1808254-08A	1808254-09A
1808254-10A	1808254-11A	1808254-12A
1808254-13A	1808254-14A	1808254-15A
1808254-16A	1808254-17A	1808254-18A
1808254-19A	1808254-20A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1808254
Project: Specific Conductance

QC BATCH REPORT

Batch ID: **R241605** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180803-R241605** Units: **µmhos/cm** Analysis Date: **08/03/18 03:40 PM**
Client ID: Run ID: **WETCHEM_180803K** SeqNo: **5184675** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	5.0								

DUP Sample ID: **1808254-21A DUP** Units: **µmhos/cm** Analysis Date: **08/03/18 03:40 PM**
Client ID: **2325899006** Run ID: **WETCHEM_180803K** SeqNo: **5184678** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	420	5.0	0	0	0	0-0	421	0.238	5	

DUP Sample ID: **1808254-31A DUP** Units: **µmhos/cm** Analysis Date: **08/03/18 03:40 PM**
Client ID: **2326226002** Run ID: **WETCHEM_180803K** SeqNo: **5184689** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	256	5.0	0	0	0	0-0	253	1.18	5	

LCS1 Sample ID: **WLCS1W1-180803-R241605** Units: **µmhos/cm** Analysis Date: **08/03/18 03:40 PM**
Client ID: Run ID: **WETCHEM_180803K** SeqNo: **5184676** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	15.04	5.0	14.9	0	101	85-107	0			

LCS2 Sample ID: **WLCS2W1-180803-R241605** Units: **µmhos/cm** Analysis Date: **08/03/18 03:40 PM**
Client ID: Run ID: **WETCHEM_180803K** SeqNo: **5184699** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	606	5.0	592	0	102	85-107	0			

The following samples were analyzed in this batch:

1808254-21A	1808254-22A	1808254-23A
1808254-24A	1808254-25A	1808254-26A
1808254-27A	1808254-28A	1808254-29A
1808254-30A	1808254-31A	1808254-32A
1808254-33A	1808254-34A	1808254-35A
1808254-36A	1808254-37A	1808254-38A
1808254-39A	1808254-40A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1808254
Project: Specific Conductance

QC BATCH REPORT

Batch ID: **R241606** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180803-R241606** Units: **µmhos/cm** Analysis Date: **08/03/18 04:00 PM**
Client ID: Run ID: **WETCHEM_180803L** SeqNo: **5184723** Prep Date: DF: **1**

Analyte	Result	POL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	5.0								

DUP Sample ID: **1808254-41A DUP** Units: **µmhos/cm** Analysis Date: **08/03/18 04:00 PM**
Client ID: **2326335001** Run ID: **WETCHEM_180803L** SeqNo: **5184726** Prep Date: DF: **1**

Analyte	Result	POL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1.48	5.0	0	0	0	0-0	1.48	0	5	J

DUP Sample ID: **1808254-51A DUP** Units: **µmhos/cm** Analysis Date: **08/03/18 04:00 PM**
Client ID: **2326336009** Run ID: **WETCHEM_180803L** SeqNo: **5184737** Prep Date: DF: **1**

Analyte	Result	POL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	978	5.0	0	0	0	0-0	979	0.102	5	

LCS1 Sample ID: **WLCS1W1-180803-R241606** Units: **µmhos/cm** Analysis Date: **08/03/18 04:00 PM**
Client ID: Run ID: **WETCHEM_180803L** SeqNo: **5184724** Prep Date: DF: **1**

Analyte	Result	POL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	15.3	5.0	14.9	0	103	85-107	0			

LCS2 Sample ID: **WLCS2W1-180803-R241606** Units: **µmhos/cm** Analysis Date: **08/03/18 04:00 PM**
Client ID: Run ID: **WETCHEM_180803L** SeqNo: **5184747** Prep Date: DF: **1**

Analyte	Result	POL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	595	5.0	592	0	101	85-107	0			

The following samples were analyzed in this batch:

1808254-41A	1808254-42A	1808254-43A
1808254-44A	1808254-45A	1808254-46A
1808254-47A	1808254-48A	1808254-49A
1808254-50A	1808254-51A	1808254-52A
1808254-53A	1808254-54A	1808254-55A
1808254-56A	1808254-57A	1808254-58A
1808254-59A	1808254-60A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R241679** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180806-R241679** Units: **µmhos/cm** Analysis Date: **08/06/18 01:30 PM**
Client ID: Run ID: **WETCHEM_180806F** SeqNo: **5186503** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	5.0								

MBLK Sample ID: **WBLKW1-180806-R241679** Units: **µmhos/cm @ 25°** Analysis Date: **08/06/18 01:30 PM**
Client ID: Run ID: **WETCHEM_180806F** SeqNo: **5186803** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	5.0								

DUP Sample ID: **18071922-01B DUP** Units: **µmhos/cm** Analysis Date: **08/06/18 01:30 PM**
Client ID: Run ID: **WETCHEM_180806F** SeqNo: **5186506** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1032	5.0	0	0	0	0-0	1030	0.194	5	

DUP Sample ID: **1808235-01A DUP** Units: **µmhos/cm** Analysis Date: **08/06/18 01:30 PM**
Client ID: Run ID: **WETCHEM_180806F** SeqNo: **5186534** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	970	5.0	0	0	0	0-0	970	0	5	

LCS1 Sample ID: **WLCS1W1-180806-R241679** Units: **µmhos/cm** Analysis Date: **08/06/18 01:30 PM**
Client ID: Run ID: **WETCHEM_180806F** SeqNo: **5186504** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	15.08	5.0	14.9	0	101	85-107	0			

LCS1 Sample ID: **WLCS1W1-180806-R241679** Units: **µmhos/cm @ 25°** Analysis Date: **08/06/18 01:30 PM**
Client ID: Run ID: **WETCHEM_180806F** SeqNo: **5186804** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	15.08	5.0	14.9	0	101	85-107	0			

LCS2 Sample ID: **WLCS2W1-180806-R241679** Units: **µmhos/cm** Analysis Date: **08/06/18 01:30 PM**
Client ID: Run ID: **WETCHEM_180806F** SeqNo: **5186513** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	598	5.0	592	0	101	85-107	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1808254
Project: Specific Conductance

QC BATCH REPORT

Batch ID: **R241679** Instrument ID **WETCHEM** Method: **A2510 B-11**

LCS2	Sample ID: **WLCS2W1-180806-R241679**				Units: **µmhos/cm @ 25°**		Analysis Date: **08/06/18 01:30 PM**			
Client ID:	Run ID: **WETCHEM_180806F**			SeqNo: **5186806**		Prep Date:		DF: **1**		
Analyte	Result	POL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	598	5.0	592	0	101	85-107	0			

The following samples were analyzed in this batch:

1808254-61A	1808254-62A	1808254-63A
1808254-64A	1808254-65A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

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34 Dogwood Lane
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P. 717-944-5541
F.717-944-1430

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COC #: 1808254 | 1E of 1

ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown PA 17057
Contact: Shannon Butler
Phone#: 717-944-5541
Project Name/#: Specific Conductance
Bill To: Same

TAT ☐ Normal-Standard TAT is 10-12 business days.
☐ Rush-Subject to ALS approval and surcharges.

Date Required: 8/10/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? ☐ -Y No.:

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type	Container Size	Preservative	ANALYSES/METHOD REQUESTED: Specific Conductance									
						Plastic		None										
						Enter Number of Containers Per Sample or Field Results Below.												
1	2325225001	07/09/18	1325	G	WT	1												
2	2325345001	07/10/18	0837	G	WT	1												
3	2325345002	07/10/18	1010	G	WT	1												
4	2325345003	7/10/18	1112	G	WT	1												
5	2325345004	07/10/18	1151	G	WT	1												
6	2325345005	07/10/18	1302	G	WT	1												
7	2325345006	07/10/18	1407	G	WT	1												
8	2325345007	07/10/18	1140	G	WT	1												
9	2325345008	07/10/18	1241	G	WT	1												
10	2325345009	07/10/18	1241	G	WT	1												

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

SRZ 4.6 C

DHR

Sub to: ALS - Holland

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/9/18	1613	2	8/10	9:30
3			4		
5			6	FedEx	
7			8		
9			10		

Data Deliverables: [x] Standard ☐ CLP-like ☐ USACE

Special Processing: USACE ☐ Navy ☐

State Samples Collected in: ☐ NY ☐ NJ [x] PA ☐ NC ☐ MD

Reportable to PADEP? Yes ☐

PWSID #

Sample Disposal: Lab ☐ Special ☐

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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COC #: 1808254 — 2E of 7

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/10/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type	Container Size	Preservative	Specific Conductance									
						Plastic		none	ANALYSES/METHOD REQUESTED									
						Enter Number of Containers Per Sample or Field Results Below.												
1	2325345010	07/10/18	1409	G	WT	1												
2	2325359001	07/10/18	1200	G	WT	1												
3	2325788001	07/10/18	1300	G	WT	1												
4	2325849001	07/11/18	1245	G	WT	1												
5	2325896001	07/11/18	1010	G	WT	1												
6	2325899001	07/11/18	1056	G	WT	1												
7	2325899002	07/11/18	0810	G	WT	1												
8	2325899003	07/11/18	1135	G	WT	1												
9	2325899004	07/11/18	0945	G	WT	1												
20	2325899005	07/11/18	1240	G	WT	1												

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

SBZ 4.6 C

pH12

Sub to: ALS - Holland

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/8/18	1645	2	8.3.18	930
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Reportable to PADEP? Yes [ ] PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

FEDEX

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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COC #: 1808254 | 3E of 7

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/10/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type: Plastic	Container Size:	Preservative: none	Specific Conductance	Sample/COC Comments
						ANALYSES/METHOD REQUESTED				
						Enter Number of Containers Per Sample or Field Results Below.				
1	2325899006	07/11/18	1250	G	WT	1				SRZ 4.6C
2	2325899007	07/11/18	1257	G	WT	1				
3	2325899008	07/11/18	1300	G	WT	1				PH12
4	2325899009	07/11/18	1715	G	WT	1				
5	2325971001	07/12/18	1404	G	WT	1				Sub to: ALS - Holland
6	2326196001	07/12/18	1547	G	WT	1				
7	2326196002	07/12/18	1305	G	WT	1				
8	2326196003	07/12/18	1501	G	WT	1				
9	2326196004	07/12/18	1534	G	WT	1				
10	2326226001	07/10/18	1400	G	WT	1				

Receipt information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/12/18	1643	2	8/31/18	0830
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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F. 717-944-1430

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COC #: 1808754 — 4E of 7
ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane, Middletown PA 17057
Contact: Shannon Butler
Phone#: 717-944-5541
Project Name/#: Specific Conductance
Bill To: Same

TAT: ☐ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.
Date Required: 8/10/2018 Approved By:
Email? [x] -Y shannon.butler@alsglobal.com
Fax? ☐ -Y No.:

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type	Container Size	Preservative	Specific Conductance	
					Plastic		none		
1 2326226002	07/10/18	1427	G	WT				1	
2 2326255001	07/11/18	0950	G	WT				1	
3 2326255002	07/11/18	1000	G	WT				1	
4 2326255003	07/11/18	0940	G	WT				1	
5 2326333001	07/13/18	0941	G	WT				1	
6 2326333002	07/13/18	0952	G	WT				1	
7 2326333003	07/13/18	0820	G	WT				1	
8 2326333004	07/13/18	0833	G	WT				1	
9 2326334001	07/13/18	0750	G	WT				1	
10 2326334002	07/13/18	0908	G	WT				1	

ANALYSES/METHOD REQUESTED
Enter Number of Containers Per Sample or Field Results Below.

Receipt Information (completed by Receiving Lab)
Cooler Temp: ____ Therm ID: ____
No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments
SK2 4.6C
pH12.

Sub to: ALS - Holland

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/7/18	1643	2	8/8	9:30
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [x] Standard ☐ CLP-like ☐ USACE ☐
Special Processing: USACE ☐ Navy ☐ ☐
State Samples Collected In: ☐ NY ☐ NJ [x] PA ☐ NC ☐ MD
Reportable to PADEP? Yes ☐ PWSID #
Sample Disposal: Lab ☐ Special ☐
EDDS: Format Type-

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Oi=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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COC #: 1808254 | 5E of 7
ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown PA 17057
Contact: Shannon Butler
Phone#: 717-944-5541
Project Name/#: Specific Conductance
Bill To: Same

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 8/10/2018 Approved By:
Email? [x] -Y shannon.butler@alsglobal.com
Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type	Container Size	Preservative	ANALYSES/METHOD REQUESTED: Specific Conductance										Enter Number of Containers Per Sample or Field Results Below.
						Plastic		none											
11	2326335001	07/13/18	1130	G	WT				1										
12	2326335002	07/13/18	1004	G	WT				1										
3	2326336001	07/13/18	1125	G	WT				1										
4	2326336002	07/13/18	1100	G	WT				1										
5	2326336003	07/13/18	1025	G	WT				1										
6	2326336004	07/13/18	0955	G	WT				1										
7	2326336005	07/13/18	1010	G	WT				1										
18	2326336006	07/13/18	0740	G	WT				1										
9	2326336007	07/13/18	1035	G	WT				1										
0	2326336008	07/13/18	0855	G	WT				1										

Receipt Information (completed by Receiving Lab)
Cooler Temp: ____ Therm ID: ____
No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments
SPZ 4.6C
pH12

Sub to: ALS - Holland

ALSI Field Services: oPickup oLabor
oComposite Sampling oRental Equipment
oOther:

Project Comments:

LOGGED BY(signature): Date: Time:
REVIEWED BY(signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/2/18	1643	2	8/3/18	930
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD
Reportable to PADEP? Yes [ ] PWSID #
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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COC #: 1808254 | 6E of 7

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/10/2018 Approved By:

Email? [X] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type	Container Size	Preservative	ANALYSES/METHOD REQUESTED: Specific Conductance									Enter Number of Containers Per Sample or Field Results Below.
						Plastic		none										
1	2326336009	07/13/18	0945	G	WT				1									
2	2326336010	07/13/18	0910	G	WT				1									
3	2326336011	07/13/18	0810	G	WT				1									
4	2326336012	07/13/18	0930	G	WT				1									
5	2326336013	07/13/18	0830	G	WT				1									
6	2326336014	07/13/18	00755	G	WT				1									
7	2326336015	07/13/18	1110	G	WT				1									
8	2326388001	07/13/18	0930	G	WT				1									
9	2326539001	07/16/18	1102	G	WT				1									
10	2326539002	07/16/18	1327	G	WT				1									

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

SK2 4 6C

pH 12

Sub to: ALS - Holland

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/3/18	1600	2	8/3/18	0930
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] USACE

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ] MD

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER MAILING PINK - FILE GOLDENROD - CUSTOMER COPY

Rev 8/04

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALSI

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

COC #: 1808254 — 7E of 37

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/10/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type	Container Size	Preservative	Specific Conductance	Enter Number of Containers Per Sample or Field Results Below.
2326539003	07/16/18	1330	G	WT	Plastic		none	1	
2326541001	07/16/18	1040	G	WT				1	
2326541002	07/16/18	0952	G	WT				1	
2326541003	07/16/18	1134	G	WT				1	
2326541004	07/16/18	1533	G	WT				1	
			G	WT				1	
			G	WT				1	
			G	WT				1	
			G	WT				1	
			G	WT				1	

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

SR2 4.6C

PH2

Sub to: ALS - Holland

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/8/18	1643	2	8.3.18	930
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER MAILING PINK - FILE GOLDENROD - CUSTOMER COPY

Rev 8/04

ALS Group, USA

Sample Receipt Checklist

Client Name: **ALS - MIDDLETOWN** Date/Time Received: **03-Aug-18 09:30**

Work Order: **1808254** Received by: **KRW**

Checklist completed by [signature] eSignature — 03-Aug-18 Date — Reviewed by: [signature] eSignature — 03-Aug-18 Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.6/4.6 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	8/3/2018 11:37:17 AM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

August 20, 2018

Mr. Daniel Brown
Lancaster County Solid Waste Authority
1299 Hbg Pike, P.O. Box 4425
Lancaster, PA 17604

Certificate of Analysis

Project Name:	**2018-CRESWELL**	Workorder:	**2327703**
Purchase Order:	**PO1000127**	Workorder ID:	**3RD QTR 2018 CWMP-FORM 19Q**

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory between Thursday, July 19, 2018 and Tuesday, July 24, 2018.

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

If you have any questions regarding this certificate of analysis, please contact Ms. Susan J Scherer (Project Coordinator) 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.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Ms. Jordan Gallagher , Mr. Mark Reider , Mr. Jeff Musser

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

Susan J. Scherer

Ms. Susan J Scherer
Project Coordinator

ALS Environmental

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Re: Power Outage at ALS – Middletown Facility

To Whom It May Concern,

During the recent weather event in the Northeast and related flooding in our area, ALS–Middletown lost power the evening of Monday, July 23, 2018. Numerous trees damaged both utility poles and fell on power lines in the flooded areas making repair that much more difficult for the emergency repair groups. The laboratory was without power until the afternoon of Wednesday, July 25, 2018.

This power outage prevented ALS from operating our business in a normal manner during this period. The analysis and reporting of samples during this time period was significantly reduced. In addition to continuing to receive samples from our clients, our field service staff and sample receiving groups continued to collect, process and receive samples during this period. Analysis of short hold parameters was accomplished under emergency generator power. As power was restored to our facility, we have brought all systems back online with minimal damage to instruments and computers. In this situation a sudden loss of power can cause damage to sensitive electronic equipment so care is being taken to ensure the instruments are operating at optimal conditions.

As we return to full operational status, we will experience backlogs in our data analysis and processing. The lab staff is working diligently 24/7 to get all delayed projects, results and reports out as quickly as possible to prevent any further delays. If any data was compromised due to the power loss, an appropriate comment will be notated on your laboratory report.

If you have any questions or concerns regarding your sample results, please feel free to contact your ALS Project Manager or our Client Services Manager, Shiloh Summy at Shiloh.summy@alsglobal.com or (717)-577-3515.

Thank you for choosing ALS–Middletown to meet your analytical needs. We are committed to ensuring all data meets our stringent quality standards even in these unfortunate circumstances.

Sincerely,

Scott Brunk

Laboratory Director

ALS Environmental, Middletown

ALS Environmental

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SAMPLE SUMMARY

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2327703001	CWMP016W	Ground Water	7/20/2018 10:14	7/20/2018 13:17	Mr. Brian G Shade
2327703002	CWMP018S	Ground Water	7/20/2018 10:32	7/20/2018 13:17	Mr. Brian G Shade
2327703003	CWMP010W	Ground Water	7/20/2018 10:54	7/20/2018 13:17	Mr. Brian G Shade
2327703004	CWMP008W	Ground Water	7/20/2018 11:30	7/20/2018 13:17	Mr. Brian G Shade
2327703005	CWMP017S	Ground Water	7/20/2018 11:48	7/20/2018 13:17	Mr. Brian G Shade
2327703006	Field Blank	Ground Water	7/20/2018 12:01	7/20/2018 13:17	Mr. Brian G Shade
2327703007	Trip Blank	Ground Water	7/20/2018 13:17	7/20/2018 13:17	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

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 preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	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
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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PROJECT SUMMARY

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Workorder Comments

See attached subcontracted results from ALS-Holland for specific conductance results. Results not related to this work order were removed from the ALS Holland report. SB 08/15/18

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703001** Date Collected: 7/20/2018 10:14 Matrix: Ground Water

Sample ID: **CWMP016W** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/30/18 18:51	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 18:51	DD	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	87.8		%	62 - 133	SW846 8260B			7/30/18 18:51	DD	G
4-Bromofluorobenzene (S)	92.5		%	79 - 114	SW846 8260B			7/30/18 18:51	DD	G
Dibromofluoromethane (S)	83.4		%	78 - 116	SW846 8260B			7/30/18 18:51	DD	G
Toluene-d8 (S)	82.3		%	76 - 127	SW846 8260B			7/30/18 18:51	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	9		mg/L	5	S2320B-97			7/21/18 16:27	MBW	B
Alkalinity, Total	9	4	mg/L	5	S2320B-97			7/21/18 16:27	MBW	B
Ammonia-N	0.458		mg/L	0.100	D6919-09			7/31/18 14:15	TES	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	2.6		mg/L	2.0	EPA 300.0			7/21/18 09:06	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/21/18 09:06	CHW	B
Nitrate-N	0.66		mg/L	0.20	EPA 300.0			7/21/18 09:06	CHW	B
pH	6.76	1	pH_Units		S4500HB-11			7/21/18 16:27	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	7/31/18 13:56	RXB	F
Sulfate	12.2		mg/L	2.0	EPA 300.0			7/21/18 09:06	CHW	B
Total Dissolved Solids	58	2	mg/L	5	S2540C-11			7/26/18 13:05	BMK	B
Total Organic Carbon (TOC)	0.57	3	mg/L	0.50	SW846 9060A			8/7/18 01:59	PAG	D
Turbidity	2.26		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703001** Date Collected: 7/20/2018 10:14 Matrix: Ground Water

Sample ID: **CWMP016W** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	5.3		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:01	SRT	J1
Iron, Total	0.34		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:01	SRT	J1
Magnesium, Total	1.2		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:01	SRT	J1
Manganese, Total	0.011		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:01	SRT	J1
Potassium, Total	ND		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:01	SRT	J1
Sodium, Total	3.5		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:01	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	11.780		Feet		Field			7/20/18 10:04	BGS	C
Elev Top MW Casing above MSL	311.97		Feet		Field			7/20/18 10:04	BGS	C
Flow Rate	2.33		gal/min		Field			7/20/18 10:04	BGS	C
Ground Water Elevation	300.190		ft/MSL		Field			7/20/18 10:04	BGS	C
pH, Field (SM4500B)	5.010		pH_Units		Field			7/20/18 10:04	BGS	C
Sample Depth	71.000		Feet		Field			7/20/18 10:04	BGS	C
Specific Conductance, Field	66		umhos/cm	1	Field			7/20/18 10:04	BGS	C
Temperature	9.92		Deg. C		Field			7/20/18 10:04	BGS	C
Total Well Depth	73.520		Feet		Field			7/20/18 10:04	BGS	C
Volume in Water Column	90.758		Gallons		Field			7/20/18 10:04	BGS	C
Water Level After Purge	20.000		Feet		Field			7/20/18 10:04	BGS	C
Well Volumes Purged	1.54		Vol		Field			7/20/18 10:04	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 09:45	SUB	

Ms. Susan J Scherer
Project Coordinator

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703002** Date Collected: 7/20/2018 10:32 Matrix: Ground Water

Sample ID: **CWMP018S** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/30/18 19:13	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 19:13	DD	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	85.1		%	62 - 133	SW846 8260B			7/30/18 19:13	DD	G
4-Bromofluorobenzene (S)	90.5		%	79 - 114	SW846 8260B			7/30/18 19:13	DD	G
Dibromofluoromethane (S)	83.1		%	78 - 116	SW846 8260B			7/30/18 19:13	DD	G
Toluene-d8 (S)	80.8		%	76 - 127	SW846 8260B			7/30/18 19:13	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	370		mg/L	5	S2320B-97			7/21/18 17:15	MBW	B
Alkalinity, Total	410	5	mg/L	5	S2320B-97			7/21/18 17:15	MBW	B
Ammonia-N	1.34		mg/L	0.100	D6919-09			7/31/18 14:30	TES	A
Chemical Oxygen Demand (COD)	25		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	495		mg/L	5.0	EPA 300.0			7/21/18 09:20	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			7/21/18 09:20	CHW	B
Nitrate-N	21.5		mg/L	0.50	EPA 300.0			7/21/18 09:20	CHW	B
pH	8.53	1	pH_Units		S4500HB-11			7/21/18 17:15	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	7/31/18 13:56	RXB	F
Sulfate	55.4		mg/L	5.0	EPA 300.0			7/21/18 09:20	CHW	B
Total Dissolved Solids	1330	2,3	mg/L	5	S2540C-11			7/26/18 13:05	BMK	B
Total Organic Carbon (TOC)	7.8	4	mg/L	0.50	SW846 9060A			8/7/18 01:59	PAG	D
Turbidity	23.8		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703002** Date Collected: 7/20/2018 10:32 Matrix: Ground Water

Sample ID: **CWMP018S** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	75.4		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:38	SRT	J1
Iron, Total	0.18		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:38	SRT	J1
Magnesium, Total	84.7		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:38	SRT	J1
Manganese, Total	0.052		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:38	SRT	J1
Potassium, Total	18.3		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:38	SRT	J1
Sodium, Total	314		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:38	SRT	J1
FIELD PARAMETERS										
Dissolved Oxygen	6.830		mg/L	0.010	Field			7/20/18 10:32	BGS	C
Flow Rate	476.60		gal/min		Field			7/20/18 10:32	BGS	C
pH, Field (SM4500B)	8.020		pH_Units		Field			7/20/18 10:32	BGS	C
Specific Conductance, Field	2519		umhos/cm	1	Field			7/20/18 10:32	BGS	C
Temperature	18.60		Deg. C		Field			7/20/18 10:32	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 09:45	SUB	

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703003** Date Collected: 7/20/2018 10:54 Matrix: Ground Water

Sample ID: **CWMP010W** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/30/18 19:35	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 19:35	DD	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	87.2		%	62 - 133	SW846 8260B			7/30/18 19:35	DD	G
4-Bromofluorobenzene (S)	90		%	79 - 114	SW846 8260B			7/30/18 19:35	DD	G
Dibromofluoromethane (S)	84.4		%	78 - 116	SW846 8260B			7/30/18 19:35	DD	G
Toluene-d8 (S)	81.2		%	76 - 127	SW846 8260B			7/30/18 19:35	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	275		mg/L	5	S2320B-97			7/21/18 17:25	MBW	B
Alkalinity, Total	275	4	mg/L	5	S2320B-97			7/21/18 17:25	MBW	B
Ammonia-N	0.941		mg/L	0.100	D6919-09			7/31/18 14:44	TES	A
Chemical Oxygen Demand (COD)	19		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	428		mg/L	10.0	EPA 300.0			7/28/18 05:23	MBW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/21/18 09:35	CHW	B
Nitrate-N	11.0		mg/L	0.20	EPA 300.0			7/21/18 09:35	CHW	B
pH	7.61	1	pH_Units		S4500HB-11			7/21/18 17:25	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	7/31/18 13:56	RXB	F
Sulfate	42.2		mg/L	2.0	EPA 300.0			7/21/18 09:35	CHW	B
Total Dissolved Solids	1000	2	mg/L	5	S2540C-11			7/26/18 13:05	BMK	B
Total Organic Carbon (TOC)	4.7	3	mg/L	0.50	SW846 9060A			8/7/18 01:59	PAG	D
Turbidity	3.21		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703003** Date Collected: 7/20/2018 10:54 Matrix: Ground Water

Sample ID: **CWMP010W** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	63.3		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:42	SRT	J1
Iron, Total	0.51		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:42	SRT	J1
Magnesium, Total	58.8		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:42	SRT	J1
Manganese, Total	0.36		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:42	SRT	J1
Potassium, Total	12.7		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:42	SRT	J1
Sodium, Total	227		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:42	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	8.640		Feet		Field			7/20/18 10:54	BGS	C
Elev Top MW Casing above MSL	360.90		Feet		Field			7/20/18 10:54	BGS	C
Flow Rate	1.06		gal/min		Field			7/20/18 10:54	BGS	C
Ground Water Elevation	352.260		ft/MSL		Field			7/20/18 10:54	BGS	C
pH, Field (SM4500B)	6.650		pH_Units		Field			7/20/18 10:54	BGS	C
Sample Depth	17.000		Feet		Field			7/20/18 10:54	BGS	C
Specific Conductance, Field	2021		umhos/cm	1	Field			7/20/18 10:54	BGS	C
Temperature	12.95		Deg. C		Field			7/20/18 10:54	BGS	C
Total Well Depth	19.600		Feet		Field			7/20/18 10:54	BGS	C
Volume in Water Column	7.124		Gallons		Field			7/20/18 10:54	BGS	C
Water Level After Purge	10.850		Feet		Field			7/20/18 10:54	BGS	C
Well Volumes Purged	1.48		Vol		Field			7/20/18 10:54	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 09:45	SUB	

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703004** Date Collected: 7/20/2018 11:30 Matrix: Ground Water

Sample ID: **CWMP008W** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	2.8		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
1,1-Dichloroethane	3.7		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/30/18 19:57	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 19:57	DD	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	85.9		%	62 - 133	SW846 8260B			7/30/18 19:57	DD	G
4-Bromofluorobenzene (S)	90		%	79 - 114	SW846 8260B			7/30/18 19:57	DD	G
Dibromofluoromethane (S)	83		%	78 - 116	SW846 8260B			7/30/18 19:57	DD	G
Toluene-d8 (S)	82.5		%	76 - 127	SW846 8260B			7/30/18 19:57	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	493		mg/L	5	S2320B-97			7/21/18 17:37	MBW	B
Alkalinity, Total	493	3	mg/L	5	S2320B-97			7/21/18 17:37	MBW	B
Ammonia-N	5.55		mg/L	0.100	D6919-09			7/31/18 15:28	TES	A
Chemical Oxygen Demand (COD)	41		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	45.8		mg/L	2.0	EPA 300.0			7/21/18 09:50	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/21/18 09:50	CHW	B
Nitrate-N	ND		mg/L	0.20	EPA 300.0			7/21/18 09:50	CHW	B
pH	6.60	1	pH_Units		S4500HB-11			7/21/18 17:37	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	7/31/18 13:56	RXB	F
Sulfate	6.4		mg/L	2.0	EPA 300.0			7/21/18 09:50	CHW	B
Total Dissolved Solids	538	2	mg/L	5	S2540C-11			7/26/18 13:05	BMK	B
Total Organic Carbon (TOC)	11.5	4	mg/L	5.0	SW846 9060A			8/8/18 07:07	PAG	D
Turbidity	31.5		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703004** Date Collected: 7/20/2018 11:30 Matrix: Ground Water

Sample ID: **CWMP008W** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	78.5		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:45	SRT	J1
Iron, Total	30.3		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:45	SRT	J1
Magnesium, Total	36.0		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:45	SRT	J1
Manganese, Total	18.3		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:45	SRT	J1
Potassium, Total	8.9		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:45	SRT	J1
Sodium, Total	50.0		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:45	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	3.390		Feet		Field			7/20/18 11:30	BGS	C
Elev Top MW Casing above MSL	422.30		Feet		Field			7/20/18 11:30	BGS	C
Flow Rate	1.04		gal/min		Field			7/20/18 11:30	BGS	C
Ground Water Elevation	418.910		ft/MSL		Field			7/20/18 11:30	BGS	C
pH, Field (SM4500B)	5.900		pH_Units		Field			7/20/18 11:30	BGS	C
Sample Depth	19.000		Feet		Field			7/20/18 11:30	BGS	C
Specific Conductance, Field	1041		umhos/cm	1	Field			7/20/18 11:30	BGS	C
Temperature	12.73		Deg. C		Field			7/20/18 11:30	BGS	C
Total Well Depth	22.800		Feet		Field			7/20/18 11:30	BGS	C
Volume in Water Column	3.106		Gallons		Field			7/20/18 11:30	BGS	C
Water Level After Purge	16.980		Feet		Field			7/20/18 11:30	BGS	C
Well Volumes Purged	6.67		Vol		Field			7/20/18 11:30	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 09:45	SUB	

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703005** Date Collected: 7/20/2018 11:48 Matrix: Ground Water
Sample ID: **CWMP017S** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
Tetrachloroethene	1.1		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/30/18 20:19	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 20:19	DD	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	89.7		%	62 - 133	SW846 8260B			7/30/18 20:19	DD	G
4-Bromofluorobenzene (S)	92		%	79 - 114	SW846 8260B			7/30/18 20:19	DD	G
Dibromofluoromethane (S)	86		%	78 - 116	SW846 8260B			7/30/18 20:19	DD	G
Toluene-d8 (S)	82.7		%	76 - 127	SW846 8260B			7/30/18 20:19	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	587		mg/L	5	S2320B-97			7/21/18 17:49	MBW	B
Alkalinity, Total	590	4	mg/L	5	S2320B-97			7/21/18 17:49	MBW	B
Ammonia-N	1.98		mg/L	0.100	D6919-09			7/31/18 15:43	TES	A
Chemical Oxygen Demand (COD)	22		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	708		mg/L	10.0	EPA 300.0			7/28/18 05:36	MBW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			7/21/18 10:04	CHW	B
Nitrate-N	27.2		mg/L	0.50	EPA 300.0			7/21/18 10:04	CHW	B
pH	8.30	1	pH_Units		S4500HB-11			7/21/18 17:49	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	8/2/18 08:08	C_D	F
Sulfate	64.0		mg/L	5.0	EPA 300.0			7/21/18 10:04	CHW	B
Total Dissolved Solids	1740	2	mg/L	5	S2540C-11			7/26/18 13:05	BMK	B
Total Organic Carbon (TOC)	4.6	3	mg/L	0.50	SW846 9060A			8/7/18 01:59	PAG	D
Turbidity	1.92		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703005** Date Collected: 7/20/2018 11:48 Matrix: Ground Water

Sample ID: **CWMP017S** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	76.7		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:49	SRT	J1
Iron, Total	0.28		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:49	SRT	J1
Magnesium, Total	114		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	8/2/18 08:03	SRT	J1
Manganese, Total	0.073		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:49	SRT	J1
Potassium, Total	19.4		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:49	SRT	J1
Sodium, Total	437		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 16:49	SRT	J1
FIELD PARAMETERS										
Dissolved Oxygen	6.170		mg/L	0.010	Field			7/20/18 11:46	BGS	C
Flow Rate	353.50		gal/min		Field			7/20/18 11:46	BGS	C
pH, Field (SM4500B)	6.170		pH_Units		Field			7/20/18 11:46	BGS	C
Specific Conductance, Field	3430		umhos/cm	1	Field			7/20/18 11:46	BGS	C
Temperature	22.65		Deg. C		Field			7/20/18 11:46	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 10:00	SUB	

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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703006** Date Collected: 7/20/2018 12:01 Matrix: Ground Water
Sample ID: **Field Blank** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/30/18 14:07	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 14:07	TMP	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	112		%	62 - 133	SW846 8260B			7/30/18 14:07	TMP	G
4-Bromofluorobenzene (S)	106		%	79 - 114	SW846 8260B			7/30/18 14:07	TMP	G
Dibromofluoromethane (S)	109		%	78 - 116	SW846 8260B			7/30/18 14:07	TMP	G
Toluene-d8 (S)	108		%	76 - 127	SW846 8260B			7/30/18 14:07	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			7/21/18 17:58	MBW	B
Alkalinity, Total	ND	4	mg/L	5	S2320B-97			7/21/18 17:58	MBW	B
Ammonia-N	0.483		mg/L	0.100	D6919-09			7/31/18 15:57	TES	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			7/26/18 17:42	AK	A
Chloride	ND		mg/L	2.0	EPA 300.0			7/21/18 10:19	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/21/18 10:19	CHW	B
Nitrate-N	ND		mg/L	0.20	EPA 300.0			7/21/18 10:19	CHW	B
pH	6.69	1	pH_Units		S4500HB-11			7/21/18 17:58	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/31/18 12:58	RXB	8/2/18 08:08	C_D	F
Sulfate	ND		mg/L	2.0	EPA 300.0			7/21/18 10:19	CHW	B
Total Dissolved Solids	ND	5	mg/L	5	S2540C-11			8/3/18 12:45	BMK	B
Total Organic Carbon (TOC)	ND	3	mg/L	0.50	SW846 9060A			8/7/18 07:25	PAG	D
Turbidity	ND		NTU	0.10	S2130B-01			7/21/18 06:30	MBW	B
METALS										

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703006** Date Collected: 7/20/2018 12:01 Matrix: Ground Water

Sample ID: **Field Blank** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	ND		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:12	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:12	SRT	J1
Magnesium, Total	ND		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:12	SRT	J1
Manganese, Total	ND		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:12	SRT	J1
Potassium, Total	ND		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:12	SRT	J1
Sodium, Total	ND		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/31/18 17:12	SRT	J1
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 10:00	SUB	

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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327703007** Date Collected: 7/20/2018 13:17 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 7/20/2018 13:17

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/30/18 13:44	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/30/18 13:44	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	110		%	62 - 133	SW846 8260B			7/30/18 13:44	TMP	A
4-Bromofluorobenzene (S)	104		%	79 - 114	SW846 8260B			7/30/18 13:44	TMP	A
Dibromofluoromethane (S)	108		%	78 - 116	SW846 8260B			7/30/18 13:44	TMP	A
Toluene-d8 (S)	107		%	76 - 127	SW846 8260B			7/30/18 13:44	TMP	A

Susan J. Scherer

Ms. Susan J Scherer
Project Coordinator

ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2327703001	1	CWMP016W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327703001	2	CWMP016W	S2540C-11	Total Dissolved Solids
The method blank associated with the sample was recovered at 5 mg/L. The method reporting limit for this analysis is <5 mg/L. A bias may exist with the result.				
2327703001	3	CWMP016W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327703001	4	CWMP016W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327703002	1	CWMP018S	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327703002	2	CWMP018S	S2540C-11	Total Dissolved Solids
The RPD associated with this sample was recovered at 6.0%. The RPD is outside method acceptance limits of 5.0%. The results used to calculate the RPD were 1252 and 1329 mg/L.				
2327703002	3	CWMP018S	S2540C-11	Total Dissolved Solids
The method blank associated with the sample was recovered at 5 mg/L. The method reporting limit for this analysis is <5 mg/L. A bias may exist with the result.				
2327703002	4	CWMP018S	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327703002	5	CWMP018S	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327703003	1	CWMP010W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327703003	2	CWMP010W	S2540C-11	Total Dissolved Solids
The method blank associated with the sample was recovered at 5 mg/L. The method reporting limit for this analysis is <5 mg/L. A bias may exist with the result.				
2327703003	3	CWMP010W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327703003	4	CWMP010W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327703004	1	CWMP008W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327703004	2	CWMP008W	S2540C-11	Total Dissolved Solids
The method blank associated with the sample was recovered at 5 mg/L. The method reporting limit for this analysis is <5 mg/L. A bias may exist with the result.				

ANALYTICAL RESULTS

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

2327703004	3	CWMP008W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327703004	4	CWMP008W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327703005	1	CWMP017S	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327703005	2	CWMP017S	S2540C-11	Total Dissolved Solids
The method blank associated with the sample was recovered at 5 mg/L. The method reporting limit for this analysis is <5 mg/L. A bias may exist with the result.				
2327703005	3	CWMP017S	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327703005	4	CWMP017S	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327703006	1	Field Blank	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327703006	3	Field Blank	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327703006	4	Field Blank	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327703006	5	Field Blank	S2540C-11	Total Dissolved Solids
The sample was originally run within hold time, but required further analysis that exceeded hold time.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2327703001	CWMP016W	D6919-09	
2327703001	CWMP016W	EPA 300.0	
2327703001	CWMP016W	EPA 410.4	
2327703001	CWMP016W	Field	
2327703001	CWMP016W	S2130B-01	
2327703001	CWMP016W	S2320B-97	
2327703001	CWMP016W	S2540C-11	
2327703001	CWMP016W	S4500HB-11	
2327703001	CWMP016W	SW846 6010C	SW846 3015
2327703001	CWMP016W	SW846 8260B	
2327703001	CWMP016W	SW846 9060A	
2327703001	CWMP016W	SW846 9066	420.4/9066
2327703001	CWMP016W	Subcontract	
2327703002	CWMP018S	D6919-09	
2327703002	CWMP018S	EPA 300.0	
2327703002	CWMP018S	EPA 410.4	
2327703002	CWMP018S	Field	
2327703002	CWMP018S	S2130B-01	
2327703002	CWMP018S	S2320B-97	
2327703002	CWMP018S	S2540C-11	
2327703002	CWMP018S	S4500HB-11	
2327703002	CWMP018S	SW846 6010C	SW846 3015
2327703002	CWMP018S	SW846 8260B	
2327703002	CWMP018S	SW846 9060A	
2327703002	CWMP018S	SW846 9066	420.4/9066
2327703002	CWMP018S	Subcontract	
2327703003	CWMP010W	D6919-09	
2327703003	CWMP010W	EPA 300.0	
2327703003	CWMP010W	EPA 410.4	
2327703003	CWMP010W	Field	
2327703003	CWMP010W	S2130B-01	
2327703003	CWMP010W	S2320B-97	
2327703003	CWMP010W	S2540C-11	
2327703003	CWMP010W	S4500HB-11	
2327703003	CWMP010W	SW846 6010C	SW846 3015
2327703003	CWMP010W	SW846 8260B	
2327703003	CWMP010W	SW846 9060A	
2327703003	CWMP010W	SW846 9066	420.4/9066
2327703003	CWMP010W	Subcontract	
2327703004	CWMP008W	D6919-09	
2327703004	CWMP008W	EPA 300.0	
2327703004	CWMP008W	EPA 410.4	
2327703004	CWMP008W	Field	
2327703004	CWMP008W	S2130B-01	
2327703004	CWMP008W	S2320B-97	
2327703004	CWMP008W	S2540C-11	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2327703 3RD QTR 2018 CWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2327703004	CWMP008W	S4500HB-11	
2327703004	CWMP008W	SW846 6010C	SW846 3015
2327703004	CWMP008W	SW846 8260B	
2327703004	CWMP008W	SW846 9060A	
2327703004	CWMP008W	SW846 9066	420.4/9066
2327703004	CWMP008W	Subcontract	
2327703005	CWMP017S	D6919-09	
2327703005	CWMP017S	EPA 300.0	
2327703005	CWMP017S	EPA 410.4	
2327703005	CWMP017S	Field	
2327703005	CWMP017S	S2130B-01	
2327703005	CWMP017S	S2320B-97	
2327703005	CWMP017S	S2540C-11	
2327703005	CWMP017S	S4500HB-11	
2327703005	CWMP017S	SW846 6010C	SW846 3015
2327703005	CWMP017S	SW846 8260B	
2327703005	CWMP017S	SW846 9060A	
2327703005	CWMP017S	SW846 9066	420.4/9066
2327703005	CWMP017S	Subcontract	
2327703006	Field Blank	D6919-09	
2327703006	Field Blank	EPA 300.0	
2327703006	Field Blank	EPA 410.4	
2327703006	Field Blank	S2130B-01	
2327703006	Field Blank	S2320B-97	
2327703006	Field Blank	S2540C-11	
2327703006	Field Blank	S4500HB-11	
2327703006	Field Blank	SW846 6010C	SW846 3015
2327703006	Field Blank	SW846 8260B	
2327703006	Field Blank	SW846 9060A	
2327703006	Field Blank	SW846 9066	420.4/9066
2327703006	Field Blank	Subcontract	
2327703007	Trip Blank	SW846 8260B	

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

COC ALS

* 2 3 2 7 7 0 3 *

1 of 1

Client Name: Lancaster County Solid Waste MA

Address: 1299 Harrisburg Pike, P.O. Box 4424, Lancaster, PA 17604

Contact: Mark Reider

Phone#: (717) 735-0193

Project Name/#: Creswell/GWMP Form 19Q Wells

Bill To: Lancaster County Solid Waste MA

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: ______ Approved By: ______

Email? [X]-Y mreider@LCSWMA.com

Fax? [X]-Y No.: (717) 397-9973

Container Type	AG	AN	CG	—	—	PL	PL	PL	PL
Container Size	40 ml	500 ml	40 ml	—	—	500 ml	500 ml	1 L	500 ml
Preservative	HCl	H2SO4	HCl	—	—	H2SO4	HNO3	None	None
ANALYSES/METHOD REQUESTED	TOC	O-OH	8260 VOCs - Form 19Q	Field Measurements	Sample Depth for AUX Data	NH3-N, COD	Total Metals: Ca, Fe, Mn, Mg, K, Na	pH, NO3, Cl, F, SpC, SO4, Turb, TDS	Alkalinity, HCO3

Enter Number of Containers Per Sample or Field Results Below.

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	TOC	O-OH	8260 VOCs - Form 19Q	Field Measurements	Sample Depth for AUX Data	NH3-N, COD	Total Metals	pH, NO3, Cl, F, SpC, SO4, Turb, TDS	Alkalinity, HCO3
1. CWMP01GW	7-20-18	1014	G	GW	2	1	2	x	x	1	1	1	1
2 CWMP018S		1032											
3 CWMP010W		1054											
4 CWMP008W		1130											
5 CWMP017S		1148											
6 Field Blank		1201											
7 Trip Blank		1317											
8													
9													
10													

Receipt Information (completed by Receiving Lab)

Cooler Temp: 13.4 Therm ID: 402

No. of Coolers: 1

	Y	N	Initial
Custody Seals Present?		X	JSB
(If present) Seals Intact?			
Received on Ice?	✓		
COC/Labels Complete/Accurate?		X	
Cont. In Good Cond.?	X		
Correct Containers?	✓		
Correct Sample Volumes?	X		
Correct Preservation?	✓		
Headspace/Volatiles?		X	JSB

Courier/Tracking #:

Sample/COC Comments: no collection date + times on some of the sets. - JSB/ALS 7/20/18

ALS Field Services: ☐Pickup ☐Labor ☐Composite_Sampling ☐Rental_Equipment ☐Other:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature] ALS	7-20-18	1317	2	[signature] ALS	7/20/18	1317
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ]

Reportable to PADEP? Yes [ ] PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air, DW=Drinking Water, GW=Groundwater, OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 8/04

14-Aug-2018

Shannon Butler
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Re: **Specific Conductance** Work Order: **1808591**

Dear Shannon,

ALS Environmental received 37 samples on 09-Aug-2018 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 48.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Tom Beamish

Tom Beamish
Senior Project Manager

Report of Laboratory Analysis

Certificate No: PA: 68-03827

ALS Group, USA Date: 14-Aug-18

Client: ALS Environmental
Project: Specific Conductance
Work Order: 1808591

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1808591-01	2326836001	Water		07/18/18 11:35	08/09/18 09:30	☐
1808591-02	2326837001	Water		07/18/18 12:30	08/09/18 09:30	☐
1808591-03	2326959001	Water		07/17/18 12:35	08/09/18 09:30	☐
1808591-04	2326959002	Water		07/17/18 13:26	08/09/18 09:30	☐
1808591-05	2326959003	Water		07/17/18 10:20	08/09/18 09:30	☐
1808591-06	2327049001	Water		07/18/18 12:15	08/09/18 09:30	☐
1808591-07	2327411001	Water		07/18/18 10:55	08/09/18 09:30	☐
1808591-08	2327411002	Water		07/18/18 13:30	08/09/18 09:30	☐
1808591-09	2327414001	Water		07/18/18 11:20	08/09/18 09:30	☐
1808591-10	2327497001	Water		07/18/18 11:30	08/09/18 09:30	☐
1808591-11	2327497002	Water		07/18/18 11:20	08/09/18 09:30	☐
1808591-12	2327497003	Water		07/18/18 12:30	08/09/18 09:30	☐
1808591-13	2327497004	Water		07/18/18 11:55	08/09/18 09:30	☐
1808591-14	2327497005	Water		07/18/18 12:05	08/09/18 09:30	☐
1808591-15	2327497006	Water		07/18/18 12:12	08/09/18 09:30	☐
1808591-16	2327497007	Water		07/18/18 12:50	08/09/18 09:30	☐
1808591-17	2327497008	Water		07/18/18 13:00	08/09/18 09:30	☐
1808591-18	2327497009	Water		07/18/18 13:10	08/09/18 09:30	☐
1808591-19	2327497010	Water		07/18/18 13:17	08/09/18 09:30	☐
1808591-20	2327497011	Water		07/18/18 13:30	08/09/18 09:30	☐
1808591-21	2327500001	Water		07/18/18 08:15	08/09/18 09:30	☐
1808591-22	2327622001	Water		07/19/18 10:20	08/09/18 09:30	☐
1808591-23	2327622002	Water		07/19/18 12:53	08/09/18 09:30	☐
1808591-24	2327622003	Water		07/19/18 14:05	08/09/18 09:30	☐
1808591-25	2327622004	Water		07/19/18 14:47	08/09/18 09:30	☐
1808591-26	2327657001	Water		07/19/18 12:30	08/09/18 09:30	☐
1808591-27	2327703001	Water		07/20/18 10:14	08/09/18 09:30	☐
1808591-28	2327703002	Water		07/20/18 10:32	08/09/18 09:30	☐
1808591-29	2327703003	Water		07/20/18 10:54	08/09/18 09:30	☐
1808591-30	2327703004	Water		07/20/18 11:30	08/09/18 09:30	☐
1808591-31	2327703005	Water		07/20/18 11:48	08/09/18 09:30	☐
1808591-32	2327703006	Water		07/20/18 12:01	08/09/18 09:30	☐
1808591-33	2327709001	Water		07/20/18 08:32	08/09/18 09:30	☐
1808591-34	2327709002	Water		07/20/18 08:35	08/09/18 09:30	☐
1808591-35	2327988001	Water		07/23/18 13:35	08/09/18 09:30	☐
1808591-36	2328534001	Water		07/25/18 11:30	08/09/18 09:30	☐
1808591-37	2328536001	Water		07/25/18 11:00	08/09/18 09:30	☐

Client: ALS Environmental
Project: Specific Conductance
WorkOrder: 1808591

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µmhos/cm	Micromhos per Centimeter

ALS Group, USA **Date:** *14-Aug-18*

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327703001
Collection Date: 07/20/18 10:14 AM

Work Order: 1808591
Lab ID: 1808591-27
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	60		0.97	5.0	µmhos/cm	1	08/13/18 09:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA **Date:** *14-Aug-18*

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327703002
Collection Date: 07/20/18 10:32 AM

Work Order: 1808591
Lab ID: 1808591-28
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	2,500		0.97	5.0	µmhos/cm	1	08/13/18 09:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *14-Aug-18*

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327703003
Collection Date: 07/20/18 10:54 AM

Work Order: 1808591
Lab ID: 1808591-29
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	1,900		0.97	5.0	µmhos/cm	1	08/13/18 09:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *14-Aug-18*

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327703004
Collection Date: 07/20/18 11:30 AM

Work Order: 1808591
Lab ID: 1808591-30
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	940		0.97	5.0	µmhos/cm	1	08/13/18 09:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *14-Aug-18*

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327703005
Collection Date: 07/20/18 11:48 AM

Work Order: 1808591
Lab ID: 1808591-31
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	3,200		0.97	5.0	µmhos/cm	1	08/13/18 10:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *14-Aug-18*

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327703006
Collection Date: 07/20/18 12:01 PM

Work Order: 1808591
Lab ID: 1808591-32
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	7.8		0.97	5.0	µmhos/cm	1	08/13/18 10:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **R242100** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180813-R242100** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: Run ID: **WETCHEM_180813A** SeqNo: **5197691** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	0.97	5.0								

DUP Sample ID: **1808591-01A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: **2326836001** Run ID: **WETCHEM_180813A** SeqNo: **5197694** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	466000	9.7	50	0	0	0	0-0	468000	0.428	5	

DUP Sample ID: **1808591-10A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: **2327497001** Run ID: **WETCHEM_180813A** SeqNo: **5197704** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	319	0.97	5.0	0	0	0	0-0	315	1.26	5	

LCS1 Sample ID: **WLCS1W-180813-R242100** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: Run ID: **WETCHEM_180813A** SeqNo: **5197692** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.74	0.97	5.0	14.9	0	98.9	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242100** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: Run ID: **WETCHEM_180813A** SeqNo: **5197712** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	614	0.97	5.0	592	0	104	85-107	0			

The following samples were analyzed in this batch:

1808591-01A	1808591-02A	1808591-03A
1808591-04A	1808591-05A	1808591-06A
1808591-07A	1808591-08A	1808591-09A
1808591-10A	1808591-11A	1808591-12A
1808591-13A	1808591-14A	1808591-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1808591
Project: Specific Conductance

QC BATCH REPORT

Batch ID: **R242101** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180813-R242101** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: Run ID: **WETCHEM_180813B** SeqNo: **5197720** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	0.98	0.97	5.0								J

DUP Sample ID: **1808591-16A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: **2327497007** Run ID: **WETCHEM_180813B** SeqNo: **5197723** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	35.8	0.97	5.0	0	0	0	0-0	35.8	0	5	

DUP Sample ID: **1808591-26A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: **2327657001** Run ID: **WETCHEM_180813B** SeqNo: **5197734** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	72	0.97	5.0	0	0	0	0-0	71.9	0.139	5	

LCS1 Sample ID: **WLCS1W1-180813-R242101** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: Run ID: **WETCHEM_180813B** SeqNo: **5197721** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.13	0.97	5.0	14.9	0	94.8	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242101** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: Run ID: **WETCHEM_180813B** SeqNo: **5197739** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	601	0.97	5.0	592	0	102	85-107	0			

The following samples were analyzed in this batch:

1808591-16A	1808591-17A	1808591-18A
1808591-19A	1808591-20A	1808591-21A
1808591-22A	1808591-23A	1808591-24A
1808591-25A	1808591-26A	1808591-27A
1808591-28A	1808591-29A	1808591-30A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1808591
Project: Specific Conductance

QC BATCH REPORT

Batch ID: **R242104** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180813-R242104** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197787** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	0.97	5.0								

MBLK Sample ID: **WBLKW1-180813-R242104** Units: **µmhos/cm @ 25°** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197799** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	0.97	5.0								

DUP Sample ID: **1808591-31A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: **2327703005** Run ID: **WETCHEM_180813C** SeqNo: **5197790** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3260	0.97	5.0	0	0	0	0-0	3250	0.307	5	

LCS1 Sample ID: **WLCS1W1-180813-R242104** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197788** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.71	0.97	5.0	14.9	0	98.7	85-107	0			

LCS1 Sample ID: **WLCS1W1-180813-R242104** Units: **µmhos/cm @ 25°** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197800** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.71	0.97	5.0	14.9	0	98.7	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242104** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197798** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	581	0.97	5.0	592	0	98.1	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242104** Units: **µmhos/cm @ 25°** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197802** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	581	0.97	5.0	592	0	98.1	85-107	0			

The following samples were analyzed in this batch:

1808591-31A	1808591-32A	1808591-33A
1808591-34A	1808591-35A	1808591-36A
1808591-37A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALSI

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

COC #: 1808591 — 1 of 4

ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown PA 17057
Contact: Shannon Butler
Phone#: 717-944-5541
Project Name/#: Specific Conductance
Bill To: Same

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

Container Type: Plastic
Container Size:
Preservative: none

ANALYSES/METHOD REQUESTED: Specific Conductance

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Specific Conductance
1	2326838001	07/18/18	11335	G	WT	1
2	2326837001	07/18/18	1230	G	WT	1
3	2326959001	07/17/18	1235	G	WT	1
4	2326959002	07/17/18	1315	G	WT	1
5	2326959003	07/17/18	1020	G	WT	1
6	2327049001	07/18/18	1215	G	WT	1
7	2327411001	07/18/18	1055	G	WT	1
8	2327411002	07/18/18	1330	G	WT	1
9	2327414001	07/18/18	1120	G	WT	1
10	2327497001	07/18/18	1130	G	WT	1

Receipt Information (completed by Receiving Lab)

Cooler Temp: 6.0 Therm ID:
No. of Coolers: Y N Initial
Custody Seals Present?
(if present) Seals Intact?
Received on Ice?
COC/Labels Complete/Accurate?
Cont. in Good Cond.?
Correct Containers?
Correct Sample Volumes?
Correct Preservation?
Headspace/Volatiles?
Courier/Tracking #:

Sample/COC Comments

Sub to: ALS - Holland

SKZ 60C

pH12

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/18/18	1450	2 FedEX		1730
3 Fedex	8/9/18	0920	4 [signature]	8/9/18	1255
5			6		
7			8		
9			10		

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Reportable to PADEP? Yes [ ]
PWSID #
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALSI

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

COC #: 1808591 | 2 of 4

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT ☐ Normal-Standard TAT is 10-12 business days.
☐ Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? x -Y shannon.butler@alsglobal.com

Fax? ☐ -Y No.:

Container Type	Container Size	Preservative
Plastic		None

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Specific Conductance	Enter Number of Containers Per Sample or Field Results Below.
11 2327497002	07/18/18	1120	G	WT	1	
12 2327497003	07/18/18	1230	G	WT	1	
3 2327497004	07/18/18	1155	G	WT	1	
4 2327497005	07/18/18	1205	G	WT	1	
5 2327497006	07/18/18	1212	G	WT	1	
6 2327497007	07/18/18	1250	G	WT	1	
7 2327497008	07/18/1/8	1300	G	WT	1	
8 2327497009	07/18/18	1310	G	WT	1	
9 2327497010	07/18/18	1317	G	WT	1	
20 2327497011	07/18/18	1330	G	WT	1	

Receipt Information (completed by Receiving Lab)

Cooler Temp: 6.0 Therm ID:

No. of Coolers: Y N Initial

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

Sub to: ALS - Holland

8R2 60C

pH12

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Data Deliverables: x Standard ☐ CLP-like ☐ USACE

Special Processing: USACE ☐ Navy ☐

State Samples Collected In: ☐ NY ☐ NJ x PA ☐ NC ☐ MD

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/18/18	1450	2 FedEx		
3 FedEx	8.9.18	9:30	4 [signature]	8/9/18	12:55
5			6		
7			8		
9			10		

Reportable to PADEP? Yes ☐ PWSID #

Sample Disposal: Lab ☐ Special ☐

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge, SO=Soil; WP=Wipe; WW=Wastewater

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COC #: 1808591 | 3 of 4

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT
- [ ] Normal-Standard TAT is 10-12 business days.
- [ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

	Container Type	Plastic														
	Container Size															
	Preservative	none														
ANALYSES/METHOD REQUESTED			Specific Conductance													
Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.											Sample/COC Comments
21 2327500001	07/18/18	0815	G	WT	1											
22 2327622001	07/19/18	1020	G	WT	1											
23 2327622002	07/19/18	1253	G	WT	1											
24 2327622003	07/19/18	1405	G	WT	1											
25 2327622004	07/19/18	1447	G	WT	1											Sub to: ALS - Holland
26 2327657001	07/19/18	1230	G	WT	1											
27 2327703001	07/20/18	1014	G	WT	1											
28 2327703002	07/20/18	1032	G	WT	1											
29 2327703003	07/20/18	1054	G	WT	1											
30 2327703004	07/20/18	1130	G	WT	1											

Receipt Information (completed by Receiving Lab)

Cooler Temp: 1.0C Therm ID: 8KZ

No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Reportable to PADEP? Yes [ ] PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/18/18	1450	2 FedEx		
3 FedEx	8-9-18	0930	4 [signature]	8-9-18	1255
5			6		
7			8		
9			10		

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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COC #: 1808591 — 4 of 4

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

Container Type: Plastic
Container Size:
Preservative: None

ANALYSES/METHOD REQUESTED

Specific Conductance

Receipt Information (completed by Receiving Lab)

Cooler Temp: 6.0 Therm ID: SR2

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
31	2327703005	07/20/18	1148	G	WT	1	
32	2327703006	07/20/18	1201	G	WT	1	
33	2327709001	07/20/18	0832	G	WT	1	
34	2327709002	07/20/18	0835	G	WT	1	
35	2327988001	07/23/18	1335	G	WT	1	Sub to: ALS - Holland
36	2328534001	07/25/18	1130	G	WT	1	
37	2328536001	07/25/18	1100	G	WT	1	
				G	WT	1	
				G	WT	1	
				G	WT	1	

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/8/18	1450	2 FedEX		
3 FedEX	8/9/18	0930	4	8/9/18	1255
5			6		
7			8		
9			10		

Reportable to PADEP? Yes [ ] PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

* G=Grab, C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Of=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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ALS Group, USA

Sample Receipt Checklist

Client Name: **ALS - MIDDLETOWN** Date/Time Received: **09-Aug-18 09:30**

Work Order: **1808591** Received by: **BNF**

Checklist completed by *Bonnie France* 09-Aug-18 Reviewed by: *Tom Barnish* 09-Aug-18
eSignature Date eSignature Date

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	6.0 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	8/9/2018 1:24:26 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

August 20, 2018

Mr. Daniel Brown
Lancaster County Solid Waste Authority
1299 Hbg Pike, P.O. Box 4425
Lancaster, PA 17604

Certificate of Analysis

Project Name:	**2018-CRESWELL**	Workorder:	**2327049**
Purchase Order:	**PO1000127**	Workorder ID:	**3RD QTR 2018 CWMP-FORM 19Q**

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory between Monday, July 16, 2018 and Friday, July 20, 2018.

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

If you have any questions regarding this certificate of analysis, please contact Ms. Susan J Scherer (Project Coordinator) 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.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Ms. Jordan Gallagher , Mr. Mark Reider , Mr. Jeff Musser

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

Susan J. Scherer

Ms. Susan J Scherer
Project Coordinator

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

Re: Power Outage at ALS – Middletown Facility

To Whom It May Concern,

During the recent weather event in the Northeast and related flooding in our area, ALS–Middletown lost power the evening of Monday, July 23, 2018. Numerous trees damaged both utility poles and fell on power lines in the flooded areas making repair that much more difficult for the emergency repair groups. The laboratory was without power until the afternoon of Wednesday, July 25, 2018.

This power outage prevented ALS from operating our business in a normal manner during this period. The analysis and reporting of samples during this time period was significantly reduced. In addition to continuing to receive samples from our clients, our field service staff and sample receiving groups continued to collect, process and receive samples during this period. Analysis of short hold parameters was accomplished under emergency generator power. As power was restored to our facility, we have brought all systems back online with minimal damage to instruments and computers. In this situation a sudden loss of power can cause damage to sensitive electronic equipment so care is being taken to ensure the instruments are operating at optimal conditions.

As we return to full operational status, we will experience backlogs in our data analysis and processing. The lab staff is working diligently 24/7 to get all delayed projects, results and reports out as quickly as possible to prevent any further delays. If any data was compromised due to the power loss, an appropriate comment will be notated on your laboratory report.

If you have any questions or concerns regarding your sample results, please feel free to contact your ALS Project Manager or our Client Services Manager, Shiloh Summy at Shiloh.summy@alsglobal.com or (717)-577-3515.

Thank you for choosing ALS–Middletown to meet your analytical needs. We are committed to ensuring all data meets our stringent quality standards even in these unfortunate circumstances.

Sincerely,

Scott Brunk

Laboratory Director

ALS Environmental, Middletown

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2327049 3RD QTR 2018 CWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2327049001	CWMP012W	Ground Water	7/18/2018 12:15	7/18/2018 14:40	Mr. Brian G Shade
2327049002	Field Blank	Water	7/18/2018 13:04	7/18/2018 14:40	Mr. Brian G Shade
2327049003	Trip Blank	Water	7/18/2018 14:40	7/18/2018 14:40	Mr. Brian G Shade

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2327049 3RD QTR 2018 CWMP-FORM 19Q

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 preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	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
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

PROJECT SUMMARY

Workorder: 2327049 3RD QTR 2018 CWMP-FORM 19Q

Workorder Comments

See attached subcontracted results from ALS-Holland for specific conductance results. Results not related to this work order were removed from the ALS Holland report. SB 08/15/18

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327049 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327049001** Date Collected: 7/18/2018 12:15 Matrix: Ground Water

Sample ID: **CWMP012W** Date Received: 7/18/2018 14:40

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
1,1-Dichloroethane	1.3		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/26/18 19:27	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/26/18 19:27	DD	G
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	94.6		%	62 - 133	SW846 8260B			7/26/18 19:27	DD	G
4-Bromofluorobenzene (S)	94.8		%	79 - 114	SW846 8260B			7/26/18 19:27	DD	G
Dibromofluoromethane (S)	86.9		%	78 - 116	SW846 8260B			7/26/18 19:27	DD	G
Toluene-d8 (S)	79		%	76 - 127	SW846 8260B			7/26/18 19:27	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	67		mg/L	5	S2320B-97			7/20/18 07:37	MBW	B
Alkalinity, Total	67	3	mg/L	5	S2320B-97			7/20/18 07:37	MBW	B
Ammonia-N	0.110		mg/L	0.100	D6919-09			7/28/18 17:52	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			7/19/18 19:00	AK	A
Chloride	40.5		mg/L	2.0	EPA 300.0			7/19/18 10:34	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			7/19/18 10:34	CHW	B
Nitrate-N	10.6	4	mg/L	0.20	EPA 300.0			7/21/18 12:30	CHW	B
pH	6.38	1	pH_Units		S4500HB-11			7/20/18 07:37	MBW	B
Phenolics	ND		mg/L	0.005	SW846 9066	7/23/18 06:12	C_D	7/28/18 00:00	RXB	F
Sulfate	4.8		mg/L	2.0	EPA 300.0			7/21/18 12:30	CHW	B
Total Dissolved Solids	187		mg/L	5	S2540C-11			7/20/18 13:15	BMK	B
Total Organic Carbon (TOC)	1.7	2	mg/L	0.50	SW846 9060A			8/4/18 01:08	PAG	D
Turbidity	50.1		NTU	0.10	S2130B-01			7/19/18 05:42	MSA	B
METALS										

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327049 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327049001** Date Collected: 7/18/2018 12:15 Matrix: Ground Water

Sample ID: **CWMP012W** Date Received: 7/18/2018 14:40

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Calcium, Total	34.2		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/30/18 13:56	SRT	J1
Iron, Total	152		mg/L	0.067	SW846 6010C	7/23/18 11:00	DXC	7/30/18 13:56	SRT	J1
Magnesium, Total	9.4		mg/L	0.11	SW846 6010C	7/23/18 11:00	DXC	7/30/18 13:56	SRT	J1
Manganese, Total	0.87		mg/L	0.0056	SW846 6010C	7/23/18 11:00	DXC	7/30/18 13:56	SRT	J1
Potassium, Total	1.5		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/30/18 13:56	SRT	J1
Sodium, Total	13.5		mg/L	0.56	SW846 6010C	7/23/18 11:00	DXC	7/30/18 13:56	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	55.980		Feet		Field			7/18/18 12:15	BGS	C
pH, Field (SM4500B)	5.190		pH_Units		Field			7/18/18 12:15	BGS	C
Specific Conductance, Field	334		umhos/cm	1	Field			7/18/18 12:15	BGS	C
Temperature	19.80		Deg. C		Field			7/18/18 12:15	BGS	C
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See Attached				Subcontract			8/13/18 09:30	SUB	

Ms. Susan J Scherer
Project Coordinator

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: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2327049 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327049002** Date Collected: 7/18/2018 13:04 Matrix: Water

Sample ID: **Field Blank** Date Received: 7/18/2018 14:40

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
Toluene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/26/18 15:05	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/26/18 15:05	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	92.8		%	62 - 133	SW846 8260B			7/26/18 15:05	DD	A
4-Bromofluorobenzene (S)	93.3		%	79 - 114	SW846 8260B			7/26/18 15:05	DD	A
Dibromofluoromethane (S)	85.2		%	78 - 116	SW846 8260B			7/26/18 15:05	DD	A
Toluene-d8 (S)	79.2		%	76 - 127	SW846 8260B			7/26/18 15:05	DD	A

Susan J. Scherer

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ANALYTICAL RESULTS

Workorder: 2327049 3RD QTR 2018 CWMP-FORM 19Q

Lab ID: **2327049003** Date Collected: 7/18/2018 14:40 Matrix: Water

Sample ID: **Trip Blank** Date Received: 7/18/2018 14:40

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
Toluene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			7/26/18 15:27	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			7/26/18 15:27	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	92.3		%	62 - 133	SW846 8260B			7/26/18 15:27	DD	A
4-Bromofluorobenzene (S)	93.5		%	79 - 114	SW846 8260B			7/26/18 15:27	DD	A
Dibromofluoromethane (S)	83.8		%	78 - 116	SW846 8260B			7/26/18 15:27	DD	A
Toluene-d8 (S)	78.7		%	76 - 127	SW846 8260B			7/26/18 15:27	DD	A

Susan J. Scherer

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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2327049 3RD QTR 2018 CWMP-FORM 19Q

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2327049001	1	CWMP012W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2327049001	2	CWMP012W	SW846 9060A	Total Organic Carbon (TOC)
The storage temperature requirement for this sample is 0-6 degrees C. The storage temperature exceeded this requirement for a 24 hour time period, due to unforeseen issues arising from the power outages associated with the recent weather event.				
2327049001	3	CWMP012W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2327049001	4	CWMP012W	EPA 300.0	Nitrate-N
The sample was originally run within hold time, but required further analysis that exceeded hold time.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2327049 3RD QTR 2018 CWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2327049001	CWMP012W	D6919-09	
2327049001	CWMP012W	EPA 300.0	
2327049001	CWMP012W	EPA 410.4	
2327049001	CWMP012W	Field	
2327049001	CWMP012W	S2130B-01	
2327049001	CWMP012W	S2320B-97	
2327049001	CWMP012W	S2540C-11	
2327049001	CWMP012W	S4500HB-11	
2327049001	CWMP012W	SW846 6010C	SW846 3015
2327049001	CWMP012W	SW846 8260B	
2327049001	CWMP012W	SW846 9060A	
2327049001	CWMP012W	SW846 9066	420.4/9066
2327049001	CWMP012W	Subcontract	
2327049002	Field Blank	SW846 8260B	
2327049003	Trip Blank	SW846 8260B	

ALS Environmental

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

COC ALS

1 of 1

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

Client Name: Lancaster County Solid Waste MA

Address: 1299 Harrisburg Pike, P.O. Box 4424
Lancaster, PA 17604

Contact: Mark Reider

Phone#: (717) 735-0193

Project Name#: Creswell/GWMP Form 19Q Wells

Bill To: Lancaster County Solid Waste MA

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: _____ Approved By: _____

Email? [X] -Y mreider@LCSWMA.com

Fax? [X] -Y No.: (717) 397-9973

Container Type	AG	AN	CG	—	—	PL	PL	PL	PL	
Container Size	40 ml	~~500 ml~~ 175	40 ml	—	—	~~500 ml~~ 250	~~500 ml~~ 250	1 L	500 ml	
Preservative	HCl	H2SO4	HCl	—	—	H2SO4	HNO3	None	None	

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	TOC	O-OH	8260 VOCs - Form 19Q	Field Measurements	Sample Depth for AUX Data	NH3-N, COD	Total Metals: Ca, Fe, Mn, Mg, K, Na	pH, NO3, Cl, F, SpC, SO4, Turb, TDS	Alkalinity, HCO3	
					Enter Number of Containers Per Sample or Field Results Below.									
1 CWMP012W	7-18-18	1215	G	GW	2	1	2	X	X	1	1	1	1	
2 Field Blank	1	1304	1	1			1							
3 Trip Blank	1		1	1			1							
4														
5														
6														
7														
8														
9														
10														

Cooler Temp: 6° Therm ID: 402

No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?		X	LW
(If present) Seals Intact?			
Received on Ice?	X		
COC/Labels Complete/Accurate?	X		
Cont. In Good Cond.?	X		
Correct Containers?	X		
Correct Sample Volumes?	X		
Correct Preservation?	X		
Headspace/Volatiles?		X	

Courier/Tracking #:

Sample/COC Comments

ALS Field Services: ☐Pickup ☐Labor ☐Composite_Sampling ☐Rental_Equipment ☐Other: _____

Project Comments:

LOGGED BY(signature): _____ DATE 7.18.18 TIME 1730

REVIEWED BY(signature): _____ DATE _____ TIME _____

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] ALS	7-18-18	1440	2 [signature] ALS	7/18/18	1440
3		7-18-18	4		
5			6		
7			8		
9			10		

Data Deliverables: ☐Standard ☐CLP-like ☐USACE ☐

Special Processing: USACE ☐ Navy ☐ ☐

State Samples Collected In: ☐NY ☐NJ [X]PA ☐NC ☐

Reportable to PADEP? Yes ☐

PWSID # _____

Sample Disposal: Lab [X] Special ☐

EDDS: Format Type- _____

* G=Grab; C=Composite

**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Oil=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 8/04

14-Aug-2018

Shannon Butler
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Re: **Specific Conductance** Work Order: **1808591**

Dear Shannon,

ALS Environmental received 37 samples on 09-Aug-2018 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 48.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Tom Beamish

Tom Beamish
Senior Project Manager

Report of Laboratory Analysis

Certificate No: PA: 68-03827

ALS Group, USA Date: 14-Aug-18

Client: ALS Environmental
Project: Specific Conductance
Work Order: 1808591

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1808591-01	2326836001	Water		07/18/18 11:35	08/09/18 09:30	☐
1808591-02	2326837001	Water		07/18/18 12:30	08/09/18 09:30	☐
1808591-03	2326959001	Water		07/17/18 12:35	08/09/18 09:30	☐
1808591-04	2326959002	Water		07/17/18 13:26	08/09/18 09:30	☐
1808591-05	2326959003	Water		07/17/18 10:20	08/09/18 09:30	☐
1808591-06	2327049001	Water		07/18/18 12:15	08/09/18 09:30	☐
1808591-07	2327411001	Water		07/18/18 10:55	08/09/18 09:30	☐
1808591-08	2327411002	Water		07/18/18 13:30	08/09/18 09:30	☐
1808591-09	2327414001	Water		07/18/18 11:20	08/09/18 09:30	☐
1808591-10	2327497001	Water		07/18/18 11:30	08/09/18 09:30	☐
1808591-11	2327497002	Water		07/18/18 11:20	08/09/18 09:30	☐
1808591-12	2327497003	Water		07/18/18 12:30	08/09/18 09:30	☐
1808591-13	2327497004	Water		07/18/18 11:55	08/09/18 09:30	☐
1808591-14	2327497005	Water		07/18/18 12:05	08/09/18 09:30	☐
1808591-15	2327497006	Water		07/18/18 12:12	08/09/18 09:30	☐
1808591-16	2327497007	Water		07/18/18 12:50	08/09/18 09:30	☐
1808591-17	2327497008	Water		07/18/18 13:00	08/09/18 09:30	☐
1808591-18	2327497009	Water		07/18/18 13:10	08/09/18 09:30	☐
1808591-19	2327497010	Water		07/18/18 13:17	08/09/18 09:30	☐
1808591-20	2327497011	Water		07/18/18 13:30	08/09/18 09:30	☐
1808591-21	2327500001	Water		07/18/18 08:15	08/09/18 09:30	☐
1808591-22	2327622001	Water		07/19/18 10:20	08/09/18 09:30	☐
1808591-23	2327622002	Water		07/19/18 12:53	08/09/18 09:30	☐
1808591-24	2327622003	Water		07/19/18 14:05	08/09/18 09:30	☐
1808591-25	2327622004	Water		07/19/18 14:47	08/09/18 09:30	☐
1808591-26	2327657001	Water		07/19/18 12:30	08/09/18 09:30	☐
1808591-27	2327703001	Water		07/20/18 10:14	08/09/18 09:30	☐
1808591-28	2327703002	Water		07/20/18 10:32	08/09/18 09:30	☐
1808591-29	2327703003	Water		07/20/18 10:54	08/09/18 09:30	☐
1808591-30	2327703004	Water		07/20/18 11:30	08/09/18 09:30	☐
1808591-31	2327703005	Water		07/20/18 11:48	08/09/18 09:30	☐
1808591-32	2327703006	Water		07/20/18 12:01	08/09/18 09:30	☐
1808591-33	2327709001	Water		07/20/18 08:32	08/09/18 09:30	☐
1808591-34	2327709002	Water		07/20/18 08:35	08/09/18 09:30	☐
1808591-35	2327988001	Water		07/23/18 13:35	08/09/18 09:30	☐
1808591-36	2328534001	Water		07/25/18 11:30	08/09/18 09:30	☐
1808591-37	2328536001	Water		07/25/18 11:00	08/09/18 09:30	☐

Client: ALS Environmental
Project: Specific Conductance
WorkOrder: 1808591

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µmhos/cm	Micromhos per Centimeter

ALS Group, USA

Date: *14-Aug-18*

Client: ALS Environmental
Project: Specific Conductance
Sample ID: 2327049001
Collection Date: 07/18/18 12:15 PM

Work Order: 1808591
Lab ID: 1808591-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SPECIFIC CONDUCTANCE @ 25°C		Method: A2510 B-11					Analyst: JB
Specific Conductance	360		0.97	5.0	µmhos/cm	1	08/13/18 09:30

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **R242100** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180813-R242100** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: Run ID: **WETCHEM_180813A** SeqNo: **5197691** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	0.97	5.0								

DUP Sample ID: **1808591-01A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: **2326836001** Run ID: **WETCHEM_180813A** SeqNo: **5197694** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	466000	9.7	50	0	0	0	0-0	468000	0.428	5	

DUP Sample ID: **1808591-10A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: **2327497001** Run ID: **WETCHEM_180813A** SeqNo: **5197704** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	319	0.97	5.0	0	0	0	0-0	315	1.26	5	

LCS1 Sample ID: **WLCS1W-180813-R242100** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: Run ID: **WETCHEM_180813A** SeqNo: **5197692** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.74	0.97	5.0	14.9	0	98.9	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242100** Units: **µmhos/cm** Analysis Date: **08/13/18 09:30 AM**
Client ID: Run ID: **WETCHEM_180813A** SeqNo: **5197712** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	614	0.97	5.0	592	0	104	85-107	0			

The following samples were analyzed in this batch:

1808591-01A	1808591-02A	1808591-03A
1808591-04A	1808591-05A	1808591-06A
1808591-07A	1808591-08A	1808591-09A
1808591-10A	1808591-11A	1808591-12A
1808591-13A	1808591-14A	1808591-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1808591
Project: Specific Conductance

QC BATCH REPORT

Batch ID: **R242101** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180813-R242101** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: Run ID: **WETCHEM_180813B** SeqNo: **5197720** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	0.98	0.97	5.0								J

DUP Sample ID: **1808591-16A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: **2327497007** Run ID: **WETCHEM_180813B** SeqNo: **5197723** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	35.8	0.97	5.0	0	0	0	0-0	35.8	0	5	

DUP Sample ID: **1808591-26A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: **2327657001** Run ID: **WETCHEM_180813B** SeqNo: **5197734** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	72	0.97	5.0	0	0	0	0-0	71.9	0.139	5	

LCS1 Sample ID: **WLCS1W1-180813-R242101** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: Run ID: **WETCHEM_180813B** SeqNo: **5197721** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.13	0.97	5.0	14.9	0	94.8	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242101** Units: **µmhos/cm** Analysis Date: **08/13/18 09:45 AM**
Client ID: Run ID: **WETCHEM_180813B** SeqNo: **5197739** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	601	0.97	5.0	592	0	102	85-107	0			

The following samples were analyzed in this batch:

1808591-16A	1808591-17A	1808591-18A
1808591-19A	1808591-20A	1808591-21A
1808591-22A	1808591-23A	1808591-24A
1808591-25A	1808591-26A	1808591-27A
1808591-28A	1808591-29A	1808591-30A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1808591
Project: Specific Conductance

QC BATCH REPORT

Batch ID: **R242104** Instrument ID **WETCHEM** Method: **A2510 B-11**

MBLK Sample ID: **WBLKW1-180813-R242104** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197787** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	0.97	5.0								

MBLK Sample ID: **WBLKW1-180813-R242104** Units: **µmhos/cm @ 25°** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197799** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	U	0.97	5.0								

DUP Sample ID: **1808591-31A DUP** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: **2327703005** Run ID: **WETCHEM_180813C** SeqNo: **5197790** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3260	0.97	5.0	0	0	0	0-0	3250	0.307	5	

LCS1 Sample ID: **WLCS1W1-180813-R242104** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197788** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.71	0.97	5.0	14.9	0	98.7	85-107	0			

LCS1 Sample ID: **WLCS1W1-180813-R242104** Units: **µmhos/cm @ 25°** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197800** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	14.71	0.97	5.0	14.9	0	98.7	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242104** Units: **µmhos/cm** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197798** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	581	0.97	5.0	592	0	98.1	85-107	0			

LCS2 Sample ID: **WLCS2W1-180813-R242104** Units: **µmhos/cm @ 25°** Analysis Date: **08/13/18 10:00 AM**
Client ID: Run ID: **WETCHEM_180813C** SeqNo: **5197802** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	581	0.97	5.0	592	0	98.1	85-107	0			

The following samples were analyzed in this batch:

1808591-31A	1808591-32A	1808591-33A
1808591-34A	1808591-35A	1808591-36A
1808591-37A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

Generated by ALSI

COC #: 1808591

ALSI Quote #:

1 of 4

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown PA 17057
Contact: Shannon Butler
Phone#: 717-944-5541
Project Name/#: Specific Conductance
Bill To: Same

TAT: Normal-Standard TAT is 10-12 business days. / Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:
Email? [x] -Y shannon.butler@alsglobal.com
Fax? -Y No.:

Container Type: Plastic
Container Size:
Preservative: none

ANALYSES/METHOD REQUESTED: Specific Conductance

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Specific Conductance
1	2326838001	07/18/18	11335	G	WT	1
2	2326837001	07/18/18	1230	G	WT	1
3	2326959001	07/17/18	1235	G	WT	1
4	2326959002	07/17/18	1315	G	WT	1
5	2326959003	07/17/18	1020	G	WT	1
6	2327049001	07/18/18	1215	G	WT	1
7	2327411001	07/18/18	1055	G	WT	1
8	2327411002	07/18/18	1330	G	WT	1
9	2327414001	07/18/18	1120	G	WT	1
10	2327497001	07/18/18	1130	G	WT	1

Receipt Information (completed by Receiving Lab)
Cooler Temp: 6.0 Therm ID:
No. of Coolers: Y N Initial
Custody Seals Present?
(if present) Seals Intact?
Received on Ice?
COC/Labels Complete/Accurate?
Cont. in Good Cond.?
Correct Containers?
Correct Sample Volumes?
Correct Preservation?
Headspace/Volatiles?
Courier/Tracking #:

Sample/COC Comments
Sub to: ALS - Holland
SKZ 60C
pH12

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/18/18	1450	2 FedEX		930
3 FedEx	8/9/18	920	4 [signature]	8/9/18	1355
5			6		
7			8		
9			10		

Data Deliverables: [x] Standard; CLP-like; USACE

Special Processing: USACE; Navy

State Samples Collected In: NY; NJ; [x] PA; NC; MD

Reportable to PADEP? Yes
PWSID #

Sample Disposal: Lab; Special

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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F. 717-944-1430

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COC #: 1808591 | 2 of 4

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT ☐ Normal-Standard TAT is 10-12 business days.
☐ Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? x -Y shannon.butler@alsglobal.com

Fax? ☐ -Y No.:

Container Type	Container Size	Preservative
Plastic		None

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Specific Conductance	Enter Number of Containers Per Sample or Field Results Below.
11 2327497002	07/18/18	1120	G	WT	1	
12 2327497003	07/18/18	1230	G	WT	1	
3 2327497004	07/18/18	1155	G	WT	1	
4 2327497005	07/18/18	1205	G	WT	1	
5 2327497006	07/18/18	1212	G	WT	1	
6 2327497007	07/18/18	1250	G	WT	1	
7 2327497008	07/18/1/8	1300	G	WT	1	
8 2327497009	07/18/18	1310	G	WT	1	
9 2327497010	07/18/18	1317	G	WT	1	
20 2327497011	07/18/18	1330	G	WT	1	

Receipt Information (completed by Receiving Lab)

Cooler Temp: 6.0 Therm ID:

No. of Coolers: Y N Initial

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

Sub to: ALS - Holland

8R2 60C

pH12

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Data Deliverables: x Standard ☐ CLP-like ☐ USACE

Special Processing: USACE ☐ Navy ☐

State Samples Collected In: ☐ NY ☐ NJ x PA ☐ NC ☐ MD

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/18/18	1450	2 FedEx		
3 FedEx	8.9.18	9:30	4 [signature]	8/9/18	12:55
5			6		
7			8		
9			10		

Reportable to PADEP? Yes ☐ PWSID #

Sample Disposal: Lab ☐ Special ☐

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge, SO=Soil; WP=Wipe; WW=Wastewater

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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COC #: 1808591 | 3 of 4

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT
- [ ] Normal-Standard TAT is 10-12 business days.
- [ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

	Container Type	Plastic														
	Container Size															
	Preservative	none														

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Specific Conductance										Sample/COC Comments
						Enter Number of Containers Per Sample or Field Results Below.										
21	2327500001	07/18/18	0815	G	WT	1										
22	2327622001	07/19/18	1020	G	WT	1										
23	2327622002	07/19/18	1253	G	WT	1										
24	2327622003	07/19/18	1405	G	WT	1										
25	2327622004	07/19/18	1447	G	WT	1										Sub to: ALS - Holland
26	2327657001	07/19/18	1230	G	WT	1										
27	2327703001	07/20/18	1014	G	WT	1										
28	2327703002	07/20/18	1032	G	WT	1										
29	2327703003	07/20/18	1054	G	WT	1										
30	2327703004	07/20/18	1130	G	WT	1										

Receipt Information (completed by Receiving Lab)

Cooler Temp: 1.0C Therm ID: 8KZ

No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Reportable to PADEP? Yes [ ] PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/18/18	1450	2 FedEx		
3 FedEx	8-9-18	0930	4 [signature]	8-9-18	1255
5			6		
7			8		
9			10		

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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COC #: 1808591

ALSI Quote #:

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown PA 17057

Contact: Shannon Butler

Phone#: 717-944-5541

Project Name/#: Specific Conductance

Bill To: Same

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8/17/2018 Approved By:

Email? [x] -Y shannon.butler@alsglobal.com

Fax? [ ] -Y No.:

Container Type: Plastic
Container Size:
Preservative: None

ANALYSES/METHOD REQUESTED

Specific Conductance

Receipt Information (completed by Receiving Lab)

Cooler Temp: 6.0 Therm ID: SR2

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

	Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
31	2327703005	07/20/18	1148	G	WT	1	
32	2327703006	07/20/18	1201	G	WT	1	
33	2327709001	07/20/18	0832	G	WT	1	
34	2327709002	07/20/18	0835	G	WT	1	
35	2327988001	07/23/18	1335	G	WT	1	Sub to: ALS - Holland
36	2328534001	07/25/18	1130	G	WT	1	
37	2328536001	07/25/18	1100	G	WT	1	
				G	WT	1	
				G	WT	1	
				G	WT	1	

ALSI Field Services: oPickup oLabor oComposite Sampling oRental Equipment oOther:

Project Comments:

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Data Deliverables: [x] Standard [ ] CLP-like [ ] USACE

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [x] PA [ ] NC [ ] MD

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/8/18	1450	2 FedEX		
3 FedEX	8/9/18	0930	4	8/9/18	1255
5			6		
7			8		
9			10		

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

* G=Grab, C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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ALS Group, USA

Sample Receipt Checklist

Client Name: **ALS - MIDDLETOWN** Date/Time Received: **09-Aug-18 09:30**

Work Order: **1808591** Received by: **BNF**

Checklist completed by *Bonnie France* 09-Aug-18 Reviewed by: *Tom Barnish* 09-Aug-18
eSignature Date eSignature Date

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	6.0 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	8/9/2018 1:24:26 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

Lancaster County Solid Waste Management Authority

Creswell Landfill

Exceedence Report

Parameter Name	Units	Concentration	Criteria Conc	Qualifiers	Criteria
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP001W	2327622002	07/19/2018	GW		
NITRATE-NITROGEN	mg/l	21.30	10.00		EPA-MCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP005W	2327622001	07/19/2018	GW		
NITRATE-NITROGEN	mg/l	11.00	10.00		EPA-MCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP007W	2327622003	07/19/2018	GW		
NITRATE-NITROGEN	mg/l	10.60	10.00		EPA-MCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP010W	2327703003	07/20/2018	GW		
NITRATE-NITROGEN	mg/l	11.00	10.00		EPA-MCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP012W	2327049001	07/18/2018	GW		
NITRATE-NITROGEN	mg/l	10.60	10.00		EPA-MCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP017S	2327703005	07/20/2018	GW		
NITRATE-NITROGEN	mg/l	27.20	10.00		EPA-MCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP018S	2327703002	07/20/2018	GW		
NITRATE-NITROGEN	mg/l	21.50	10.00		EPA-MCL

Lancaster County Solid Waste Management Authority

Creswell Landfill

Exceedence Report

Parameter Name	Units	Concentration	Criteria Conc	Qualifiers	Criteria
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP001W	*2327622002*	*07/19/2018*	*GW*		
IRON, TOTAL	mg/l	1.90	0.30		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.09	0.05		EPA-SMCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP002W	*2326539001*	*07/16/2018*	*GW*		
MANGANESE, TOTAL	mg/l	1.00	0.05		EPA-SMCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP005W	*2327622001*	*07/19/2018*	*GW*		
MANGANESE, TOTAL	mg/l	0.06	0.05		EPA-SMCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP008W	*2327703004*	*07/20/2018*	*GW*		
IRON, TOTAL	mg/l	30.30	0.30		EPA-SMCL
MANGANESE, TOTAL	mg/l	18.30	0.05		EPA-SMCL
TDS (TOTAL DISSOLVED SOLIDS)	mg/l	538.00	500.00		EPA-SMCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP009W	*2327622004*	*07/19/2018*	*GW*		
CHLORIDE	mg/l	612.00	250.00		EPA-SMCL
IRON, TOTAL	mg/l	39.00	0.30		EPA-SMCL
MANGANESE, TOTAL	mg/l	13.80	0.05		EPA-SMCL
TDS (TOTAL DISSOLVED SOLIDS)	mg/l	1,340.00	500.00		EPA-SMCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP010W	*2327703003*	*07/20/2018*	*GW*		
CHLORIDE	mg/l	428.00	250.00		EPA-SMCL
IRON, TOTAL	mg/l	0.51	0.30		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.36	0.05		EPA-SMCL
TDS (TOTAL DISSOLVED SOLIDS)	mg/l	1,000.00	500.00		EPA-SMCL

Parameter Name	Units	Concentration	Criteria Conc	Qualifiers	Criteria
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP012W	*2327049001*	*07/18/2018*	*GW*		
IRON, TOTAL	mg/l	152.00	0.30		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.87	0.05		EPA-SMCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP016W	*2327703001*	*07/20/2018*	*GW*		
IRON, TOTAL	mg/l	0.34	0.30		EPA-SMCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP017S	*2327703005*	*07/20/2018*	*GW*		
CHLORIDE	mg/l	708.00	250.00		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.07	0.05		EPA-SMCL
TDS (TOTAL DISSOLVED SOLIDS)	mg/l	1,740.00	500.00		EPA-SMCL
Location ID	**Sample Number**	**Sample Date**	**Sample Type**	**Sample Depth**	
CWMP018S	*2327703002*	*07/20/2018*	*GW*		
CHLORIDE	mg/l	495.00	250.00		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.05	0.05		EPA-SMCL
pH-LAB	SU	8.53	8.50		EPA-SMCL
TDS (TOTAL DISSOLVED SOLIDS)	mg/l	1,330.00	500.00		EPA-SMCL