

December 26, 2016

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

RE: Frey Farm Landfill (BWM Permit #101389)
Groundwater Monitoring; Forms 19 Submittal

Dear Ms. Sauls:

In accordance with the Municipal Waste Management Regulations, the Lancaster County Solid Waste Management Authority (LCSWMA) continues the above-referenced monitoring program.

Attached are the Forms 19, lab reports, and excel csv file for your LandLinks Access database. I have attached per your request:

1. USEPA MCL's exceedance report; Samples 2, 3, 16, 23, 25, 27 & 28 exceeded the primary standard for nitrate, samples are consistent with historic data the cause is attributed to agricultural impacts (as well 2 our up gradient well shows our highest concentrations). No other MCL's were exceeded.
2. USEPA SMCL's exceedance report; Samples 2, 3, 4, 17, 18, 23, 26 & 30) exceeded the secondary standard for manganese, Samples 13 & 14 exceeded the secondary standard for iron, Samples 4, 13 & 30 exceeded the secondary standard for total dissolved solids, and Samples 4, 17 & 30 exceeded the secondary standard for chlorides all samples are consistent with historic levels and exceedances are attributed to soil parent material, geologic conditions and historic land use. No other SMCL's were exceeded.
3. A copy of the field sampling data sheets for all locations.

Ground water monitoring concentrations where consistent with historic data no significant deviations where observed.

Please do not hesitate in contacting me if you have any questions or concerns at MREIDER@LCSWMA.ORG.

Respectfully Submitted,



Mark D. Reider
Director of Environmental Compliance

Enclosures:

cc: Bob Zorbaugh, Dan Brown, Bob Eshbach
Ed Rawski, Randy Weiss (PADEP)



Date Prepared/Revised
12/22/2016

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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP018W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 11.62 " Longitude: 76 ° 27 ' 5.68 "

Depth to Water Level:	29.23	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 2.46 ft Elevation of Water Level: 442.97 ft./MSL

Sampling Depth:	40 ft	Volume of Water Column:	14.49	gal
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Total Well Depth: 51.43 ft Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No Well Volumes Purged: 3.5

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/16/2016 Sample Collection Time: 14:16

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2189817001 Final Lab Analysis CompletionDate: 11/28/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP018W

Sample Date 11/16/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	14	SM20-2320B
CALCIUM, TOTAL	35.6	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	124	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	150	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	18.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	320	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	5.6	EPA 300
pH-FIELD (SU)	4.44	FIELD
pH-LAB (SU)	5.95	SM20-4500HB
POTASSIUM, TOTAL	4.4	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	42.8	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	649	FIELD
SPEC. COND., LAB (umhos/cm)	585	SW846 9050A
SULFATE	50.8	EPA 300
ALKALINITY	14	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	345	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.52	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 101389

Monitoring Point No. FFMP018W

Sample Date 11/16/2016

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	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.



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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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP019W

X	Well	Spring	Stream	Other
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Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 11.58 "

Longitude: 76 ° 27 ' 5.75 "

Depth to Water Level: 29.86 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.79 ft

Elevation of Water Level: 442.09 ft./MSL

Sampling Depth: 49 ft

Volume of Water Column: 67.19 gal

Total Well Depth: 132.79 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 2.7

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/16/2016

Sample Collection Time: 15:01

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2189817002 Final Lab Analysis CompletionDate: 11/29/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP019W

Sample Date 11/16/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	66	SM20-2320B
CALCIUM, TOTAL	58.7	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	79.4	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	5.8	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	5.6 ND	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	0.66	EPA 300
pH-FIELD (SU)	5.96	FIELD
pH-LAB (SU)	7.22	SM20-4500HB
POTASSIUM, TOTAL	0.84	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	10.3	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	477	FIELD
SPEC. COND., LAB (umhos/cm)	424	SW846 9050A
SULFATE	14.8	EPA 300
ALKALINITY	66	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	273	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SW846 9060A
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 101389

Monitoring Point No. FFMP019W

Sample Date 11/16/2016

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	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.



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QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP029W

X	Well	Spring	Stream	Other
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Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 12.93 "

Longitude: 76° 27' 0.67"

Depth to Water Level: 41.37 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.00 ft

Elevation of Water Level: 435.93 ft./MSL

Sampling Depth: 55 ft

Volume of Water Column:	25.16	gal
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Total Well Depth: 58.5 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 3.4

Sample Field Filtered (must be 0.45 micron)?:

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/16/2016

Sample Collection Time: 15:58

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2189817003 Final Lab Analysis CompletionDate: 11/29/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP029W

Sample Date 11/16/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	11	SM20-2320B
CALCIUM, TOTAL	9.4	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	42.4	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	6.9	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	15	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	3.6	EPA 300
pH-FIELD (SU)	4.9	FIELD
pH-LAB (SU)	6.2	SM20-4500HB
POTASSIUM, TOTAL	1.5	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	14.6	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	216	FIELD
SPEC. COND., LAB (umhos/cm)	184	SW846 9050A
SULFATE	3.2	EPA 300
ALKALINITY	11	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	131	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.46	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 101389

Monitoring Point No. FFMP029W

Sample Date 11/16/2016

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	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.



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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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP015W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 36.43 " Longitude: 76 ° 27 ' 10.82 "

Depth to Water Level:	60.22	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 1.90 ft Elevation of Water Level: 516.18 ft./MSL

Sampling Depth:	135 ft	Volume of Water Column:	130.24 gal
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Total Well Depth: 148.9 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 1.3

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/17/2016 Sample Collection Time: 10:13

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190196001 Final Lab Analysis CompletionDate: 11/30/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP015W

Sample Date 11/17/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	15	SM20-2320B
CALCIUM, TOTAL	7.4	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	6.8	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	7.3	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	10	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	5.9	EPA 300
pH-FIELD (SU)	5.25	FIELD
pH-LAB (SU)	6.04	SM20-4500HB
POTASSIUM, TOTAL	1.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	10.9	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	185	FIELD
SPEC. COND., LAB (umhos/cm)	152	SW846 9050A
SULFATE	31.3	EPA 300
ALKALINITY	15	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	102	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.67	SW846 9060A
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.

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Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP015W

Sample Date 11/17/2016

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	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**



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Monitoring Point Number: FFMP023W

☒ Well ☐ Spring ☐ Stream ☐ Other

☒ Upgradient/Upstream ☐ Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 31.62 "

Longitude: 76 ° 27 ' 24.05 "

Depth to Water Level: 63.92 ft

Measured from: ☐ Land Surface ☒ TOC

Casing Stickup: 1.50 ft

Elevation of Water Level: 547.88 ft./MSL

Sampling Depth: 79 ft

Volume of Water Column: 26.55 gal

Total Well Depth: 82 ft

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 3.7

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

Spring Flow Rate: ☐ gpm

Sample Date (mm/dd/yy): 11/17/2016

Sample Collection Time: 11:25

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190196002 Final Lab Analysis CompletionDate: 11/30/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP023W

Sample Date 11/17/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	5 ND	SM20-2320B
CALCIUM, TOTAL	10.1	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	24.8	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	8.2	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	180	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	12.4	EPA 300
pH-FIELD (SU)	4.51	FIELD
pH-LAB (SU)	5.34	SM20-4500HB
POTASSIUM, TOTAL	1.1	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	9.3	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	220	FIELD
SPEC. COND., LAB (umhos/cm)	177	SW846 9050A
SULFATE	2 ND	EPA 300
ALKALINITY	5 ND	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	90	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.66	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.06	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 101389

Monitoring Point No. FFMP023W

Sample Date 11/17/2016

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	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.



Date Prepared/Revised
12/22/2016

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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP024W

X	Well	Spring	Stream	Other
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X Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 31.52 "

Longitude: 76 ° 27 ' 24.75 "

Depth to Water Level: 65.23 ft

Measured from: Land Surface X TOC

Casing Stickup: 0.82 ft

Elevation of Water Level: 546.19 ft./MSL

Sampling Depth: 180.78 ft

Volume of Water Column:	199.13	gal
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Total Well Depth: 200.82 ft

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No

Well Volumes Purged: 0.8

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/17/2016

Sample Collection Time: 12:39

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190196003 Final Lab Analysis CompletionDate: 11/30/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP024W

Sample Date 11/17/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	111	SM20-2320B
CALCIUM, TOTAL	39.5	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	14.8	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	110	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	5.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	9.2	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	6.6	EPA 300
pH-FIELD (SU)	6.6	FIELD
pH-LAB (SU)	7.28	SM20-4500HB
POTASSIUM, TOTAL	1	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	27	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	396	FIELD
SPEC. COND., LAB (umhos/cm)	325	SW846 9050A
SULFATE	26.8	EPA 300
ALKALINITY	111	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	183	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.62	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.57	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 101389

Monitoring Point No. FFMP024W

Sample Date 11/17/2016

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	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
12/22/2016

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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP002W

☒ Well ☐ Spring ☐ Stream ☐ Other

☒ Upgradient/Upstream ☐ Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 32.25 "

Longitude: 76 ° 27 ' 24.03 "

Depth to Water Level: 70.81 ft

Measured from: ☐ Land Surface ☒ TOC

Casing Stickup: 1.60 ft

Elevation of Water Level: 542.39 ft./MSL

Sampling Depth: 85 ft

Volume of Water Column: 145.09 gal

Total Well Depth: 169.6 ft

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.7

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

Spring Flow Rate: ☐ gpm

Sample Date (mm/dd/yy): 11/17/2016

Sample Collection Time: 13:17

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190196004 Final Lab Analysis CompletionDate: 11/30/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP002W

Sample Date 11/17/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	5 ND	SM20-2320B
CALCIUM, TOTAL	22.8	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	21.4	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	9.6	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	270	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	22.3	EPA 300
pH-FIELD (SU)	4.66	FIELD
pH-LAB (SU)	5.41	SM20-4500HB
POTASSIUM, TOTAL	2.2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	15.9	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	356	FIELD
SPEC. COND., LAB (umhos/cm)	292	SW846 9050A
SULFATE	21.4	EPA 300
ALKALINITY	5 ND	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	165	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.88	SW846 9060A
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 101389

Monitoring Point No. FFMP002W

Sample Date 11/17/2016

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	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.



Date Prepared/Revised
12/22/2016

DEP USE ONLY

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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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP03AW X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 24.05 " Longitude: 76 ° 27 ' 30.58 "

Depth to Water Level: 54.32 ft Measured from: Land Surface X TOC

Casing Stickup: 1.20 ft Elevation of Water Level: 536.58 ft./MSL

Sampling Depth:	130 ft	Volume of Water Column:	136.41 gal
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Total Well Depth: 147.2 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 0.8

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/17/2016 Sample Collection Time: 14:28

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190196005 Final Lab Analysis CompletionDate: 11/30/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP03AW

Sample Date 11/17/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	15	SM20-2320B
CALCIUM, TOTAL	16.9	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	24.1	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	12.2	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	220	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	20.6	EPA 300
pH-FIELD (SU)	4.95	FIELD
pH-LAB (SU)	5.75	SM20-4500HB
POTASSIUM, TOTAL	1.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	12	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	315	FIELD
SPEC. COND., LAB (umhos/cm)	258	SW846 9050A
SULFATE	3.2	EPA 300
ALKALINITY	15	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	158	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.58	SW846 9060A
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 101389

Monitoring Point No. FFMP03AW

Sample Date 11/17/2016

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	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.



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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP005W

X	Well	Spring	Stream	Other
---	------	--------	--------	-------

Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 10.67 "

Longitude: 76° 27' 21.3"

Depth to Water Level: 75.45 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.70 ft

Elevation of Water Level: 461.95 ft./MSL

Sampling Depth: 135 ft

Volume of Water Column:	109.49	gal
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Total Well Depth: 150 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 0.9

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/17/2016

Sample Collection Time: 15:39

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190196006 Final Lab Analysis CompletionDate: 11/30/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP005W

Sample Date 11/17/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	41	SM20-2320B
CALCIUM, TOTAL	66.7	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	164	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	15.8	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	36	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	3.8	EPA 300
pH-FIELD (SU)	5.37	FIELD
pH-LAB (SU)	6.25	SM20-4500HB
POTASSIUM, TOTAL	2.1	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	40.2	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	792	FIELD
SPEC. COND., LAB (umhos/cm)	723	SW846 9050A
SULFATE	44.5	EPA 300
ALKALINITY	41	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	404	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.2	SW846 9060A
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 101389

Monitoring Point No. FFMP005W

Sample Date 11/17/2016

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	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.



Date Prepared/Revised
12/22/2016

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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP017W

X	Well	Spring	Stream	Other
---	------	--------	--------	-------

Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 8.5 "

Longitude: 76 ° 27 ' 6.17 "

Depth to Water Level: 44.38 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.00 ft

Elevation of Water Level: 436.32 ft./MSL

Sampling Depth: 135 ft

Volume of Water Column:	155.85	gal
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Total Well Depth: 150.5 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 1.4

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/18/2016

Sample Collection Time: 9:59

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190519001 Final Lab Analysis CompletionDate: 12/6/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP017W

Sample Date 11/18/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	42	SM20-2320B
CALCIUM, TOTAL	80.1	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	276	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	36.4	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	290	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	2.7	EPA 300
pH-FIELD (SU)	5.51	FIELD
pH-LAB (SU)	6.45	SM20-4500HB
POTASSIUM, TOTAL	4	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	62.7	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1167	FIELD
SPEC. COND., LAB (umhos/cm)	1080	SW846 9050A
SULFATE	65.5	EPA 300
ALKALINITY	42	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	499	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	2	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.11	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 101389

Monitoring Point No. FFMP017W

Sample Date 11/18/2016

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	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
12/22/2016

DEP USE ONLY

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**FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General Reference: Section 273.284
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SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP028W ☒ Well ☐ Spring ☐ Stream ☐ Other
☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 37 ° 57 ' 21.62 " Longitude: 76 ° 27 ' 0.1 "

Depth to Water Level: 9.26 ft Measured from: ☐ Land Surface ☒ TOC

Casing Stickup: 2.50 ft Elevation of Water Level: 455.74 ft./MSL

Sampling Depth: 50 ft Volume of Water Column: _____ gal

Total Well Depth: 60 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No Well Volumes Purged: 2.5

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/18/2016 Sample Collection Time: 11:19

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190519002 Final Lab Analysis Completion Date: 12/6/2016

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP028W

Sample Date 11/18/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	30	SM20-2320B
CALCIUM, TOTAL	43.8	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	95.3	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	19.2	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	16	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	20.3	EPA 300
pH-FIELD (SU)	4.96	FIELD
pH-LAB (SU)	6.28	SM20-4500HB
POTASSIUM, TOTAL	2.4	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	28.3	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	613	FIELD
SPEC. COND., LAB (umhos/cm)	557	SW846 9050A
SULFATE	22.3	EPA 300
ALKALINITY	30	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	452	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.4	SW846 9060A
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 101389

Monitoring Point No. FFMP028W

Sample Date 11/18/2016

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	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.



Date Prepared/Revised
12/22/2016

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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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP30RW

X	Well	Spring	Stream	Other
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Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 15.52 "

Longitude: 76° 27' 26.8"

Depth to Water Level: 38.78 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.20 ft

Elevation of Water Level: 523.52 ft./MSL

Sampling Depth: 85 ft

Volume of Water Column:	75.22	gal
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Total Well Depth: 90 ft

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No

Well Volumes Purged: 1.0

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/18/2016

Sample Collection Time: 12:57

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190519003 Final Lab Analysis CompletionDate: 12/6/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP30RW

Sample Date 11/18/2016

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	0.102	D6919-09
BICARBONATE ALKALINITY	45	SM20-2320B
CALCIUM, TOTAL	55.6	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	323	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	160	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	19.7	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	3900	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	5.7	EPA 300
pH-FIELD (SU)	5.47	FIELD
pH-LAB (SU)	6.32	SM20-4500HB
POTASSIUM, TOTAL	7.6	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	137	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1167	FIELD
SPEC. COND., LAB (umhos/cm)	1210	SW846 9050A
SULFATE	40.9	EPA 300
ALKALINITY	45	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	705	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.6	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.55	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 101389

Monitoring Point No. FFMP30RW

Sample Date 11/18/2016

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	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.



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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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP04AW X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 15.4 " Longitude: 76 ° 27 ' 26.58 "

Depth to Water Level: 37.38 ft Measured from: Land Surface X TOC

Casing Stickup: 2.52 ft Elevation of Water Level: 523.34 ft./MSL

Sampling Depth:	146 ft	Volume of Water Column:	387.93 gal
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Total Well Depth: 301.52 ft Sampling Method: X Pumped Bailed Grab

Well Purged: ☒ Yes ☐ No Well Volumes Purged: 0.8

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/18/2016 Sample Collection Time: 14:05

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190519004 Final Lab Analysis CompletionDate: 12/6/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP04AW

Sample Date 11/18/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	200	SM20-2320B
CALCIUM, TOTAL	150	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	301	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	25.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	120	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	0.5 ND	EPA 300
pH-FIELD (SU)	6.86	FIELD
pH-LAB (SU)	7.76	SM20-4500HB
POTASSIUM, TOTAL	2.1	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	83.5	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1497	FIELD
SPEC. COND., LAB (umhos/cm)	1390	SW846 9050A
SULFATE	48.2	EPA 300
ALKALINITY	200	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	956	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.4	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.67	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 101389

Monitoring Point No. FFMP04AW

Sample Date 11/18/2016

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	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.



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QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP013W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 28.13 " Longitude: 76 ° 27 ' 3.3 "

Depth to Water Level:	18.36	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 1.40 ft Elevation of Water Level: 489.24 ft./MSL

Sampling Depth:	135 ft	Volume of Water Column:	194.80 gal
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Total Well Depth: 151 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No Well Volumes Purged: 0.9

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/21/2016 Sample Collection Time: 11:14

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190834001 Final Lab Analysis CompletionDate: 12/6/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP013W

Sample Date 11/21/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	165	SM20-2320B
CALCIUM, TOTAL	107	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	157	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	380	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	13.6	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	16	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	5.7	EPA 300
pH-FIELD (SU)	7.03	FIELD
pH-LAB (SU)	7.78	SM20-4500HB
POTASSIUM, TOTAL	1.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	50.3	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	968	FIELD
SPEC. COND., LAB (umhos/cm)	897	SW846 9050A
SULFATE	33.3	EPA 300
ALKALINITY	165	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	603	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.82	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.81	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 101389

Monitoring Point No. FFMP013W

Sample Date 11/21/2016

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	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.



Date Prepared/Revised
12/22/2016

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Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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General Reference: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP014W

X	Well	Spring	Stream	Other
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Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 28.15 "

Longitude: 76° 27' 3.25"

Depth to Water Level: 18.42 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.60 ft

Elevation of Water Level: 488.88 ft./MSL

Sampling Depth: 24.5 ft

Volume of Water Column: 7.30 gal

Total Well Depth: 29.6 ft

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No

Well Volumes Purged: 7.1

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/21/2016

Sample Collection Time: 11:31

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190834002 Final Lab Analysis CompletionDate: 12/6/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP014W

Sample Date 11/21/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	18	SM20-2320B
CALCIUM, TOTAL	23.6	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	115	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	610	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	14.3	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	22	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	6.7	EPA 300
pH-FIELD (SU)	4.72	FIELD
pH-LAB (SU)	6.18	SM20-4500HB
POTASSIUM, TOTAL	2.2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	54.8	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	592	FIELD
SPEC. COND., LAB (umhos/cm)	541	SW846 9050A
SULFATE	40.8	EPA 300
ALKALINITY	18	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	284	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.2	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	11.4	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 101389

Monitoring Point No. FFMP014W

Sample Date 11/21/2016

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	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.



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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP027W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 32.62 " Longitude: 76 ° 27 ' 7.12 "

Depth to Water Level:	22.86	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 2.50 ft Elevation of Water Level: 499.24 ft./MSL

Sampling Depth:	45 ft	Volume of Water Column:	41.33	gal
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Total Well Depth: 51 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 3.8

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/21/2016 Sample Collection Time: 12:12

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190834003 Final Lab Analysis CompletionDate: 12/6/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP027W

Sample Date 11/21/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	9	SM20-2320B
CALCIUM, TOTAL	15.6	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	35.1	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	9.9	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	24	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	12	EPA 300
pH-FIELD (SU)	4.37	FIELD
pH-LAB (SU)	5.98	SM20-4500HB
POTASSIUM, TOTAL	1.4	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	10.8	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	270	FIELD
SPEC. COND., LAB (umhos/cm)	222	SW846 9050A
SULFATE	6.2	EPA 300
ALKALINITY	9	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	183	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.93	SW846 9060A
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 101389

Monitoring Point No. FFMP027W

Sample Date 11/21/2016

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	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.



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12/22/2016

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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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP025W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 19.07 " Longitude: 76 ° 27 ' 1.12 "

Depth to Water Level: 28.14 ft Measured from: Land Surface X TOC

Casing Stickup: 1.50 ft Elevation of Water Level: 448.66 ft./MSL

Sampling Depth:	39 ft	Volume of Water Column:	17.42	gal
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Total Well Depth: 40 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 4.7

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/21/2016 Sample Collection Time: 12:44

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190834004 Final Lab Analysis CompletionDate: 12/6/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP025W

Sample Date 11/21/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	17	SM20-2320B
CALCIUM, TOTAL	25.9	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	62.4	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	14.2	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	17	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	16.8	EPA 300
pH-FIELD (SU)	4.05	FIELD
pH-LAB (SU)	6.15	SM20-4500HB
POTASSIUM, TOTAL	2.2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	20.8	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	427	FIELD
SPEC. COND., LAB (umhos/cm)	351	SW846 9050A
SULFATE	11	EPA 300
ALKALINITY	17	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	271	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	2.29	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 101389

Monitoring Point No. FFMP025W

Sample Date 11/21/2016

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	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.



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MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP26RW X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 11.03 " Longitude: 76 ° 27 ' 20.3 "

Depth to Water Level: 85.47 ft Measured from: Land Surface X TOC

Casing Stickup: 3.30 ft Elevation of Water Level: 461.93 ft./MSL

Sampling Depth:	105 ft	Volume of Water Column:	41.90 gal
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Total Well Depth: 114 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 1.0

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/21/2016 Sample Collection Time: 14:12

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190834005 Final Lab Analysis CompletionDate: 12/6/2016

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP26RW

Sample Date 11/21/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	43	SM20-2320B
CALCIUM, TOTAL	66.5	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	192	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	69	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	19.4	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	380	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	2.5	EPA 300
pH-FIELD (SU)	5.02	FIELD
pH-LAB (SU)	6.15	SM20-4500HB
POTASSIUM, TOTAL	6.9	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	54.4	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	892	FIELD
SPEC. COND., LAB (umhos/cm)	836	SW846 9050A
SULFATE	75.4	EPA 300
ALKALINITY	43	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	499	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.8	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.46	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 101389

Monitoring Point No. FFMP26RW

Sample Date 11/21/2016

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	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**



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12/22/2016

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QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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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: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

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: FFMP016W ☒ Well ☐ Spring ☐ Stream ☐ Other
☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 19.15 " Longitude: 76 ° 27 ' 0.88 "

Depth to Water Level: 25.92 ft Measured from: ☐ Land Surface ☒ TOC

Casing Stickup: 1.97 ft Elevation of Water Level: 448.68 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 181.94 gal

Total Well Depth: 149.8 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No Well Volumes Purged: _____

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 11/21/2016 Sample Collection Time: 14:37

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2190834006 Final Lab Analysis Completion Date: 12/6/2016

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP016W

Sample Date 11/21/2016

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES****ANALYTES****1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	23	SM20-2320B
CALCIUM, TOTAL	32.4	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	78.1	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	15.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	38	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	17	EPA 300
pH-FIELD (SU)	5.48	FIELD
pH-LAB (SU)	6.64	SM20-4500HB
POTASSIUM, TOTAL	2.1	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	26.2	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	508	FIELD
SPEC. COND., LAB (umhos/cm)	473	SW846 9050A
SULFATE	14.2	EPA 300
ALKALINITY	23	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	346	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.4	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.16	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 101389

Monitoring Point No. FFMP016W

Sample Date 11/21/2016

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	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.

November 30, 2016

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

Certificate of Analysis

Project Name: 2016-FREY FARM	Workorder: 2190196
Purchase Order:	Workorder ID: 4TH QTR 2016 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Thursday, November 17, 2016.

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.

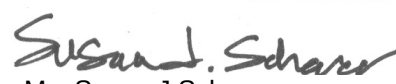
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

CC: 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.


Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2190196001	FFMP015W	Ground Water	11/17/2016 10:13	11/17/2016 16:57	Mr. Brian G Shade
2190196002	FFMP023W	Ground Water	11/17/2016 11:25	11/17/2016 16:57	Mr. Brian G Shade
2190196003	FFMP024W	Ground Water	11/17/2016 12:39	11/17/2016 16:57	Mr. Brian G Shade
2190196004	FFMP002W	Ground Water	11/17/2016 13:17	11/17/2016 16:57	Mr. Brian G Shade
2190196005	FFMP03AW	Ground Water	11/17/2016 14:28	11/17/2016 16:57	Mr. Brian G Shade
2190196006	FFMP005W	Ground Water	11/17/2016 15:39	11/17/2016 16:57	Mr. Brian G Shade
2190196007	TRIP BLANK	Ground Water	11/17/2016 16:57	11/17/2016 16:57	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2190196 4TH QTR 2016 GWMP-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 performed 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 incubator 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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ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196001**
Sample ID: **FFMP015W**

Date Collected: 11/17/2016 10:13 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/28/16 16:56	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 16:56	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	104		%	62 - 133	SW846 8260B			11/28/16 16:56	TMP	H
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			11/28/16 16:56	TMP	H
Dibromofluoromethane (S)	96.5		%	78 - 116	SW846 8260B			11/28/16 16:56	TMP	H
Toluene-d8 (S)	92.8		%	76 - 127	SW846 8260B			11/28/16 16:56	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	15		mg/L	5	S2320B-97			11/19/16 05:18	MSA	B
Alkalinity, Total	15	2	mg/L	5	S2320B-97			11/19/16 05:18	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/29/16 18:52	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/18/16 12:05	AK	A
Chloride	6.8		mg/L	2.0	EPA 300.0			11/18/16 10:16	BSL	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/18/16 10:16	BSL	B
Nitrate-N	5.9		mg/L	0.20	EPA 300.0			11/18/16 10:16	BSL	B
pH	6.04	1	pH_Units		SM4500B			11/19/16 05:18	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/21/16 11:19	JLG	G
Specific Conductance	152		umhos/cm	1	SW846 9050A			11/19/16 05:18	MSA	B
Sulfate	31.3		mg/L	2.0	EPA 300.0			11/18/16 10:16	BSL	B
Total Dissolved Solids	102		mg/L	5	S2540C-11			11/22/16 11:18	ML	B
Total Organic Carbon (TOC)	0.67		mg/L	0.50	SW846 9060A			11/23/16 11:29	PAG	E
Turbidity	ND		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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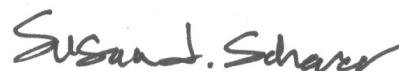
ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196001**
Sample ID: **FFMP015W**

Date Collected: 11/17/2016 10:13 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	7.4		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:46	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:46	SRT	C1
Magnesium, Total	7.3		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:46	SRT	C1
Manganese, Total	0.010		mg/L	0.0056	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:46	SRT	C1
Potassium, Total	1.3		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:46	SRT	C1
Sodium, Total	10.9		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:46	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	60.220		Feet		Field			11/17/16 10:13	BGS	D
Elev Top MW Casing above MSL	576.40		Feet		Field			11/17/16 10:13	BGS	D
Flow Rate	2.06		gal/min		Field			11/17/16 10:13	BGS	D
Ground Water Elevation	516.180		ft/MSL		Field			11/17/16 10:13	BGS	D
pH, Field (SM4500B)	5.250		pH_Units		Field			11/17/16 10:13	BGS	D
Sample Depth	135.000		Feet		Field			11/17/16 10:13	BGS	D
Specific Conductance, Field	185		umhos/cm	1	Field			11/17/16 10:13	BGS	D
Temperature	12.24		Deg. C		Field			11/17/16 10:13	BGS	D
Total Well Depth	149.900		Feet		Field			11/17/16 10:13	BGS	D
Volume in Water Column	131.830		Gallons		Field			11/17/16 10:13	BGS	D
Water Level After Purge	107.090		Feet		Field			11/17/16 10:13	BGS	D
Well Volumes Purged	1.25		Vol		Field			11/17/16 10:13	BGS	D



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196002**
Sample ID: **FFMP023W**

Date Collected: 11/17/2016 11:25 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/29/16 03:29	SYB	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/29/16 03:29	SYB	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	97.6		%	62 - 133	SW846 8260B			11/29/16 03:29	SYB	H
4-Bromofluorobenzene (S)	97.6		%	79 - 114	SW846 8260B			11/29/16 03:29	SYB	H
Dibromofluoromethane (S)	91.7		%	78 - 116	SW846 8260B			11/29/16 03:29	SYB	H
Toluene-d8 (S)	96.8		%	76 - 127	SW846 8260B			11/29/16 03:29	SYB	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			11/19/16 05:27	MSA	B
Alkalinity, Total	ND	2	mg/L	5	S2320B-97			11/19/16 05:27	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/29/16 19:12	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/18/16 12:05	AK	A
Chloride	24.8		mg/L	2.0	EPA 300.0			11/18/16 10:29	BSL	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/18/16 10:29	BSL	B
Nitrate-N	12.4		mg/L	0.20	EPA 300.0			11/18/16 10:29	BSL	B
pH	5.34	1	pH_Units		SM4500B			11/19/16 05:27	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/21/16 11:19	JLG	G
Specific Conductance	177		umhos/cm	1	SW846 9050A			11/19/16 05:27	MSA	B
Sulfate	ND		mg/L	2.0	EPA 300.0			11/18/16 10:29	BSL	B
Total Dissolved Solids	90		mg/L	5	S2540C-11			11/22/16 11:18	ML	B
Total Organic Carbon (TOC)	0.66		mg/L	0.50	SW846 9060A			11/23/16 11:29	PAG	E
Turbidity	1.06		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196002**
Sample ID: **FFMP023W**

Date Collected: 11/17/2016 11:25 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	10.1		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:50	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:50	SRT	C1
Magnesium, Total	8.2		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:50	SRT	C1
Manganese, Total	0.18		mg/L	0.0056	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:50	SRT	C1
Potassium, Total	1.1		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:50	SRT	C1
Sodium, Total	9.3		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:50	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	63.920		Feet		Field			11/16/16 11:25	BGS	D
Elev Top MW Casing above MSL	611.80		Feet		Field			11/16/16 11:25	BGS	D
Flow Rate	3.20		gal/min		Field			11/16/16 11:25	BGS	D
Ground Water Elevation	547.880		ft/MSL		Field			11/16/16 11:25	BGS	D
pH, Field (SM4500B)	4.510		pH_Units		Field			11/16/16 11:25	BGS	D
Sample Depth	79.000		Feet		Field			11/16/16 11:25	BGS	D
Specific Conductance, Field	220		umhos/cm	1	Field			11/16/16 11:25	BGS	D
Temperature	11.96		Deg. C		Field			11/16/16 11:25	BGS	D
Total Well Depth	81.500		Feet		Field			11/16/16 11:25	BGS	D
Volume in Water Column	25.843		Gallons		Field			11/16/16 11:25	BGS	D
Water Level After Purge	65.210		Feet		Field			11/16/16 11:25	BGS	D
Well Volumes Purged	3.71		Vol		Field			11/16/16 11:25	BGS	D



Ms. Susan J Scherer
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ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196003**
Sample ID: **FFMP024W**

Date Collected: 11/17/2016 12:39 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/28/16 17:30	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 17:30	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			11/28/16 17:30	TMP	H
4-Bromofluorobenzene (S)	98.6		%	79 - 114	SW846 8260B			11/28/16 17:30	TMP	H
Dibromofluoromethane (S)	95.1		%	78 - 116	SW846 8260B			11/28/16 17:30	TMP	H
Toluene-d8 (S)	89.5		%	76 - 127	SW846 8260B			11/28/16 17:30	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	111		mg/L	5	S2320B-97			11/19/16 05:36	MSA	B
Alkalinity, Total	111	2	mg/L	5	S2320B-97			11/19/16 05:36	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/29/16 19:32	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/18/16 12:05	AK	A
Chloride	14.8		mg/L	2.0	EPA 300.0			11/18/16 12:01	BSL	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/18/16 12:01	BSL	B
Nitrate-N	6.6		mg/L	0.20	EPA 300.0			11/18/16 12:01	BSL	B
pH	7.28	1	pH_Units		SM4500B			11/19/16 05:36	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/21/16 11:19	JLG	G
Specific Conductance	325		umhos/cm	1	SW846 9050A			11/19/16 05:36	MSA	B
Sulfate	26.8		mg/L	2.0	EPA 300.0			11/18/16 12:01	BSL	B
Total Dissolved Solids	183		mg/L	5	S2540C-11			11/22/16 11:18	ML	B
Total Organic Carbon (TOC)	0.62		mg/L	0.50	SW846 9060A			11/23/16 11:29	PAG	E
Turbidity	1.57		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196003**
Sample ID: **FFMP024W**

Date Collected: 11/17/2016 12:39 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	39.5		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:54	SRT	C1
Iron, Total	0.11		mg/L	0.067	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:54	SRT	C1
Magnesium, Total	5.5		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:54	SRT	C1
Manganese, Total	0.0092		mg/L	0.0056	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:54	SRT	C1
Potassium, Total	1.0		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:54	SRT	C1
Sodium, Total	27.0		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:54	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	65.230		Feet		Field			11/17/16 12:39	BGS	D
Elev Top MW Casing above MSL	611.42		Feet		Field			11/17/16 12:39	BGS	D
Flow Rate	2.28		gal/min		Field			11/17/16 12:39	BGS	D
Ground Water Elevation	546.190		ft/MSL		Field			11/17/16 12:39	BGS	D
pH, Field (SM4500B)	6.600		pH_Units		Field			11/17/16 12:39	BGS	D
Sample Depth	180.780		Feet		Field			11/17/16 12:39	BGS	D
Specific Conductance, Field	396		umhos/cm	1	Field			11/17/16 12:39	BGS	D
Temperature	12.51		Deg. C		Field			11/17/16 12:39	BGS	D
Total Well Depth	200.820		Feet		Field			11/17/16 12:39	BGS	D
Volume in Water Column	199.317		Gallons		Field			11/17/16 12:39	BGS	D
Water Level After Purge	124.000		Feet		Field			11/17/16 12:39	BGS	D
Well Volumes Purged	0.80		Vol		Field			11/17/16 12:39	BGS	D



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ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196004**

Date Collected: 11/17/2016 13:17

Matrix: Ground Water

Sample ID: **FFMP002W**

Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/28/16 17:46	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 17:46	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	92.3		%	62 - 133	SW846 8260B			11/28/16 17:46	TMP	H
4-Bromofluorobenzene (S)	89.2		%	79 - 114	SW846 8260B			11/28/16 17:46	TMP	H
Dibromofluoromethane (S)	85.2		%	78 - 116	SW846 8260B			11/28/16 17:46	TMP	H
Toluene-d8 (S)	80.5		%	76 - 127	SW846 8260B			11/28/16 17:46	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			11/19/16 06:21	MSA	B
Alkalinity, Total	ND	2	mg/L	5	S2320B-97			11/19/16 06:21	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/29/16 19:51	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/18/16 12:05	AK	A
Chloride	21.4		mg/L	5.0	EPA 300.0			11/18/16 12:14	BSL	B
Fluoride	ND		mg/L	0.50	EPA 300.0			11/18/16 12:14	BSL	B
Nitrate-N	22.3		mg/L	0.50	EPA 300.0			11/18/16 12:14	BSL	B
pH	5.41	1	pH_Units		SM4500B			11/19/16 06:21	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/22/16 11:19	JLG	G
Specific Conductance	292		umhos/cm	1	SW846 9050A			11/19/16 06:21	MSA	B
Sulfate	21.4		mg/L	5.0	EPA 300.0			11/18/16 12:14	BSL	B
Total Dissolved Solids	165		mg/L	5	S2540C-11			11/22/16 11:18	ML	B
Total Organic Carbon (TOC)	0.88		mg/L	0.50	SW846 9060A			11/23/16 11:29	PAG	E
Turbidity	ND		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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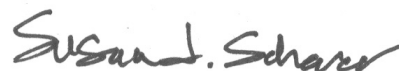
ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196004**
Sample ID: **FFMP002W**

Date Collected: 11/17/2016 13:17 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	22.8		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:58	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:58	SRT	C1
Magnesium, Total	9.6		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:58	SRT	C1
Manganese, Total	0.27		mg/L	0.0056	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:58	SRT	C1
Potassium, Total	2.2		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:58	SRT	C1
Sodium, Total	15.9		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 15:58	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	70.810		Feet		Field			11/17/16 13:17	BGS	D
Elev Top MW Casing above MSL	613.20		Feet		Field			11/17/16 13:17	BGS	D
Flow Rate	1.00		gal/min		Field			11/17/16 13:17	BGS	D
Ground Water Elevation	542.390		ft/MSL		Field			11/17/16 13:17	BGS	D
pH, Field (SM4500B)	4.660		pH_Units		Field			11/17/16 13:17	BGS	D
Sample Depth	85.000		Feet		Field			11/17/16 13:17	BGS	D
Specific Conductance, Field	356		umhos/cm	1	Field			11/17/16 13:17	BGS	D
Temperature	12.67		Deg. C		Field			11/17/16 13:17	BGS	D
Total Well Depth	90.020		Feet		Field			11/17/16 13:17	BGS	D
Volume in Water Column	28.239		Gallons		Field			11/17/16 13:17	BGS	D
Water Level After Purge	82.200		Feet		Field			11/17/16 13:17	BGS	D
Well Volumes Purged	0.71		Vol		Field			11/17/16 13:17	BGS	D



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ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196005**
Sample ID: **FFMP03AW**

Date Collected: 11/17/2016 14:28 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/28/16 18:03	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 18:03	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	104		%	62 - 133	SW846 8260B			11/28/16 18:03	TMP	H
4-Bromofluorobenzene (S)	96.9		%	79 - 114	SW846 8260B			11/28/16 18:03	TMP	H
Dibromofluoromethane (S)	95.5		%	78 - 116	SW846 8260B			11/28/16 18:03	TMP	H
Toluene-d8 (S)	90		%	76 - 127	SW846 8260B			11/28/16 18:03	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	15		mg/L	5	S2320B-97			11/19/16 06:29	MSA	B
Alkalinity, Total	15	2	mg/L	5	S2320B-97			11/19/16 06:29	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/29/16 20:11	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/18/16 12:05	AK	A
Chloride	24.1		mg/L	2.0	EPA 300.0			11/18/16 12:27	BSL	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/18/16 12:27	BSL	B
Nitrate-N	20.6		mg/L	0.50	EPA 300.0			11/19/16 06:22	MBW	B
pH	5.75	1	pH_Units		SM4500B			11/19/16 06:29	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/22/16 11:19	JLG	G
Specific Conductance	258		umhos/cm	1	SW846 9050A			11/19/16 06:29	MSA	B
Sulfate	3.2		mg/L	2.0	EPA 300.0			11/18/16 12:27	BSL	B
Total Dissolved Solids	158		mg/L	5	S2540C-11			11/22/16 11:18	ML	B
Total Organic Carbon (TOC)	0.58		mg/L	0.50	SW846 9060A			11/23/16 11:29	PAG	E
Turbidity	ND		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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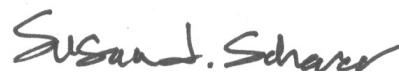
ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196005**
Sample ID: **FFMP03AW**

Date Collected: 11/17/2016 14:28 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	16.9		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:01	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:01	SRT	C1
Magnesium, Total	12.2		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:01	SRT	C1
Manganese, Total	0.22		mg/L	0.0056	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:01	SRT	C1
Potassium, Total	1.3		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:01	SRT	C1
Sodium, Total	12.0		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:01	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	54.320		Feet		Field			11/17/16 14:28	BGS	D
Elev Top MW Casing above MSL	590.90		Feet		Field			11/17/16 14:28	BGS	D
Flow Rate	1.92		gal/min		Field			11/17/16 14:28	BGS	D
Ground Water Elevation	536.580		ft/MSL		Field			11/17/16 14:28	BGS	D
pH, Field (SM4500B)	4.950		pH_Units		Field			11/17/16 14:28	BGS	D
Sample Depth	130.000		Feet		Field			11/17/16 14:28	BGS	D
Specific Conductance, Field	315		umhos/cm	1	Field			11/17/16 14:28	BGS	D
Temperature	11.71		Deg. C		Field			11/17/16 14:28	BGS	D
Total Well Depth	148.400		Feet		Field			11/17/16 14:28	BGS	D
Volume in Water Column	138.298		Gallons		Field			11/17/16 14:28	BGS	D
Water Level After Purge	88.290		Feet		Field			11/17/16 14:28	BGS	D
Well Volumes Purged	0.83		Vol		Field			11/17/16 14:28	BGS	D



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196006**

Date Collected: 11/17/2016 15:39

Matrix: Ground Water

Sample ID: **FFMP005W**

Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/29/16 14:35	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/29/16 14:35	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			11/29/16 14:35	TMP	H
4-Bromofluorobenzene (S)	99		%	79 - 114	SW846 8260B			11/29/16 14:35	TMP	H
Dibromofluoromethane (S)	94.8		%	78 - 116	SW846 8260B			11/29/16 14:35	TMP	H
Toluene-d8 (S)	93.5		%	76 - 127	SW846 8260B			11/29/16 14:35	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	41		mg/L	5	S2320B-97			11/19/16 06:37	MSA	B
Alkalinity, Total	41	2	mg/L	5	S2320B-97			11/19/16 06:37	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/29/16 20:31	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/18/16 12:05	AK	A
Chloride	164		mg/L	2.0	EPA 300.0			11/18/16 12:40	BSL	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/18/16 12:40	BSL	B
Nitrate-N	3.8		mg/L	0.20	EPA 300.0			11/18/16 12:40	BSL	B
pH	6.25	1	pH_Units		SM4500B			11/19/16 06:37	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/22/16 11:19	JLG	G
Specific Conductance	723		umhos/cm	1	SW846 9050A			11/19/16 06:37	MSA	B
Sulfate	44.5		mg/L	2.0	EPA 300.0			11/18/16 12:40	BSL	B
Total Dissolved Solids	404		mg/L	5	S2540C-11			11/22/16 11:18	ML	B
Total Organic Carbon (TOC)	1.2		mg/L	0.50	SW846 9060A			11/23/16 11:29	PAG	E
Turbidity	ND		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196006**
Sample ID: **FFMP005W**

Date Collected: 11/17/2016 15:39 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	66.7		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:05	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:05	SRT	C1
Magnesium, Total	15.8		mg/L	0.11	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:05	SRT	C1
Manganese, Total	0.036		mg/L	0.0056	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:05	SRT	C1
Potassium, Total	2.1		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:05	SRT	C1
Sodium, Total	40.2		mg/L	0.56	SW846 6010C	11/21/16 15:15	TRR	11/30/16 16:05	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	75.450		Feet		Field			11/17/16 15:39	BGS	D
Elev Top MW Casing above MSL	537.40		Feet		Field			11/17/16 15:39	BGS	D
Flow Rate	1.99		gal/min		Field			11/17/16 15:39	BGS	D
Ground Water Elevation	461.950		ft/MSL		Field			11/17/16 15:39	BGS	D
pH, Field (SM4500B)	5.370		pH_Units		Field			11/17/16 15:39	BGS	D
Sample Depth	135.000		Feet		Field			11/17/16 15:39	BGS	D
Specific Conductance, Field	792		umhos/cm	1	Field			11/17/16 15:39	BGS	D
Temperature	11.58		Deg. C		Field			11/17/16 15:39	BGS	D
Total Well Depth	149.700		Feet		Field			11/17/16 15:39	BGS	D
Volume in Water Column	109.148		Gallons		Field			11/17/16 15:39	BGS	D
Water Level After Purge	96.860		Feet		Field			11/17/16 15:39	BGS	D
Well Volumes Purged	0.91		Vol		Field			11/17/16 15:39	BGS	D



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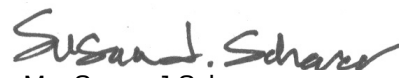
ANALYTICAL RESULTS

Workorder: 2190196 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190196007**
Sample ID: **TRIP BLANK**

Date Collected: 11/17/2016 16:57 Matrix: Ground Water
Date Received: 11/17/2016 16:57

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/28/16 16:39	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/28/16 16:39	TMP	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	102		%	62 - 133	SW846 8260B			11/28/16 16:39	TMP	A
4-Bromofluorobenzene (S)	98.6		%	79 - 114	SW846 8260B			11/28/16 16:39	TMP	A
Dibromofluoromethane (S)	95.4		%	78 - 116	SW846 8260B			11/28/16 16:39	TMP	A
Toluene-d8 (S)	91.9		%	76 - 127	SW846 8260B			11/28/16 16:39	TMP	A


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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2190196001	1	FFMP015W	SM4500B	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.				
2190196001	2	FFMP015W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190196002	1	FFMP023W	SM4500B	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.				
2190196002	2	FFMP023W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190196003	1	FFMP024W	SM4500B	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.				
2190196003	2	FFMP024W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190196004	1	FFMP002W	SM4500B	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.				
2190196004	2	FFMP002W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190196005	1	FFMP03AW	SM4500B	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.				
2190196005	2	FFMP03AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190196006	1	FFMP005W	SM4500B	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.				
2190196006	2	FFMP005W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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CHAIN OF CUSTODY/

REQUEST FOR ANALYSIS

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

Generated by ALS

1 of 1

Client Name: Lancaster County Solid Waste MA

Address: 1299 Harrisburg Pike, P.O. Box 4424

Lancaster, PA 17604

Contact: Brooks Norris

Phone#: (717) 397-9968

Project Name#: Frey Farm Quarry

Bill To: Lancaster County Solid Waste MA

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

Date Required: Approved By:

Email? ☒ X-Y bnorris@LCSWMA.com

Fax? ☒ X-Y No: (717) 397-9973

Sample Description/Location (as it will appear on the lab report)

Sample Date	Time
11-17-16	1013
11-25	1425
12-9	1317
11-29	1429
12-9	1652
11-29	1652

Project Comments:

LOGGED BY (signature):

REVIEWED BY (signature):

Relinquished By / Company Name

Date Time

Received By / Company Name

Date Time

Deliverables

Standard

State Samples Collected In

1	11-17-16	MS	2	11-17-16	MS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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December 8, 2016

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

Certificate of Analysis

Project Name: 2016-FREY FARM	Workorder: 2190834
Purchase Order:	Workorder ID: 4TH QTR 2016 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Monday, November 21, 2016.

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.

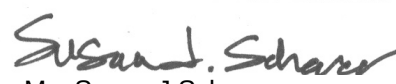
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

CC: 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.


Ms. Susan J Scherer
Project Coordinator

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

SAMPLE SUMMARY

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2190834001	FFMP013W	Ground Water	11/21/2016 11:14	11/21/2016 16:15	Mr. Brian G Shade
2190834002	FFMP014W	Ground Water	11/21/2016 11:31	11/21/2016 16:15	Mr. Brian G Shade
2190834003	FFMP027W	Ground Water	11/21/2016 12:12	11/21/2016 16:15	Mr. Brian G Shade
2190834004	FFMP025W	Ground Water	11/21/2016 12:44	11/21/2016 16:15	Mr. Brian G Shade
2190834005	FFMP26RW	Ground Water	11/21/2016 14:12	11/21/2016 16:15	Mr. Brian G Shade
2190834006	FFMP016W	Ground Water	11/21/2016 14:37	11/21/2016 16:15	Mr. Brian G Shade
2190834007	FIELD BLANK	Water	11/21/2016 15:00	11/21/2016 16:15	Mr. Brian G Shade
2190834008	TRIP BLANK	Ground Water	11/21/2016 16:15	11/21/2016 16:15	Mr. Brian G Shade

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Vancouver Waterloo · Winnipeg · Yellowknife **United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York **Mexico:** Monterrey

SAMPLE SUMMARY

Workorder: 2190834 4TH QTR 2016 GWMP-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 performed 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 incubator 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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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834001**

Date Collected: 11/21/2016 11:14

Matrix: Ground Water

Sample ID: **FFMP013W**

Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 07:23	SYB	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 07:23	SYB	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	94.9		%	62 - 133	SW846 8260B			11/30/16 07:23	SYB	H
4-Bromofluorobenzene (S)	97.2		%	79 - 114	SW846 8260B			11/30/16 07:23	SYB	H
Dibromofluoromethane (S)	86.8		%	78 - 116	SW846 8260B			11/30/16 07:23	SYB	H
Toluene-d8 (S)	88.7		%	76 - 127	SW846 8260B			11/30/16 07:23	SYB	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	165		mg/L	5	S2320B-97			11/22/16 16:36	MSA	B
Alkalinity, Total	165	2	mg/L	5	S2320B-97			11/22/16 16:36	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			12/2/16 00:29	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/22/16 13:18	AK	A
Chloride	157		mg/L	2.0	EPA 300.0			11/22/16 07:55	MBW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/22/16 07:55	MBW	B
Nitrate-N	5.7		mg/L	0.20	EPA 300.0			11/22/16 07:55	MBW	B
pH	7.78	1	pH_Units		SM4500B			11/22/16 16:36	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/27/16 07:56	JLG	11/28/16 10:13	JLG	G
Specific Conductance	897		umhos/cm	1	SW846 9050A			11/22/16 16:36	MSA	B
Sulfate	33.3		mg/L	2.0	EPA 300.0			11/22/16 07:55	MBW	B
Total Dissolved Solids	603		mg/L	5	S2540C-11			11/28/16 10:10	ML	B
Total Organic Carbon (TOC)	0.82		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	1.81		NTU	0.10	S2130B-01			11/22/16 23:04	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834001**

Date Collected: 11/21/2016 11:14

Matrix: Ground Water

Sample ID: **FFMP013W**

Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	107		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:26	SRT	C1
Iron, Total	0.38		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:26	SRT	C1
Magnesium, Total	13.6		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:26	SRT	C1
Manganese, Total	0.016		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:26	SRT	C1
Potassium, Total	1.3		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:26	SRT	C1
Sodium, Total	50.3		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:26	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	18.360		Feet		Field			11/21/16 11:14	BGS	D
Elev Top MW Casing above MSL	507.60		Feet		Field			11/21/16 11:14	BGS	D
Flow Rate	2.41		gal/min		Field			11/21/16 11:14	BGS	D
Ground Water Elevation	489.240		ft/MSL		Field			11/21/16 11:14	BGS	D
pH, Field (SM4500B)	7.030		pH_Units		Field			11/21/16 11:14	BGS	D
Sample Depth	135.000		Feet		Field			11/21/16 11:14	BGS	D
Specific Conductance, Field	968		umhos/cm	1	Field			11/21/16 11:14	BGS	D
Temperature	11.89		Deg. C		Field			11/21/16 11:14	BGS	D
Total Well Depth	150.500		Feet		Field			11/21/16 11:14	BGS	D
Volume in Water Column	194.246		Gallons		Field			11/21/16 11:14	BGS	D
Water Level After Purge	83.650		Feet		Field			11/21/16 11:14	BGS	D
Well Volumes Purged	0.87		Vol		Field			11/21/16 11:14	BGS	D



Ms. Susan J Scherer

Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834002**

Date Collected: 11/21/2016 11:31

Matrix: Ground Water

Sample ID: **FFMP014W**

Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 07:40	SYB	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 07:40	SYB	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	99.7		%	62 - 133	SW846 8260B			11/30/16 07:40	SYB	H
4-Bromofluorobenzene (S)	103		%	79 - 114	SW846 8260B			11/30/16 07:40	SYB	H
Dibromofluoromethane (S)	91.5		%	78 - 116	SW846 8260B			11/30/16 07:40	SYB	H
Toluene-d8 (S)	90.3		%	76 - 127	SW846 8260B			11/30/16 07:40	SYB	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	18		mg/L	5	S2320B-97			11/22/16 16:45	MSA	B
Alkalinity, Total	18	3	mg/L	5	S2320B-97			11/22/16 16:45	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			12/2/16 01:30	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/22/16 13:18	AK	A
Chloride	115		mg/L	2.0	EPA 300.0			11/22/16 08:08	MBW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/22/16 08:08	MBW	B
Nitrate-N	6.7		mg/L	0.20	EPA 300.0			11/22/16 08:08	MBW	B
pH	6.18	1	pH_Units		SM4500B			11/22/16 16:45	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/27/16 07:56	JLG	11/28/16 10:13	JLG	G
Specific Conductance	541		umhos/cm	1	SW846 9050A			11/22/16 16:45	MSA	B
Sulfate	40.8		mg/L	2.0	EPA 300.0			11/22/16 08:08	MBW	B
Total Dissolved Solids	284	2	mg/L	5	S2540C-11			11/28/16 10:10	ML	B
Total Organic Carbon (TOC)	1.2		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	11.4		NTU	0.10	S2130B-01			11/22/16 23:04	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834002**

Date Collected: 11/21/2016 11:31

Matrix: Ground Water

Sample ID: **FFMP014W**

Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	23.6		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:30	SRT	C1
Iron, Total	0.61		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:30	SRT	C1
Magnesium, Total	14.3		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:30	SRT	C1
Manganese, Total	0.022		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:30	SRT	C1
Potassium, Total	2.2		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:30	SRT	C1
Sodium, Total	54.8		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:30	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	18.420		Feet		Field			11/21/16 11:31	BGS	D
Elev Top MW Casing above MSL	507.30		Feet		Field			11/21/16 11:31	BGS	D
Flow Rate	5.15		gal/min		Field			11/21/16 11:31	BGS	D
Ground Water Elevation	488.880		ft/MSL		Field			11/21/16 11:31	BGS	D
pH, Field (SM4500B)	4.720		pH_Units		Field			11/21/16 11:31	BGS	D
Sample Depth	24.500		Feet		Field			11/21/16 11:31	BGS	D
Specific Conductance, Field	592		umhos/cm	1	Field			11/21/16 11:31	BGS	D
Temperature	12.60		Deg. C		Field			11/21/16 11:31	BGS	D
Total Well Depth	29.600		Feet		Field			11/21/16 11:31	BGS	D
Volume in Water Column	7.267		Gallons		Field			11/21/16 11:31	BGS	D
Water Level After Purge	20.820		Feet		Field			11/21/16 11:31	BGS	D
Well Volumes Purged	7.08		Vol		Field			11/21/16 11:31	BGS	D



Ms. Susan J Scherer

Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834003**
Sample ID: **FFMP027W**

Date Collected: 11/21/2016 12:12 Matrix: Ground Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 19:29	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 19:29	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	121		%	62 - 133	SW846 8260B			11/30/16 19:29	TMP	H
4-Bromofluorobenzene (S)	112		%	79 - 114	SW846 8260B			11/30/16 19:29	TMP	H
Dibromofluoromethane (S)	97		%	78 - 116	SW846 8260B			11/30/16 19:29	TMP	H
Toluene-d8 (S)	103		%	76 - 127	SW846 8260B			11/30/16 19:29	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	9		mg/L	5	S2320B-97			11/22/16 17:30	MSA	B
Alkalinity, Total	9	2	mg/L	5	S2320B-97			11/22/16 17:30	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			12/2/16 01:50	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/22/16 13:18	AK	A
Chloride	35.1		mg/L	2.0	EPA 300.0			11/22/16 08:21	MBW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/22/16 08:21	MBW	B
Nitrate-N	12.0		mg/L	0.20	EPA 300.0			11/22/16 08:21	MBW	B
pH	5.98	1	pH_Units		SM4500B			11/22/16 17:30	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/27/16 07:56	JLG	11/28/16 10:13	JLG	G
Specific Conductance	222		umhos/cm	1	SW846 9050A			11/22/16 17:30	MSA	B
Sulfate	6.2		mg/L	2.0	EPA 300.0			11/22/16 08:21	MBW	B
Total Dissolved Solids	183		mg/L	5	S2540C-11			11/28/16 10:10	ML	B
Total Organic Carbon (TOC)	0.93		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	ND		NTU	0.10	S2130B-01			11/22/16 23:04	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834003**
Sample ID: **FFMP027W**

Date Collected: 11/21/2016 12:12 Matrix: Ground Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	15.6		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:34	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:34	SRT	C1
Magnesium, Total	9.9		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:34	SRT	C1
Manganese, Total	0.024		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:34	SRT	C1
Potassium, Total	1.4		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:34	SRT	C1
Sodium, Total	10.8		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:34	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	22.860		Feet		Field			11/21/16 12:12	BGS	D
Elev Top MW Casing above MSL	522.10		Feet		Field			11/21/16 12:12	BGS	D
Flow Rate	5.69		gal/min		Field			11/21/16 12:12	BGS	D
Ground Water Elevation	499.240		ft/MSL		Field			11/21/16 12:12	BGS	D
pH, Field (SM4500B)	4.370		pH_Units		Field			11/21/16 12:12	BGS	D
Sample Depth	45.000		Feet		Field			11/21/16 12:12	BGS	D
Specific Conductance, Field	270		umhos/cm	1	Field			11/21/16 12:12	BGS	D
Temperature	14.21		Deg. C		Field			11/21/16 12:12	BGS	D
Total Well Depth	53.500		Feet		Field			11/21/16 12:12	BGS	D
Volume in Water Column	45.041		Gallons		Field			11/21/16 12:12	BGS	D
Water Level After Purge	23.410		Feet		Field			11/21/16 12:12	BGS	D
Well Volumes Purged	3.79		Vol		Field			11/21/16 12:12	BGS	D



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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834004**
Sample ID: **FFMP025W**

Date Collected: 11/21/2016 12:44 Matrix: Ground Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 19:51	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 19:51	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	121		%	62 - 133	SW846 8260B			11/30/16 19:51	TMP	H
4-Bromofluorobenzene (S)	113		%	79 - 114	SW846 8260B			11/30/16 19:51	TMP	H
Dibromofluoromethane (S)	95.2		%	78 - 116	SW846 8260B			11/30/16 19:51	TMP	H
Toluene-d8 (S)	104		%	76 - 127	SW846 8260B			11/30/16 19:51	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	17		mg/L	5	S2320B-97			11/22/16 17:39	MSA	B
Alkalinity, Total	17	2	mg/L	5	S2320B-97			11/22/16 17:39	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			12/2/16 02:10	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/22/16 13:18	AK	A
Chloride	62.4		mg/L	2.0	EPA 300.0			11/22/16 08:35	MBW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/22/16 08:35	MBW	B
Nitrate-N	16.8		mg/L	0.20	EPA 300.0			11/22/16 08:35	MBW	B
pH	6.15	1	pH_Units		SM4500B			11/22/16 17:39	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/27/16 07:56	JLG	11/28/16 10:13	JLG	G
Specific Conductance	351		umhos/cm	1	SW846 9050A			11/22/16 17:39	MSA	B
Sulfate	11.0		mg/L	2.0	EPA 300.0			11/22/16 08:35	MBW	B
Total Dissolved Solids	271		mg/L	5	S2540C-11			11/28/16 10:10	ML	B
Total Organic Carbon (TOC)	1.0		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	2.29		NTU	0.10	S2130B-01			11/22/16 23:04	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834004**
Sample ID: **FFMP025W**

Date Collected: 11/21/2016 12:44 Matrix: Ground Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	25.9		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:37	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:37	SRT	C1
Magnesium, Total	14.2		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:37	SRT	C1
Manganese, Total	0.017		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:37	SRT	C1
Potassium, Total	2.2		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:37	SRT	C1
Sodium, Total	20.8		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 11:37	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	28.140		Feet		Field			11/21/16 10:33	BGS	D
Elev Top MW Casing above MSL	476.80		Feet		Field			11/21/16 10:33	BGS	D
Flow Rate	4.60		gal/min		Field			11/21/16 10:33	BGS	D
Ground Water Elevation	448.660		ft/MSL		Field			11/21/16 10:33	BGS	D
pH, Field (SM4500B)	4.050		pH_Units		Field			11/21/16 10:33	BGS	D
Sample Depth	39.000		Feet		Field			11/21/16 10:33	BGS	D
Specific Conductance, Field	427		umhos/cm	1	Field			11/21/16 10:33	BGS	D
Temperature	11.54		Deg. C		Field			11/21/16 10:33	BGS	D
Total Well Depth	41.500		Feet		Field			11/21/16 10:33	BGS	D
Volume in Water Column	19.639		Gallons		Field			11/21/16 10:33	BGS	D
Water Level After Purge	34.370		Feet		Field			11/21/16 10:33	BGS	D
Well Volumes Purged	4.68		Vol		Field			11/21/16 10:33	BGS	D



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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834005**
Sample ID: **FFMP26RW**

Date Collected: 11/21/2016 14:12 Matrix: Ground Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 20:13	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 20:13	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	122		%	62 - 133	SW846 8260B			11/30/16 20:13	TMP	H
4-Bromofluorobenzene (S)	111		%	79 - 114	SW846 8260B			11/30/16 20:13	TMP	H
Dibromofluoromethane (S)	97.5		%	78 - 116	SW846 8260B			11/30/16 20:13	TMP	H
Toluene-d8 (S)	104		%	76 - 127	SW846 8260B			11/30/16 20:13	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	43		mg/L	5	S2320B-97			11/22/16 17:47	MSA	B
Alkalinity, Total	43	2	mg/L	5	S2320B-97			11/22/16 17:47	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			12/2/16 02:31	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/22/16 13:18	AK	A
Chloride	192		mg/L	2.0	EPA 300.0			11/22/16 08:48	MBW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/22/16 08:48	MBW	B
Nitrate-N	2.5		mg/L	0.20	EPA 300.0			11/22/16 08:48	MBW	B
pH	6.15	1	pH_Units		SM4500B			11/22/16 17:47	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/27/16 07:56	JLG	11/28/16 10:13	JLG	G
Specific Conductance	836		umhos/cm	1	SW846 9050A			11/22/16 17:47	MSA	B
Sulfate	75.4		mg/L	2.0	EPA 300.0			11/22/16 08:48	MBW	B
Total Dissolved Solids	499		mg/L	5	S2540C-11			11/28/16 10:10	ML	B
Total Organic Carbon (TOC)	1.8		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	0.46		NTU	0.10	S2130B-01			11/22/16 23:04	MSA	B

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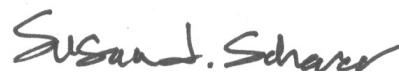
ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834005**
Sample ID: **FFMP26RW**

Date Collected: 11/21/2016 14:12 Matrix: Ground Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	66.5		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:35	SRT	C1
Iron, Total	0.069		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:35	SRT	C1
Magnesium, Total	19.4		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:35	SRT	C1
Manganese, Total	0.38		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:35	SRT	C1
Potassium, Total	6.9		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:35	SRT	C1
Sodium, Total	54.4		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:35	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	85.470		Feet		Field			11/21/16 14:12	BGS	D
Elev Top MW Casing above MSL	547.40		Feet		Field			11/21/16 14:12	BGS	D
Flow Rate	2.02		gal/min		Field			11/21/16 14:12	BGS	D
Ground Water Elevation	461.930		ft/MSL		Field			11/21/16 14:12	BGS	D
pH, Field (SM4500B)	5.020		pH_Units		Field			11/21/16 14:12	BGS	D
Sample Depth	105.000		Feet		Field			11/21/16 14:12	BGS	D
Specific Conductance, Field	892		umhos/cm	1	Field			11/21/16 14:12	BGS	D
Temperature	11.96		Deg. C		Field			11/21/16 14:12	BGS	D
Total Well Depth	118.300		Feet		Field			11/21/16 14:12	BGS	D
Volume in Water Column	48.260		Gallons		Field			11/21/16 14:12	BGS	D
Water Level After Purge	101.510		Feet		Field			11/21/16 14:12	BGS	D
Well Volumes Purged	1.05		Vol		Field			11/21/16 14:12	BGS	D



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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834006**

Date Collected: 11/21/2016 14:37

Matrix: Ground Water

Sample ID: **FFMP016W**

Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 20:35	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 20:35	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	123		%	62 - 133	SW846 8260B			11/30/16 20:35	TMP	H
4-Bromofluorobenzene (S)	111		%	79 - 114	SW846 8260B			11/30/16 20:35	TMP	H
Dibromofluoromethane (S)	95.7		%	78 - 116	SW846 8260B			11/30/16 20:35	TMP	H
Toluene-d8 (S)	103		%	76 - 127	SW846 8260B			11/30/16 20:35	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	23		mg/L	5	S2320B-97			11/23/16 20:05	MSA	B
Alkalinity, Total	23	2	mg/L	5	S2320B-97			11/23/16 20:05	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			12/2/16 02:51	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/22/16 13:18	AK	A
Chloride	78.1		mg/L	2.0	EPA 300.0			11/22/16 09:01	MBW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/22/16 09:01	MBW	B
Nitrate-N	17.0		mg/L	0.20	EPA 300.0			11/22/16 09:01	MBW	B
pH	6.64	1	pH_Units		SM4500B			11/23/16 20:05	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/27/16 07:56	JLG	11/28/16 10:13	JLG	G
Specific Conductance	473		umhos/cm	1	SW846 9050A			11/23/16 20:05	MSA	B
Sulfate	14.2		mg/L	2.0	EPA 300.0			11/22/16 09:01	MBW	B
Total Dissolved Solids	346		mg/L	5	S2540C-11			11/28/16 10:10	ML	B
Total Organic Carbon (TOC)	1.4		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	0.16		NTU	0.10	S2130B-01			11/22/16 23:04	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834006**
Sample ID: **FFMP016W**

Date Collected: 11/21/2016 14:37 Matrix: Ground Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	32.4		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:39	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:39	SRT	C1
Magnesium, Total	15.5		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:39	SRT	C1
Manganese, Total	0.038		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:39	SRT	C1
Potassium, Total	2.1		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:39	SRT	C1
Sodium, Total	26.2		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:39	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	25.920		Feet		Field			11/21/16 14:37	BGS	D
Elev Top MW Casing above MSL	474.60		Feet		Field			11/21/16 14:37	BGS	D
Ground Water Elevation	448.680		ft/MSL		Field			11/21/16 14:37	BGS	D
pH, Field (SM4500B)	5.480		pH_Units		Field			11/21/16 14:37	BGS	D
Sample Depth	135.000		Feet		Field			11/21/16 14:37	BGS	D
Specific Conductance, Field	508		umhos/cm	1	Field			11/21/16 14:37	BGS	D
Temperature	11.23		Deg. C		Field			11/21/16 14:37	BGS	D
Total Well Depth	149.800		Feet		Field			11/21/16 14:37	BGS	D
Volume in Water Column	323.327		Gallons		Field			11/21/16 14:37	BGS	D


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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834007**
Sample ID: **FIELD BLANK**

Date Collected: 11/21/2016 15:00 Matrix: Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 14:41	TMP	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 14:41	TMP	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	119		%	62 - 133	SW846 8260B			11/30/16 14:41	TMP	H
4-Bromofluorobenzene (S)	112		%	79 - 114	SW846 8260B			11/30/16 14:41	TMP	H
Dibromofluoromethane (S)	97.1		%	78 - 116	SW846 8260B			11/30/16 14:41	TMP	H
Toluene-d8 (S)	102		%	76 - 127	SW846 8260B			11/30/16 14:41	TMP	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			11/22/16 17:55	MSA	B
Alkalinity, Total	ND	3	mg/L	5	S2320B-97			11/22/16 17:55	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			12/4/16 16:49	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/22/16 13:18	AK	A
Chloride	ND		mg/L	1.0	EPA 300.0			11/22/16 09:14	MBW	B
Fluoride	ND		mg/L	0.10	EPA 300.0			11/22/16 09:14	MBW	B
Nitrate-N	ND		mg/L	0.10	EPA 300.0			11/22/16 09:14	MBW	B
pH	5.99	1	pH_Units		SM4500B			11/22/16 17:55	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/27/16 07:56	JLG	11/28/16 10:13	JLG	G
Specific Conductance	ND		umhos/cm	1	SW846 9050A			11/29/16 03:56	MSA	B
Sulfate	ND		mg/L	1.0	EPA 300.0			11/22/16 09:14	MBW	B
Total Dissolved Solids	27	2	mg/L	5	S2540C-11			11/28/16 10:10	ML	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	ND		NTU	0.10	S2130B-01			11/22/16 23:04	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834007**
Sample ID: **FIELD BLANK**

Date Collected: 11/21/2016 15:00 Matrix: Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	ND		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:42	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:42	SRT	C1
Magnesium, Total	ND		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:42	SRT	C1
Manganese, Total	ND		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:42	SRT	C1
Potassium, Total	ND		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:42	SRT	C1
Sodium, Total	ND		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 13:42	SRT	C1


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ANALYTICAL RESULTS

Workorder: 2190834 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190834008**
Sample ID: **TRIP BLANK**

Date Collected: 11/21/2016 16:15 Matrix: Ground Water
Date Received: 11/21/2016 16:15

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 13:33	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 13:33	TMP	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	123		%	62 - 133	SW846 8260B			11/30/16 13:33	TMP	A
4-Bromofluorobenzene (S)	113		%	79 - 114	SW846 8260B			11/30/16 13:33	TMP	A
Dibromofluoromethane (S)	100		%	78 - 116	SW846 8260B			11/30/16 13:33	TMP	A
Toluene-d8 (S)	106		%	76 - 127	SW846 8260B			11/30/16 13:33	TMP	A



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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2190834001	1	FFMP013W	SM4500B	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.				
2190834001	2	FFMP013W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190834002	1	FFMP014W	SM4500B	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.				
2190834002	2	FFMP014W	S2540C-11	Total Dissolved Solids
The RPD associated with this sample was recovered at 6%. The RPD is outside method acceptance limits of 0-5%. The results used to calculate the RPD were 284 and 301.				
2190834002	3	FFMP014W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190834003	1	FFMP027W	SM4500B	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.				
2190834003	2	FFMP027W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190834004	1	FFMP025W	SM4500B	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.				
2190834004	2	FFMP025W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190834005	1	FFMP26RW	SM4500B	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.				
2190834005	2	FFMP26RW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190834006	1	FFMP016W	SM4500B	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.				
2190834006	2	FFMP016W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190834007	1	FIELD BLANK	SM4500B	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.				
2190834007	2	FIELD BLANK	S2540C-11	Total Dissolved Solids
The method blank associated with this analyte had a result of 15 mg/l. Criteria states that the method blank should be at a maximum 4 mg/l.				
2190834007	3	FIELD BLANK	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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December 6, 2016

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

Certificate of Analysis

Project Name: 2016-FREY FARM	Workorder: 2190519
Purchase Order:	Workorder ID: 4TH QTR 2016 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Friday, November 18, 2016.

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.

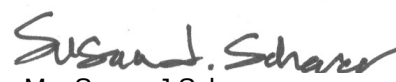
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

CC: 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.


Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2190519001	FFMP017W	Ground Water	11/18/2016 09:59	11/18/2016 16:00	Mr. Brian G Shade
2190519002	FFMP028W	Ground Water	11/18/2016 11:19	11/18/2016 16:00	Mr. Brian G Shade
2190519003	FFMP30RW	Ground Water	11/18/2016 12:57	11/18/2016 16:00	Mr. Brian G Shade
2190519004	FFMP04AW	Ground Water	11/18/2016 14:05	11/18/2016 16:00	Mr. Brian G Shade
2190519005	FIELD BLANK	Ground Water	11/18/2016 14:05	11/18/2016 16:00	Mr. Brian G Shade
2190519006	TRIP BLANK	Ground Water	11/18/2016 16:00	11/18/2016 16:00	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2190519 4TH QTR 2016 GWMP-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 performed 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 incubator 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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ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519001**
Sample ID: **FFMP017W**

Date Collected: 11/18/2016 09:59 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 02:31	CJG	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 02:31	CJG	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	96.8		%	62 - 133	SW846 8260B			11/30/16 02:31	CJG	H
4-Bromofluorobenzene (S)	96.1		%	79 - 114	SW846 8260B			11/30/16 02:31	CJG	H
Dibromofluoromethane (S)	85.3		%	78 - 116	SW846 8260B			11/30/16 02:31	CJG	H
Toluene-d8 (S)	90.6		%	76 - 127	SW846 8260B			11/30/16 02:31	CJG	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	42		mg/L	5	S2320B-97			11/19/16 13:17	MSA	B
Alkalinity, Total	42	2	mg/L	5	S2320B-97			11/19/16 13:17	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/30/16 12:05	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/21/16 16:26	AK	A
Chloride	276		mg/L	5.0	EPA 300.0			11/19/16 08:39	MBW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			11/19/16 08:39	MBW	B
Nitrate-N	2.7		mg/L	0.50	EPA 300.0			11/19/16 08:39	MBW	B
pH	6.45	1	pH_Units		SM4500B			11/19/16 13:17	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/21/16 11:19	JLG	G
Specific Conductance	1080		umhos/cm	1	SW846 9050A			11/19/16 13:17	MSA	B
Sulfate	65.5		mg/L	5.0	EPA 300.0			11/19/16 08:39	MBW	B
Total Dissolved Solids	499		mg/L	5	S2540C-11			11/22/16 13:55	ML	B
Total Organic Carbon (TOC)	2.0		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	0.11		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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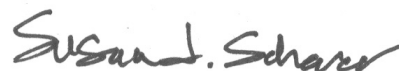
ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519001**
Sample ID: **FFMP017W**

Date Collected: 11/18/2016 09:59 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	80.1		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:31	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:31	SRT	C1
Magnesium, Total	36.4		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:31	SRT	C1
Manganese, Total	0.29		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:31	SRT	C1
Potassium, Total	4.0		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:31	SRT	C1
Sodium, Total	62.7		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:31	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	44.380		Feet		Field			11/18/16 09:59	BGS	D
Elev Top MW Casing above MSL	480.70		Feet		Field			11/18/16 09:59	BGS	D
Flow Rate	2.24		gal/min		Field			11/18/16 09:59	BGS	D
Ground Water Elevation	436.320		ft/MSL		Field			11/18/16 09:59	BGS	D
pH, Field (SM4500B)	5.510		pH_Units		Field			11/18/16 09:59	BGS	D
Sample Depth	135.000		Feet		Field			11/18/16 09:59	BGS	D
Specific Conductance, Field	1167		umhos/cm	1	Field			11/18/16 09:59	BGS	D
Temperature	10.94		Deg. C		Field			11/18/16 09:59	BGS	D
Total Well Depth	150.500		Feet		Field			11/18/16 09:59	BGS	D
Volume in Water Column	155.996		Gallons		Field			11/18/16 09:59	BGS	D
Water Level After Purge	52.310		Feet		Field			11/18/16 09:59	BGS	D
Well Volumes Purged	1.43		Vol		Field			11/18/16 09:59	BGS	D



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519002**
Sample ID: **FFMP028W**

Date Collected: 11/18/2016 11:19 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 02:53	CJG	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 02:53	CJG	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	98.2		%	62 - 133	SW846 8260B			11/30/16 02:53	CJG	H
4-Bromofluorobenzene (S)	97.4		%	79 - 114	SW846 8260B			11/30/16 02:53	CJG	H
Dibromofluoromethane (S)	88		%	78 - 116	SW846 8260B			11/30/16 02:53	CJG	H
Toluene-d8 (S)	90.1		%	76 - 127	SW846 8260B			11/30/16 02:53	CJG	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	30		mg/L	5	S2320B-97			11/19/16 13:27	MSA	B
Alkalinity, Total	30	2	mg/L	5	S2320B-97			11/19/16 13:27	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/30/16 12:25	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/21/16 16:26	AK	A
Chloride	95.3		mg/L	5.0	EPA 300.0			11/19/16 08:52	MBW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			11/19/16 08:52	MBW	B
Nitrate-N	20.3		mg/L	0.50	EPA 300.0			11/19/16 08:52	MBW	B
pH	6.28	1	pH_Units		SM4500B			11/19/16 13:27	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/21/16 11:19	JLG	G
Specific Conductance	557		umhos/cm	1	SW846 9050A			11/19/16 13:27	MSA	B
Sulfate	22.3		mg/L	5.0	EPA 300.0			11/19/16 08:52	MBW	B
Total Dissolved Solids	452		mg/L	5	S2540C-11			11/23/16 09:37	ML	B
Total Organic Carbon (TOC)	1.4		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	ND		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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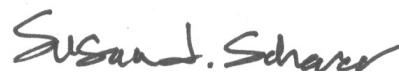
ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519002**
Sample ID: **FFMP028W**

Date Collected: 11/18/2016 11:19 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	43.8		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:35	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:35	SRT	C1
Magnesium, Total	19.2		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:35	SRT	C1
Manganese, Total	0.016		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:35	SRT	C1
Potassium, Total	2.4		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:35	SRT	C1
Sodium, Total	28.3		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:35	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	9.260		Feet		Field			11/18/16 11:19	BGS	D
Elev Top MW Casing above MSL	465.00		Feet		Field			11/18/16 11:19	BGS	D
Flow Rate	3.05		gal/min		Field			11/18/16 11:19	BGS	D
Ground Water Elevation	455.740		ft/MSL		Field			11/18/16 11:19	BGS	D
pH, Field (SM4500B)	4.960		pH_Units		Field			11/18/16 11:19	BGS	D
Sample Depth	50.000		Feet		Field			11/18/16 11:19	BGS	D
Specific Conductance, Field	613		umhos/cm	1	Field			11/18/16 11:19	BGS	D
Temperature	11.19		Deg. C		Field			11/18/16 11:19	BGS	D
Total Well Depth	60.000		Feet		Field			11/18/16 11:19	BGS	D
Volume in Water Column	74.588		Gallons		Field			11/18/16 11:19	BGS	D
Water Level After Purge	37.340		Feet		Field			11/18/16 11:19	BGS	D
Well Volumes Purged	2.45		Vol		Field			11/18/16 11:19	BGS	D



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519003**
Sample ID: **FFMP30RW**

Date Collected: 11/18/2016 12:57 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 03:15	CJG	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 03:15	CJG	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	97.4		%	62 - 133	SW846 8260B			11/30/16 03:15	CJG	H
4-Bromofluorobenzene (S)	94.7		%	79 - 114	SW846 8260B			11/30/16 03:15	CJG	H
Dibromofluoromethane (S)	86		%	78 - 116	SW846 8260B			11/30/16 03:15	CJG	H
Toluene-d8 (S)	90.7		%	76 - 127	SW846 8260B			11/30/16 03:15	CJG	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	45		mg/L	5	S2320B-97			11/19/16 13:36	MSA	B
Alkalinity, Total	45	2	mg/L	5	S2320B-97			11/19/16 13:36	MSA	B
Ammonia-N	0.102		mg/L	0.100	D6919-09			11/30/16 12:45	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/21/16 16:26	AK	A
Chloride	323		mg/L	5.0	EPA 300.0			11/19/16 09:05	MBW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			11/19/16 09:05	MBW	B
Nitrate-N	5.7		mg/L	0.50	EPA 300.0			11/19/16 09:05	MBW	B
pH	6.32	1	pH_Units		SM4500B			11/19/16 13:36	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/21/16 11:19	JLG	G
Specific Conductance	1210		umhos/cm	1	SW846 9050A			11/19/16 13:36	MSA	B
Sulfate	40.9		mg/L	5.0	EPA 300.0			11/19/16 09:05	MBW	B
Total Dissolved Solids	705		mg/L	5	S2540C-11			11/23/16 09:37	ML	B
Total Organic Carbon (TOC)	1.6		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	1.55		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519003**
Sample ID: **FFMP30RW**

Date Collected: 11/18/2016 12:57 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	55.6		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:38	SRT	C1
Iron, Total	0.16		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:38	SRT	C1
Magnesium, Total	19.7		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:38	SRT	C1
Manganese, Total	3.9		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:38	SRT	C1
Potassium, Total	7.6		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:38	SRT	C1
Sodium, Total	137		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:38	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	38.780		Feet		Field			11/18/16 12:57	BGS	D
Elev Top MW Casing above MSL	562.30		Feet		Field			11/18/16 12:57	BGS	D
Flow Rate	1.79		gal/min		Field			11/18/16 12:57	BGS	D
Ground Water Elevation	523.520		ft/MSL		Field			11/18/16 12:57	BGS	D
pH, Field (SM4500B)	5.470		pH_Units		Field			11/18/16 12:57	BGS	D
Sample Depth	85.000		Feet		Field			11/18/16 12:57	BGS	D
Specific Conductance, Field	1167		umhos/cm	1	Field			11/18/16 12:57	BGS	D
Temperature	11.57		Deg. C		Field			11/18/16 12:57	BGS	D
Total Well Depth	94.200		Feet		Field			11/18/16 12:57	BGS	D
Volume in Water Column	81.467		Gallons		Field			11/18/16 12:57	BGS	D
Water Level After Purge	31.500		Feet		Field			11/18/16 12:57	BGS	D
Well Volumes Purged	1.01		Vol		Field			11/18/16 12:57	BGS	D



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519004**
Sample ID: **FFMP04AW**

Date Collected: 11/18/2016 14:05 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 03:37	CJG	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 03:37	CJG	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	96.8		%	62 - 133	SW846 8260B			11/30/16 03:37	CJG	H
4-Bromofluorobenzene (S)	94.3		%	79 - 114	SW846 8260B			11/30/16 03:37	CJG	H
Dibromofluoromethane (S)	85.7		%	78 - 116	SW846 8260B			11/30/16 03:37	CJG	H
Toluene-d8 (S)	89.2		%	76 - 127	SW846 8260B			11/30/16 03:37	CJG	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	200		mg/L	5	S2320B-97			11/19/16 14:24	MSA	B
Alkalinity, Total	200	2	mg/L	5	S2320B-97			11/19/16 14:24	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/30/16 13:05	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/21/16 16:26	AK	A
Chloride	301		mg/L	5.0	EPA 300.0			11/19/16 09:18	MBW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			11/19/16 09:18	MBW	B
Nitrate-N	ND		mg/L	0.50	EPA 300.0			11/19/16 09:18	MBW	B
pH	7.76	1	pH_Units		SM4500B			11/19/16 14:24	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/21/16 11:19	JLG	G
Specific Conductance	1390		umhos/cm	1	SW846 9050A			11/19/16 14:24	MSA	B
Sulfate	48.2		mg/L	5.0	EPA 300.0			11/19/16 09:18	MBW	B
Total Dissolved Solids	956		mg/L	5	S2540C-11			11/23/16 09:37	ML	B
Total Organic Carbon (TOC)	1.4		mg/L	0.50	SW846 9060A			11/28/16 10:17	PAG	E
Turbidity	0.67		NTU	0.10	S2130B-01			11/18/16 22:18	MSA	B

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ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519004**
Sample ID: **FFMP04AW**

Date Collected: 11/18/2016 14:05 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	150		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:49	SRT	C1
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:49	SRT	C1
Magnesium, Total	25.5		mg/L	0.11	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:49	SRT	C1
Manganese, Total	0.12		mg/L	0.0056	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:49	SRT	C1
Potassium, Total	2.1		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:49	SRT	C1
Sodium, Total	83.5		mg/L	0.56	SW846 6010C	11/23/16 19:20	OTD	12/6/16 10:49	SRT	C1
FIELD PARAMETERS										
Depth to Water Level	37.380		Feet		Field			11/18/16 14:05	BGS	D
Elev Top MW Casing above MSL	560.72		Feet		Field			11/18/16 14:05	BGS	D
Flow Rate	2.21		gal/min		Field			11/18/16 14:05	BGS	D
Ground Water Elevation	523.340		ft/MSL		Field			11/18/16 14:05	BGS	D
pH, Field (SM4500B)	6.860		pH_Units		Field			11/18/16 14:05	BGS	D
Sample Depth	146.000		Feet		Field			11/18/16 14:05	BGS	D
Specific Conductance, Field	1497		umhos/cm	1	Field			11/18/16 14:05	BGS	D
Temperature	11.84		Deg. C		Field			11/18/16 14:05	BGS	D
Total Well Depth	148.500		Feet		Field			11/18/16 14:05	BGS	D
Volume in Water Column	163.346		Gallons		Field			11/18/16 14:05	BGS	D
Water Level After Purge	81.180		Feet		Field			11/18/16 14:05	BGS	D
Well Volumes Purged	0.81		Vol		Field			11/18/16 14:05	BGS	D



Ms. Susan J Scherer
Project Coordinator

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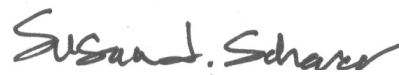
ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519005**
Sample ID: **FIELD BLANK**

Date Collected: 11/18/2016 14:05 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 05:47	CJG	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 05:47	CJG	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	99.9		%	62 - 133	SW846 8260B			11/30/16 05:47	CJG	A
4-Bromofluorobenzene (S)	95.7		%	79 - 114	SW846 8260B			11/30/16 05:47	CJG	A
Dibromofluoromethane (S)	89.4		%	78 - 116	SW846 8260B			11/30/16 05:47	CJG	A
Toluene-d8 (S)	90.8		%	76 - 127	SW846 8260B			11/30/16 05:47	CJG	A



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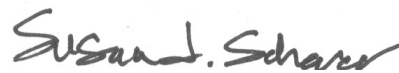
ANALYTICAL RESULTS

Workorder: 2190519 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2190519006**
Sample ID: **TRIP BLANK**

Date Collected: 11/18/2016 16:00 Matrix: Ground Water
Date Received: 11/18/2016 16:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
Toluene	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/30/16 06:09	CJG	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/30/16 06:09	CJG	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	100		%	62 - 133	SW846 8260B			11/30/16 06:09	CJG	A
4-Bromofluorobenzene (S)	95.7		%	79 - 114	SW846 8260B			11/30/16 06:09	CJG	A
Dibromofluoromethane (S)	88.4		%	78 - 116	SW846 8260B			11/30/16 06:09	CJG	A
Toluene-d8 (S)	91.3		%	76 - 127	SW846 8260B			11/30/16 06:09	CJG	A



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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2190519001	1	FFMP017W	SM4500B	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.				
2190519001	2	FFMP017W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190519002	1	FFMP028W	SM4500B	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.				
2190519002	2	FFMP028W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190519003	1	FFMP30RW	SM4500B	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.				
2190519003	2	FFMP30RW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2190519004	1	FFMP04AW	SM4500B	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.				
2190519004	2	FFMP04AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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November 30, 2016

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

Certificate of Analysis

Project Name: 2016-FREY FARM	Workorder: 2189817
Purchase Order:	Workorder ID: 4TH QTR 2016 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, November 16, 2016.

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.

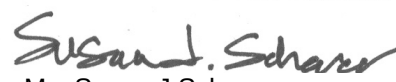
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

CC: 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.


Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2189817 4TH QTR 2016 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2189817001	FFMP018W	Ground Water	11/16/2016 14:16	11/16/2016 17:00	Mr. Brian G Shade
2189817002	FFMP019W	Ground Water	11/16/2016 15:01	11/16/2016 17:00	Mr. Brian G Shade
2189817003	FFMP029W	Ground Water	11/16/2016 15:58	11/16/2016 17:00	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2189817 4TH QTR 2016 GWMP-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 performed 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 incubator 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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ANALYTICAL RESULTS

Workorder: 2189817 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2189817001**
Sample ID: **FFMP018W**

Date Collected: 11/16/2016 14:16 Matrix: Ground Water
Date Received: 11/16/2016 17:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
Toluene	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/23/16 14:03	DD	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/23/16 14:03	DD	H
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	86		%	62 - 133	SW846 8260B			11/23/16 14:03	DD	H
4-Bromofluorobenzene (S)	111		%	79 - 114	SW846 8260B			11/23/16 14:03	DD	H
Dibromofluoromethane (S)	77.7	2	%	78 - 116	SW846 8260B			11/23/16 14:03	DD	H
Toluene-d8 (S)	85		%	76 - 127	SW846 8260B			11/23/16 14:03	DD	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	14		mg/L	5	S2320B-97			11/18/16 01:38	MSA	B
Alkalinity, Total	14	3	mg/L	5	S2320B-97			11/18/16 01:38	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/28/16 18:21	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/17/16 17:50	AK	A
Chloride	124		mg/L	2.0	EPA 300.0			11/17/16 10:43	BSL	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/17/16 10:43	BSL	B
Nitrate-N	5.6		mg/L	0.20	EPA 300.0			11/17/16 10:43	BSL	B
pH	5.95	1	pH_Units		SM4500B			11/18/16 01:38	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/22/16 11:19	JLG	G
Specific Conductance	585		umhos/cm	1	SW846 9050A			11/18/16 01:38	MSA	B
Sulfate	50.8		mg/L	2.0	EPA 300.0			11/17/16 10:43	BSL	B
Total Dissolved Solids	345		mg/L	5	S2540C-11			11/21/16 11:01	ML	B
Total Organic Carbon (TOC)	1.0		mg/L	0.50	SW846 9060A			11/21/16 10:26	PAG	E
Turbidity	0.52		NTU	0.10	S2130B-01			11/18/16 04:07	MSA	B

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ANALYTICAL RESULTS

Workorder: 2189817 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2189817001**
Sample ID: **FFMP018W**

Date Collected: 11/16/2016 14:16 Matrix: Ground Water
Date Received: 11/16/2016 17:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	35.6		mg/L	0.11	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:48	SRT	C
Iron, Total	0.15		mg/L	0.067	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:48	SRT	C
Magnesium, Total	18.5		mg/L	0.11	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:48	SRT	C
Manganese, Total	0.32		mg/L	0.0056	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:48	SRT	C
Potassium, Total	4.4		mg/L	0.56	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:48	SRT	C
Sodium, Total	42.8		mg/L	0.56	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:48	SRT	C
FIELD PARAMETERS										
Depth to Water Level	29.230		Feet		Field			11/16/16 14:16	BGS	D
Elev Top MW Casing above MSL	472.20		Feet		Field			11/16/16 14:16	BGS	D
Flow Rate	5.11		gal/min		Field			11/16/16 14:16	BGS	D
Ground Water Elevation	442.970		ft/MSL		Field			11/16/16 14:16	BGS	D
pH, Field (SM4500B)	4.440		pH_Units		Field			11/16/16 14:16	BGS	D
Sample Depth	40.000		Feet		Field			11/16/16 14:16	BGS	D
Specific Conductance, Field	649		umhos/cm	1	Field			11/16/16 14:16	BGS	D
Temperature	13.18		Deg. C		Field			11/16/16 14:16	BGS	D
Total Well Depth	51.460		Feet		Field			11/16/16 14:16	BGS	D
Volume in Water Column	14.450		Gallons		Field			11/16/16 14:16	BGS	D
Water Level After Purge	31.500		Feet		Field			11/16/16 14:16	BGS	D
Well Volumes Purged	3.53		Vol		Field			11/16/16 14:16	BGS	D



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2189817 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2189817002**
Sample ID: **FFMP019W**

Date Collected: 11/16/2016 15:01 Matrix: Ground Water
Date Received: 11/16/2016 17:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
Toluene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/29/16 06:35	SYB	I
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/29/16 06:35	SYB	I
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	97.9		%	62 - 133	SW846 8260B			11/29/16 06:35	SYB	I
4-Bromofluorobenzene (S)	99.2		%	79 - 114	SW846 8260B			11/29/16 06:35	SYB	I
Dibromofluoromethane (S)	90.2		%	78 - 116	SW846 8260B			11/29/16 06:35	SYB	I
Toluene-d8 (S)	90.4		%	76 - 127	SW846 8260B			11/29/16 06:35	SYB	I
WET CHEMISTRY										
Alkalinity, Bicarbonate	66		mg/L	5	S2320B-97			11/18/16 01:48	MSA	B
Alkalinity, Total	66	3	mg/L	5	S2320B-97			11/18/16 01:48	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/28/16 18:41	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/17/16 17:50	AK	A
Chloride	79.4		mg/L	2.0	EPA 300.0			11/17/16 10:56	BSL	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/17/16 10:56	BSL	B
Nitrate-N	0.66		mg/L	0.20	EPA 300.0			11/17/16 10:56	BSL	B
pH	7.22	1	pH_Units		SM4500B			11/18/16 01:48	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/22/16 11:19	JLG	G
Specific Conductance	424		umhos/cm	1	SW846 9050A			11/18/16 01:48	MSA	B
Sulfate	14.8		mg/L	2.0	EPA 300.0			11/17/16 10:56	BSL	B
Total Dissolved Solids	273		mg/L	5	S2540C-11			11/21/16 11:01	ML	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			11/22/16 15:36	PAG	E
Turbidity	ND		NTU	0.10	S2130B-01			11/18/16 04:07	MSA	B

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ANALYTICAL RESULTS

Workorder: 2189817 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2189817002**
Sample ID: **FFMP019W**

Date Collected: 11/16/2016 15:01 Matrix: Ground Water
Date Received: 11/16/2016 17:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	58.7		mg/L	0.11	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:51	SRT	C
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:51	SRT	C
Magnesium, Total	5.8		mg/L	0.11	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:51	SRT	C
Manganese, Total	ND		mg/L	0.0056	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:51	SRT	C
Potassium, Total	0.84		mg/L	0.56	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:51	SRT	C
Sodium, Total	10.3		mg/L	0.56	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:51	SRT	C
FIELD PARAMETERS										
Depth to Water Level	29.860		Feet		Field			11/16/16 15:01	BGS	D
Elev Top MW Casing above MSL	471.95		Feet		Field			11/16/16 15:01	BGS	D
Flow Rate	4.58		gal/min		Field			11/16/16 15:01	BGS	D
Ground Water Elevation	442.090		ft/MSL		Field			11/16/16 15:01	BGS	D
pH, Field (SM4500B)	5.960		pH_Units		Field			11/16/16 15:01	BGS	D
Sample Depth	49.000		Feet		Field			11/16/16 15:01	BGS	D
Specific Conductance, Field	477		umhos/cm	1	Field			11/16/16 15:01	BGS	D
Temperature	12.05		Deg. C		Field			11/16/16 15:01	BGS	D
Total Well Depth	132.790		Feet		Field			11/16/16 15:01	BGS	D
Volume in Water Column	66.905		Gallons		Field			11/16/16 15:01	BGS	D
Water Level After Purge	39.690		Feet		Field			11/16/16 15:01	BGS	D
Well Volumes Purged	2.74		Vol		Field			11/16/16 15:01	BGS	D



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2189817 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2189817003**

Date Collected: 11/16/2016 15:58

Matrix: Ground Water

Sample ID: **FFMP029W**

Date Received: 11/16/2016 17:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
Toluene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
Total Xylenes	ND		ug/L	3.0	SW846 8260B			11/29/16 06:19	SYB	I
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
Trichloroethene	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			11/29/16 06:19	SYB	I
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			11/29/16 06:19	SYB	I
4-Bromofluorobenzene (S)	100		%	79 - 114	SW846 8260B			11/29/16 06:19	SYB	I
Dibromofluoromethane (S)	92.9		%	78 - 116	SW846 8260B			11/29/16 06:19	SYB	I
Toluene-d8 (S)	94.3		%	76 - 127	SW846 8260B			11/29/16 06:19	SYB	I
WET CHEMISTRY										
Alkalinity, Bicarbonate	11		mg/L	5	S2320B-97			11/18/16 01:57	MSA	B
Alkalinity, Total	11	3	mg/L	5	S2320B-97			11/18/16 01:57	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			11/28/16 19:01	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			11/17/16 17:50	AK	A
Chloride	42.4		mg/L	2.0	EPA 300.0			11/17/16 11:09	BSL	B
Fluoride	ND		mg/L	0.20	EPA 300.0			11/17/16 11:09	BSL	B
Nitrate-N	3.6		mg/L	0.20	EPA 300.0			11/17/16 11:09	BSL	B
pH	6.20	1	pH_Units		SM4500B			11/18/16 01:57	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	11/21/16 10:31	JLG	11/22/16 11:19	JLG	G
Specific Conductance	184		umhos/cm	1	SW846 9050A			11/18/16 01:57	MSA	B
Sulfate	3.2		mg/L	2.0	EPA 300.0			11/17/16 11:09	BSL	B
Total Dissolved Solids	131		mg/L	5	S2540C-11			11/21/16 11:01	ML	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			11/22/16 15:36	PAG	E
Turbidity	0.46		NTU	0.10	S2130B-01			11/18/16 04:07	MSA	B

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ANALYTICAL RESULTS

Workorder: 2189817 4TH QTR 2016 GWMP-FORM 19Q

Lab ID: **2189817003**
Sample ID: **FFMP029W**

Date Collected: 11/16/2016 15:58 Matrix: Ground Water
Date Received: 11/16/2016 17:00

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	9.4		mg/L	0.11	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:55	SRT	C
Iron, Total	ND		mg/L	0.067	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:55	SRT	C
Magnesium, Total	6.9		mg/L	0.11	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:55	SRT	C
Manganese, Total	0.015		mg/L	0.0056	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:55	SRT	C
Potassium, Total	1.5		mg/L	0.56	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:55	SRT	C
Sodium, Total	14.6		mg/L	0.56	SW846 6010C	11/21/16 12:53	TRR	11/28/16 16:55	SRT	C
FIELD PARAMETERS										
Depth to Water Level	41.370		Feet		Field			11/16/16 15:58	BGS	D
Elev Top MW Casing above MSL	477.30		Feet		Field			11/16/16 15:58	BGS	D
Flow Rate	2.37		gal/min		Field			11/16/16 15:58	BGS	D
Ground Water Elevation	435.930		ft/MSL		Field			11/16/16 15:58	BGS	D
pH, Field (SM4500B)	4.900		pH_Units		Field			11/16/16 15:58	BGS	D
Sample Depth	55.000		Feet		Field			11/16/16 15:58	BGS	D
Specific Conductance, Field	216		umhos/cm	1	Field			11/16/16 15:58	BGS	D
Temperature	12.36		Deg. C		Field			11/16/16 15:58	BGS	D
Total Well Depth	60.500		Feet		Field			11/16/16 15:58	BGS	D
Volume in Water Column	28.121		Gallons		Field			11/16/16 15:58	BGS	D
Water Level After Purge	47.720		Feet		Field			11/16/16 15:58	BGS	D
Well Volumes Purged	3.37		Vol		Field			11/16/16 15:58	BGS	D



Ms. Susan J Scherer
Project Coordinator

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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2189817001	1	FFMP018W	SM4500B	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.				
2189817001	2	FFMP018W	SW846 8260B	Dibromofluoromethane
The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 77.7 and the control limits were 78 to 116. This result was reported at a dilution of 1.				
2189817001	3	FFMP018W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2189817002	1	FFMP019W	SM4500B	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.				
2189817002	3	FFMP019W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2189817003	1	FFMP029W	SM4500B	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.				
2189817003	3	FFMP029W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Generated by ALS

COC #:
ALS Qu:
* 2 1 8 9 8 1 7 *

Client Name: Lancaster County Solid Waste MA

Address: 1299 Harrisburg Pike, P.O. Box 4424

Lancaster, PA 17604

Contact: Brooke Norris Mark Penner

Phone#: (717) 397-9988

Project Name#: Frey Farm Quarterly

Bill To: Lancaster County Solid Waste MA

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

Date Required: Approved By:

Email? ☒ Y ☐ N Email: bnorris@LCSWMA.com

Fax? ☒ Y ☐ N Fax: (717) 397-9973

Sample Description/Location (as it will appear on the lab report)

Sample Date Time

1. FFMP018W 11/16/16 1410

2. FFMP018W 1501

3. FFMP028W 1550

4. # time on 10/11/16

5. # time on 10/11/16

6. # time on 10/11/16

7. # time on 10/11/16

8. # time on 10/11/16

9. # time on 10/11/16

10. # time on 10/11/16

Project Comments:

Relinquished By Company Name

1. 11/16/16 1700

3. 11/16/16 1700

5. 11/16/16 1700

7. 11/16/16 1700

9. 11/16/16 1700

LOGGED BY (signature):

REVIEWED BY (signature):

Date Time

11/16/16 1700

11/16/16 1700

11/16/16 1700

11/16/16 1700

11/16/16 1700

11/16/16 1700

11/16/16 1700

11/16/16 1700

11/16/16 1700

11/16/16 1700

11/16/16 1700

11/16/16 1700

Cooler Temp: 5 Therm ID: 352

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

ALS Field Services: ☐ Pickup ☐ Labor

☐ Composite Sampling ☐ Rental Equipment

☐ Other:

Standard ☐

CLP-like ☐

USACE ☐

USACE ☐

USACE ☐

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Lancaster County Solid Waste Management Authority
Frey Farm Landfill

Exceedence Report

<i>Parameter Name</i>	<i>Units</i>	<i>Concentration</i>	<i>Criteria Conc</i>	<i>Qualifiers</i>	<i>Criteria</i>
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP002W	2190196004	11/17/2016	GW		
NITRATE-NITROGEN		mg/l	22.30	10.00	EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP016W	2190834006	11/21/2016	GW		
NITRATE-NITROGEN		mg/l	17.00	10.00	EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP023W	2190196002	11/17/2016	GW		
NITRATE-NITROGEN		mg/l	12.40	10.00	EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP025W	2190834004	11/21/2016	GW		
NITRATE-NITROGEN		mg/l	16.80	10.00	EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP027W	2190834003	11/21/2016	GW		
NITRATE-NITROGEN		mg/l	12.00	10.00	EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP028W	2190519002	11/18/2016	GW		
NITRATE-NITROGEN		mg/l	20.30	10.00	EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP03AW	2190196005	11/17/2016	GW		
NITRATE-NITROGEN		mg/l	20.60	10.00	EPA-MCL

Lancaster County Solid Waste Management Authority**Frey Farm Landfill**

Exceedence Report

<i>Parameter Name</i>	<i>Units</i>	<i>Concentration</i>	<i>Criteria Conc</i>	<i>Qualifiers</i>	<i>Criteria</i>
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP002W	2190196004	11/17/2016	GW		
MANGANESE, TOTAL		mg/l	0.27	0.05	EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP013W	2190834001	11/21/2016	GW		
IRON, TOTAL		mg/l	0.38	0.30	EPA-SMCL
TDS (TOT. DISSOLVED SOLIDS)		mg/l	603.00	500.00	EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP014W	2190834002	11/21/2016	GW		
IRON, TOTAL		mg/l	0.61	0.30	EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP017W	2190519001	11/18/2016	GW		
CHLORIDE		mg/l	276.00	250.00	EPA-SMCL
MANGANESE, TOTAL		mg/l	0.29	0.05	EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP018W	2189817001	11/16/2016	GW		
MANGANESE, TOTAL		mg/l	0.32	0.05	EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP023W	2190196002	11/17/2016	GW		
MANGANESE, TOTAL		mg/l	0.18	0.05	EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP03AW	2190196005	11/17/2016	GW		
MANGANESE, TOTAL		mg/l	0.22	0.05	EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP04AW	2190519004	11/18/2016	GW		
CHLORIDE		mg/l	301.00	250.00	EPA-SMCL
MANGANESE, TOTAL		mg/l	0.12	0.05	EPA-SMCL
TDS (TOT. DISSOLVED SOLIDS)		mg/l	956.00	500.00	EPA-SMCL

<i>Parameter Name</i>	<i>Units</i>	<i>Concentration</i>	<i>Criteria Conc</i>	<i>Qualifiers</i>	<i>Criteria</i>
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP26RW	2190834005	11/21/2016	GW		
MANGANESE, TOTAL		mg/l	0.38	0.05	EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP30RW	2190519003	11/18/2016	GW		
CHLORIDE		mg/l	323.00	250.00	EPA-SMCL
MANGANESE, TOTAL		mg/l	3.90	0.05	EPA-SMCL
TDS (TOT. DISSOLVED SOLIDS)		mg/l	705.00	500.00	EPA-SMCL