

October 12, 2018

Charlene Sauls PG; Licensed Professional Geologist
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, 3A, & 28 exceeded the primary standard for nitrate, samples are consistent with historic data the cause is attributed to agricultural impacts. No other MCL's were exceeded.
2. USEPA SMCL's exceedance report; Samples 2W, 2DW, 3AW, 4AW, 5W, 17W, 18W, 26RW, 30RW, 31W, 32W, 33W exceeded the secondary standard for manganese, Samples 2DW, 2SW, 31W, 32W & 33W exceeded the secondary standard for iron, Samples 2DW, 4AW, 5W, 17W & 26RW exceeded the secondary standard for total dissolved solids, and Samples 2DW, 4AW, 5W, 17W & 26RW 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. ARM reviews the site historic Chloride issues annually and has assessed the causes. No other SMCL's were exceeded.
3. A copy of the field sampling data sheets for all locations.

Other than mentioned above ground water monitoring concentrations where consistent with historic data no significant deviations were observed.

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

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'M. D. Reider', is written over a light blue horizontal line.

Mark D. Reider
Deputy Chief of Operations and Environmental Compliance

Enclosures:

cc: Bob Zorbaugh, Dan Brown, Bob Eshbach, Jeff Musser, Jordan Gallagher
Ed Rawski, Randy Weiss (PADEP)



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
09/25/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: 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 Well Spring Stream Other
 Upgradient/Upstream 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: 36.51 ft Measured from: Land Surface TOC

Casing Stickup: 2.00 ft Elevation of Water Level: 440.79 ft./MSL

Sampling Depth: 55 ft Volume of Water Column: 32.30 gal

Total Well Depth: 58.5 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 2.9

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 8/20/2018 Sample Collection Time: 9:49

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333582001 Final Lab Analysis CompletionDate: 9/4/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP029W

Sample Date 8/20/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.183	D6919-09
BICARBONATE ALKALINITY	11	SM20-2320B
CALCIUM, TOTAL	5.6	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	31.6	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	4.9	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	15	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	3.2	EPA 300
pH-FIELD (SU)	4.04	FIELD
pH-LAB (SU)	6.13	SM20-4500HB
POTASSIUM, TOTAL	1.6	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	13	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	163	FIELD
SPEC. COND., LAB (umhos/cm)	141	SW846 9050A
SULFATE	2 ND	EPA 300
ALKALINITY	11	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	46	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.52	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.82	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 8/20/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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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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: FFMP018W Well Spring Stream Other
 Upgradient/Upstream 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: 25.4 ft Measured from: Land Surface TOC

Casing Stickup: 2.46 ft Elevation of Water Level: 446.80 ft./MSL

Sampling Depth: 40 ft Volume of Water Column: 16.99 gal

Total Well Depth: 51.43 ft Sampling Method: Pumped Bailed Grab

Well Purged: 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): 8/20/2018 Sample Collection Time: 10:15

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333582002 Final Lab Analysis Completion Date: 9/4/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP018W

Sample Date 8/20/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.842	D6919-09
BICARBONATE ALKALINITY	24	SM20-2320B
CALCIUM, TOTAL	36.7	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	142	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	16.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	600	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	5.7	EPA 300
pH-FIELD (SU)	4.92	FIELD
pH-LAB (SU)	6.19	SM20-4500HB
POTASSIUM, TOTAL	9.5	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	54.8	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	701	FIELD
SPEC. COND., LAB (umhos/cm)	696	SW846 9050A
SULFATE	55.1	EPA 300
ALKALINITY	24	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	350	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. FFMP018W

Sample Date 8/20/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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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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: FFMP019W Well Spring Stream Other
 Upgradient/Upstream 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: 26.08 ft Measured from: Land Surface TOC

Casing Stickup: 1.79 ft Elevation of Water Level: 445.87 ft./MSL

Sampling Depth: 49 ft Volume of Water Column: 69.65 gal

Total Well Depth: 132.79 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 2.9

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 8/20/2018 Sample Collection Time: 11:04

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333582003 Final Lab Analysis CompletionDate: 9/4/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP019W

Sample Date 8/20/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.13	D6919-09
BICARBONATE ALKALINITY	75	SM20-2320B
CALCIUM, TOTAL	56.8	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	80.6	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	5.4	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	5.6 ND	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	0.42	EPA 300
pH-FIELD (SU)	5.98	FIELD
pH-LAB (SU)	7.02	SM20-4500HB
POTASSIUM, TOTAL	1	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	10.3	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	456	FIELD
SPEC. COND., LAB (umhos/cm)	438	SW846 9050A
SULFATE	20.1	EPA 300
ALKALINITY	75	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	275	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 8/20/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

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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 Well Spring Stream Other
 Upgradient/Upstream 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: 58.6 ft Measured from: Land Surface TOC

Casing Stickup: 1.70 ft Elevation of Water Level: 478.80 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 134.23 gal

Total Well Depth: 150 ft Sampling Method: Pumped Bailed Grab

Well Purged: 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): 8/20/2018 Sample Collection Time: 12:29

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333582004 Final Lab Analysis CompletionDate: 9/4/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP005W

Sample Date 8/20/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.135	D6919-09
BICARBONATE ALKALINITY	45	SM20-2320B
CALCIUM, TOTAL	103	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	303	EPA 300
FLUORIDE	0.2 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)	86	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	4.2	EPA 300
pH-FIELD (SU)	5.11	FIELD
pH-LAB (SU)	6.12	SM20-4500HB
POTASSIUM, TOTAL	3.2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	66.7	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1243	FIELD
SPEC. COND., LAB (umhos/cm)	1230	SW846 9050A
SULFATE	70.8	EPA 300
ALKALINITY	45	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	807	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

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T Please indicate detection limit if analyte is not detected.

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I.D. No 101389

Monitoring Point No. FFMP005W

Sample Date 8/20/2018

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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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Monitoring Point Number: FFMP26RW Well Spring Stream Other
 Upgradient/Upstream 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: 70 ft Measured from: Land Surface TOC

Casing Stickup: 3.30 ft Elevation of Water Level: 477.40 ft./MSL

Sampling Depth: 105 ft Volume of Water Column: 64.62 gal

Total Well Depth: 114 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 1.1

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 8/20/2018 Sample Collection Time: 13:23

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333582005 Final Lab Analysis CompletionDate: 9/4/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP26RW

Sample Date 8/20/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.118	D6919-09
BICARBONATE ALKALINITY	43	SM20-2320B
CALCIUM, TOTAL	94.5	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	280	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	23	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	880	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	2.6	EPA 300
pH-FIELD (SU)	5.02	FIELD
pH-LAB (SU)	5.94	SM20-4500HB
POTASSIUM, TOTAL	11.4	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	76.4	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1235	FIELD
SPEC. COND., LAB (umhos/cm)	1220	SW846 9050A
SULFATE	88.8	EPA 300
ALKALINITY	43	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	713	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.5	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.26	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 101389

Monitoring Point No. FFMP26RW

Sample Date 8/20/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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
09/25/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: 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: FFMP031W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: MANOR TOWNSHIP

Sampling Point: Latitude: 39 ° 57 ' 31.2 " Longitude: 76 ° 27 ' 23.53 "

Depth to Water Level: 65.65 ft Measured from: Land Surface TOC

Casing Stickup: 2.38 ft Elevation of Water Level: 547.01 ft./MSL

Sampling Depth: 130 ft Volume of Water Column: 109.19 gal

Total Well Depth: 140 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): 8/20/2018 Sample Collection Time: 14:43

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333582006 Final Lab Analysis Completion Date: 9/4/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP031W

Sample Date 8/20/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.884	D6919-09
BICARBONATE ALKALINITY	53	SM20-2320B
CALCIUM, TOTAL	34.9	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	24.9	EPA 300
FLUORIDE	0.26	EPA 300
IRON, TOTAL (ug/l)	3200	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	3.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	250	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	0.2 ND	EPA 300
pH-FIELD (SU)	7.28	FIELD
pH-LAB (SU)	7.19	SM20-4500HB
POTASSIUM, TOTAL	1.5	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	10	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	303	FIELD
SPEC. COND., LAB (umhos/cm)	254	SW846 9050A
SULFATE	49.7	EPA 300
ALKALINITY	53	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	186	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.63	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	12.8	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP031W

Sample Date 8/20/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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
09/25/2018

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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: FFMP032W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: MANOR TOWNSHIP

Sampling Point: Latitude: 39 ° 57 ' 33.45 " Longitude: 76 ° 27 ' 17.71 "

Depth to Water Level: 50.19 ft Measured from: Land Surface TOC

Casing Stickup: 2.06 ft Elevation of Water Level: 543.90 ft./MSL

Sampling Depth: 62 ft Volume of Water Column: 36.44 gal

Total Well Depth: 75 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): 8/20/2018 Sample Collection Time: 16:00

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333582007 Final Lab Analysis CompletionDate: 9/4/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP032W

Sample Date 8/20/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.981	D6919-09
BICARBONATE ALKALINITY	80	SM20-2320B
CALCIUM, TOTAL	16	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	22.7	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	9200	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	4.9	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	720	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	0.2 ND	EPA 300
pH-FIELD (SU)	6.38	FIELD
pH-LAB (SU)	7.15	SM20-4500HB
POTASSIUM, TOTAL	1.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	13.9	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	236	FIELD
SPEC. COND., LAB (umhos/cm)	185	SW846 9050A
SULFATE	2 ND	EPA 300
ALKALINITY	80	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	92	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.65	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	127	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. FFMP032W

Sample Date 8/20/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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
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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 Well Spring Stream Other
 Upgradient/Upstream 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: 32.12 ft Measured from: Land Surface TOC

Casing Stickup: 2.20 ft Elevation of Water Level: 530.18 ft./MSL

Sampling Depth: 85 ft Volume of Water Column: 85.01 gal

Total Well Depth: 90 ft Sampling Method: Pumped Bailed Grab

Well Purged: 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): 8/21/2018 Sample Collection Time: 9:42

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333877001 Final Lab Analysis Completion Date: 9/6/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP30RW

Sample Date 8/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.113	D6919-09
BICARBONATE ALKALINITY	31	SM20-2320B
CALCIUM, TOTAL	20.9	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	129	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	13.4	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	1100	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	4.2	EPA 300
pH-FIELD (SU)	4.23	FIELD
pH-LAB (SU)	5.9	SM20-4500HB
POTASSIUM, TOTAL	2.9	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	52.8	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	574	FIELD
SPEC. COND., LAB (umhos/cm)	546	SW846 9050A
SULFATE	15.4	EPA 300
ALKALINITY	31	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	298	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.58	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.79	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 8/21/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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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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 Well Spring Stream Other
 Upgradient/Upstream 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: 31.81 ft Measured from: Land Surface TOC

Casing Stickup: 2.52 ft Elevation of Water Level: 528.91 ft./MSL

Sampling Depth: 146 ft Volume of Water Column: 396.11 gal

Total Well Depth: 301.52 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): 8/21/2018 Sample Collection Time: 10:51

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333877002 Final Lab Analysis CompletionDate: 9/6/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP04AW

Sample Date 8/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	214	SM20-2320B
CALCIUM, TOTAL	151	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	315	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	26.2	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	360	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	0.22	EPA 300
pH-FIELD (SU)	6.63	FIELD
pH-LAB (SU)	7.56	SM20-4500HB
POTASSIUM, TOTAL	2.5	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	88.6	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1502	FIELD
SPEC. COND., LAB (umhos/cm)	1470	SW846 9050A
SULFATE	49.5	EPA 300
ALKALINITY	214	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	860	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.72	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.44	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 8/21/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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
09/25/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: 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 Well Spring Stream Other
 Upgradient/Upstream 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: 58.2 ft Measured from: Land Surface TOC

Casing Stickup: 1.90 ft Elevation of Water Level: 518.20 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 133.21 gal

Total Well Depth: 148.9 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 1.2

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 8/21/2018 Sample Collection Time: 12:38

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333877003 Final Lab Analysis Completion Date: 9/6/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP015W

Sample Date 8/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	22	SM20-2320B
CALCIUM, TOTAL	11.1	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	10.2	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	8.9	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	14	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	7.2	EPA 300
pH-FIELD (SU)	5.17	FIELD
pH-LAB (SU)	6.23	SM20-4500HB
POTASSIUM, TOTAL	1.9	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	21.1	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	261	FIELD
SPEC. COND., LAB (umhos/cm)	226	SW846 9050A
SULFATE	48.6	EPA 300
ALKALINITY	22	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	168	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.75	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. FFMP015W

Sample Date 8/21/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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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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 Well Spring Stream Other
 Upgradient/Upstream 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: 23.68 ft Measured from: Land Surface TOC

Casing Stickup: 1.50 ft Elevation of Water Level: 453.12 ft./MSL

Sampling Depth: 39 ft Volume of Water Column: 23.97 gal

Total Well Depth: 40 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 4.8

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 8/21/2018 Sample Collection Time: 13:26

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333877004 Final Lab Analysis CompletionDate: 9/6/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP025W

Sample Date 8/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	35	SM20-2320B
CALCIUM, TOTAL	28.2	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	74.3	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	15.6	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	6.1	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	4.8	EPA 300
pH-FIELD (SU)	5.09	FIELD
pH-LAB (SU)	6.55	SM20-4500HB
POTASSIUM, TOTAL	2.2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	24.1	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	467	FIELD
SPEC. COND., LAB (umhos/cm)	444	SW846 9050A
SULFATE	39.9	EPA 300
ALKALINITY	35	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	256	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.5	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. FFMP025W

Sample Date 8/21/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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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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: 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: 5.27 ft Measured from: Land Surface TOC

Casing Stickup: 2.50 ft Elevation of Water Level: 459.73 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: 1.0

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 8/21/2018 Sample Collection Time: 15:00

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333877005 Final Lab Analysis CompletionDate: 9/6/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP028W

Sample Date 8/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.267	D6919-09
BICARBONATE ALKALINITY	31	SM20-2320B
CALCIUM, TOTAL	42.1	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	76.2	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	17.8	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	11	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	15.4	EPA 300
pH-FIELD (SU)	5.08	FIELD
pH-LAB (SU)	6.34	SM20-4500HB
POTASSIUM, TOTAL	2.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	28.4	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	601	FIELD
SPEC. COND., LAB (umhos/cm)	576	SW846 9050A
SULFATE	18.4	EPA 300
ALKALINITY	31	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	370	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.1	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 8/21/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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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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: 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: 21.39 ft Measured from: Land Surface TOC

Casing Stickup: 1.97 ft Elevation of Water Level: 453.21 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 188.59 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): 8/21/2018 Sample Collection Time: 15:27

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2333877006 Final Lab Analysis CompletionDate: 9/6/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP016W

Sample Date 8/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.206	D6919-09
BICARBONATE ALKALINITY	33	SM20-2320B
CALCIUM, TOTAL	31.7	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	72.7	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)	16	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	6.4	EPA 300
pH-FIELD (SU)	5.34	FIELD
pH-LAB (SU)	6.48	SM20-4500HB
POTASSIUM, TOTAL	2.4	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	26.9	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	470	FIELD
SPEC. COND., LAB (umhos/cm)	450	SW846 9050A
SULFATE	38.5	EPA 300
ALKALINITY	33	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	244	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.3	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.21	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 101389

Monitoring Point No. FFMP016W

Sample Date 8/21/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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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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 Well Spring Stream Other
 Upgradient/Upstream 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: 38.46 ft Measured from: Land Surface TOC

Casing Stickup: 2.00 ft Elevation of Water Level: 442.24 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 164.55 gal

Total Well Depth: 150.5 ft Sampling Method: 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): 8/22/2018 Sample Collection Time: 9:48

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2334254001 Final Lab Analysis Completion Date: 9/5/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP017W

Sample Date 8/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	46	SM20-2320B
CALCIUM, TOTAL	88.1	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	340	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	38.1	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	560	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	2.1	EPA 300
pH-FIELD (SU)	5.3	FIELD
pH-LAB (SU)	6.43	SM20-4500HB
POTASSIUM, TOTAL	5.6	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	71.5	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1422	FIELD
SPEC. COND., LAB (umhos/cm)	1300	SW846 9050A
SULFATE	68.3	EPA 300
ALKALINITY	46	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	893	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	2	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.61	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 8/22/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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
09/25/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: 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 Well Spring Stream Other
 Upgradient/Upstream 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: 50.61 ft Measured from: Land Surface TOC

Casing Stickup: 1.20 ft Elevation of Water Level: 540.29 ft./MSL

Sampling Depth: 130 ft Volume of Water Column: 141.86 gal

Total Well Depth: 147.2 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): 8/22/2018 Sample Collection Time: 11:14

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2334254002 Final Lab Analysis CompletionDate: 9/5/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP03AW

Sample Date 8/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	21	SM20-2320B
CALCIUM, TOTAL	17.9	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	28.9	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	12.3	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	290	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	20.3	EPA 300
pH-FIELD (SU)	4.73	FIELD
pH-LAB (SU)	6.02	SM20-4500HB
POTASSIUM, TOTAL	1.4	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	12.3	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	313	FIELD
SPEC. COND., LAB (umhos/cm)	274	SW846 9050A
SULFATE	3	EPA 300
ALKALINITY	21	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	264	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.62	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 8/22/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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
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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: FFMP033W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: MANOR TOWNSHIP

Sampling Point: Latitude: 39 ° 57 ' 31.09 " Longitude: 76 ° 27 ' 4.98 "

Depth to Water Level: 18.23 ft Measured from: Land Surface TOC

Casing Stickup: 0.49 ft Elevation of Water Level: 498.29 ft./MSL

Sampling Depth: 79 ft Volume of Water Column: 114.22 gal

Total Well Depth: 96 ft Sampling Method: 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): 8/22/2018 Sample Collection Time: 12:55

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2334254003 Final Lab Analysis CompletionDate: 9/5/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP033W

Sample Date 8/22/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	1.12	D6919-09
BICARBONATE ALKALINITY	70	SM20-2320B
CALCIUM, TOTAL	28.9	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	43.3	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	30800	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	9	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	1000	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	8.6	EPA 300
pH-FIELD (SU)	5.95	FIELD
pH-LAB (SU)	6.6	SM20-4500HB
POTASSIUM, TOTAL	1.7	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	14.1	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	402	FIELD
SPEC. COND., LAB (umhos/cm)	325	SW846 9050A
SULFATE	6.6	EPA 300
ALKALINITY	70	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	193	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.81	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	81.8	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP033W

Sample Date 8/22/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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 09/25/2018
DEP USE ONLY
Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana
Site Name: 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: 62.12 ft Measured from: Land Surface TOC

Casing Stickup: 1.60 ft Elevation of Water Level: 551.08 ft./MSL

Sampling Depth: 85 ft Volume of Water Column: 157.85 gal

Total Well Depth: 169.6 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): 8/22/2018 Sample Collection Time: 14:07

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2334254004 Final Lab Analysis CompletionDate: 9/5/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP002W

Sample Date 8/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	5 ND	SM20-2320B
CALCIUM, TOTAL	24	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	23.1	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	9.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	270	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	27.8	EPA 300
pH-FIELD (SU)	4.43	FIELD
pH-LAB (SU)	5.51	SM20-4500HB
POTASSIUM, TOTAL	1.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	14.4	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	350	FIELD
SPEC. COND., LAB (umhos/cm)	302	SW846 9050A
SULFATE	8.9	EPA 300
ALKALINITY	5 ND	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	262	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.84	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. FFMP002W

Sample Date 8/22/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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
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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^o MM' SS.S")

Monitoring Point Number: FFMP02DW Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: MANOR TOWNSHIP

Sampling Point: Latitude: 39 ° 57 ' 27.74 " Longitude: 76 ° 27 ' 1.49 "

Depth to Water Level: 19.36 ft Measured from: Land Surface TOC

Casing Stickup: _____ ft Elevation of Water Level: 490.24 ft./MSL

Sampling Depth: 120 ft Volume of Water Column: _____ gal

Total Well Depth: 152 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 0.4

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 8/22/2018 Sample Collection Time: 15:27

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2334254005 Final Lab Analysis CompletionDate: 9/5/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP02DW

Sample Date 8/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.113	D6919-09
BICARBONATE ALKALINITY	130	SM20-2320B
CALCIUM, TOTAL	121	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	327	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	750	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	19.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	520	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	4.1	EPA 300
pH-FIELD (SU)	6.97	FIELD
pH-LAB (SU)	7.54	SM20-4500HB
POTASSIUM, TOTAL	2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	98.5	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1417	FIELD
SPEC. COND., LAB (umhos/cm)	1410	SW846 9050A
SULFATE	34.2	EPA 300
ALKALINITY	130	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	896	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.96	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	5.81	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. FFMP02DW

Sample Date 8/22/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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
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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: FFMP02SW Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: MANOR TOWNSHIP

Sampling Point: Latitude: 39 ° 57 ' 27.9 " Longitude: 76 ° 27 ' 1.58 "

Depth to Water Level: 14 ft Measured from: Land Surface TOC

Casing Stickup: _____ ft Elevation of Water Level: 495.9 ft./MSL

Sampling Depth: 18 ft Volume of Water Column: _____ gal

Total Well Depth: 25 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 1.1

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 8/22/2018 Sample Collection Time: 15:54

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2334254006 Final Lab Analysis CompletionDate: 9/5/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP02SW

Sample Date 8/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES
ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.109	D6919-09
BICARBONATE ALKALINITY	31	SM20-2320B
CALCIUM, TOTAL	13.6	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	18	EPA 410.4
CHLORIDE	48.9	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	2700	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	4.9	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	41	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	4.8	EPA 300
pH-FIELD (SU)	5.52	FIELD
pH-LAB (SU)	6.5	SM20-4500HB
POTASSIUM, TOTAL	5.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	38.9	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	281	FIELD
SPEC. COND., LAB (umhos/cm)	290	SW846 9050A
SULFATE	26.5	EPA 300
ALKALINITY	31	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	286	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	8.8	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	96.8	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP02SW

Sample Date 8/22/2018

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1 ND	SW846 8260B
1,2-DIBROMOETHANE	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.

September 6, 2018

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

Certificate of Analysis

Project Name:	FREY FARM	Workorder:	2334254
Purchase Order:	PO1000126	Workorder ID:	3RD QTR 2018 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, August 22, 2018.

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

If you have any questions regarding this certificate of analysis, please contact Ms. Susan J Scherer (Project Coordinator) at (717) 944-5541.

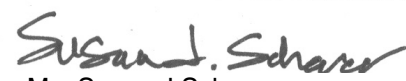
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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


Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2334254001	FFMP017W	Ground Water	8/22/2018 09:48	8/22/2018 17:32	Mr. Brian G Shade
2334254002	FFMP03AW	Ground Water	8/22/2018 11:14	8/22/2018 17:32	Mr. Brian G Shade
2334254003	FFMP033W	Ground Water	8/22/2018 12:55	8/22/2018 17:32	Mr. Brian G Shade
2334254004	FFMP002W	Ground Water	8/22/2018 14:07	8/22/2018 17:32	Mr. Brian G Shade
2334254005	FFMP02DW	Ground Water	8/22/2018 15:27	8/22/2018 17:32	Mr. Brian G Shade
2334254006	FFMP02SW	Ground Water	8/22/2018 15:54	8/22/2018 17:32	Mr. Brian G Shade
2334254007	FIELD BLANK	Ground Water	8/22/2018 14:30	8/22/2018 17:32	Mr. Brian G Shade
2334254008	TRIP BLANK	Ground Water	8/22/2018 17:32	8/22/2018 17:32	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2334254 3RD QTR 2018 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: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254001** Date Collected: 8/22/2018 09:48 Matrix: Ground Water
Sample ID: **FFMP017W** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
Toluene	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/29/18 23:46	PDK	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 23:46	PDK	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)	109		%	62 - 133	SW846 8260B			8/29/18 23:46	PDK	H
4-Bromofluorobenzene (S)	99.6		%	79 - 114	SW846 8260B			8/29/18 23:46	PDK	H
Dibromofluoromethane (S)	106		%	78 - 116	SW846 8260B			8/29/18 23:46	PDK	H
Toluene-d8 (S)	101		%	76 - 127	SW846 8260B			8/29/18 23:46	PDK	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	46		mg/L	5	SM2320B-2011			8/27/18 10:37	MSA	B
Alkalinity, Total	46	3	mg/L	5	SM2320B-2011			8/27/18 10:37	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			9/5/18 19:14	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/29/18 17:58	AK	A
Chloride	340		mg/L	5.0	EPA 300.0			8/23/18 10:14	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			8/23/18 10:14	CHW	B
Nitrate-N	2.1		mg/L	0.50	EPA 300.0			8/23/18 10:14	CHW	B
pH	6.43	1	pH_Units		S4500HB-11			8/25/18 20:06	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	1300		umhos/cm	1	SW846 9050A			8/25/18 20:06	MSA	B
Sulfate	68.3		mg/L	5.0	EPA 300.0			8/23/18 10:14	CHW	B
Total Dissolved Solids	893	2	mg/L	5	S2540C-11			8/25/18 11:45	BMK	B
Total Organic Carbon (TOC)	2.0		mg/L	0.50	SW846 9060A			8/28/18 10:11	PAG	D
Turbidity	1.61		NTU	0.10	SM2130B-2011			8/24/18 04:50	MSA	B

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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254001** Date Collected: 8/22/2018 09:48 Matrix: Ground Water
Sample ID: **FFMP017W** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	88.1		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:31	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:31	SRT	J1
Magnesium, Total	38.1		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:31	SRT	J1
Manganese, Total	0.56		mg/L	0.0056	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:31	SRT	J1
Potassium, Total	5.6		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:31	SRT	J1
Sodium, Total	71.5		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:31	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	38.460		Feet		Field			8/22/18 09:48	BGS	C
Elev Top MW Casing above MSL	480.70		Feet		Field			8/22/18 09:48	BGS	C
Flow Rate	2.27		gal/min		Field			8/22/18 09:48	BGS	C
Ground Water Elevation	442.240		ft/MSL		Field			8/22/18 09:48	BGS	C
pH, Field (SM4500B)	5.300		pH_Units		Field			8/22/18 09:48	BGS	C
Sample Depth	135.000		Feet		Field			8/22/18 09:48	BGS	C
Specific Conductance, Field	1422		umhos/cm	1	Field			8/22/18 09:48	BGS	C
Temperature	10.61		Deg. C		Field			8/22/18 09:48	BGS	C
Total Well Depth	150.500		Feet		Field			8/22/18 09:48	BGS	C
Volume in Water Column	164.699		Gallons		Field			8/22/18 09:48	BGS	C
Water Level After Purge	43.810		Feet		Field			8/22/18 09:48	BGS	C
Well Volumes Purged	0.83		Vol		Field			8/22/18 09:48	BGS	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: 2334254002 **Date Collected:** 8/22/2018 11:14 **Matrix:** Ground Water
Sample ID: FFMP03AW **Date Received:** 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
Toluene	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/30/18 00:32	PDK	H
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	H
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/30/18 00:32	PDK	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)	112		%	62 - 133	SW846 8260B			8/30/18 00:32	PDK	H
4-Bromofluorobenzene (S)	102		%	79 - 114	SW846 8260B			8/30/18 00:32	PDK	H
Dibromofluoromethane (S)	107		%	78 - 116	SW846 8260B			8/30/18 00:32	PDK	H
Toluene-d8 (S)	101		%	76 - 127	SW846 8260B			8/30/18 00:32	PDK	H
WET CHEMISTRY										
Alkalinity, Bicarbonate	21		mg/L	5	SM2320B-2011			8/27/18 10:46	MSA	B
Alkalinity, Total	21	3	mg/L	5	SM2320B-2011			8/27/18 10:46	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			9/5/18 19:28	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/29/18 17:58	AK	A
Chloride	28.9		mg/L	2.0	EPA 300.0			8/23/18 10:27	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/23/18 10:27	CHW	B
Nitrate-N	20.3		mg/L	1.0	EPA 300.0			8/23/18 10:40	CHW	B
pH	6.02	1	pH_Units		S4500HB-11			8/25/18 20:21	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	274		umhos/cm	1	SW846 9050A			8/25/18 20:21	MSA	B
Sulfate	3.0		mg/L	2.0	EPA 300.0			8/23/18 10:27	CHW	B
Total Dissolved Solids	264	2	mg/L	5	S2540C-11			8/25/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.62		mg/L	0.50	SW846 9060A			8/28/18 10:11	PAG	D
Turbidity	ND		NTU	0.10	SM2130B-2011			8/24/18 04:50	MSA	B

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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254002** Date Collected: 8/22/2018 11:14 Matrix: Ground Water
Sample ID: **FFMP03AW** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	17.9		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:41	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:41	SRT	J1
Magnesium, Total	12.3		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:41	SRT	J1
Manganese, Total	0.29		mg/L	0.0056	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:41	SRT	J1
Potassium, Total	1.4		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:41	SRT	J1
Sodium, Total	12.3		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:41	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	50.610		Feet		Field			8/22/18 11:14	BGS	C
Elev Top MW Casing above MSL	590.90		Feet		Field			8/22/18 11:14	BGS	C
Flow Rate	2.14		gal/min		Field			8/22/18 11:14	BGS	C
Ground Water Elevation	540.290		ft/MSL		Field			8/22/18 11:14	BGS	C
pH, Field (SM4500B)	4.730		pH_Units		Field			8/22/18 11:14	BGS	C
Sample Depth	130.000		Feet		Field			8/22/18 11:14	BGS	C
Specific Conductance, Field	313		umhos/cm	1	Field			8/22/18 11:14	BGS	C
Temperature	11.84		Deg. C		Field			8/22/18 11:14	BGS	C
Total Well Depth	148.400		Feet		Field			8/22/18 11:14	BGS	C
Volume in Water Column	143.751		Gallons		Field			8/22/18 11:14	BGS	C
Water Level After Purge	83.490		Feet		Field			8/22/18 11:14	BGS	C
Well Volumes Purged	0.89		Vol		Field			8/22/18 11:14	BGS	C



Ms. Susan J Scherer
Project Coordinator

ALS Environmental Laboratory Locations Across North America

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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: 2334254003 **Date Collected:** 8/22/2018 12:55 **Matrix:** Ground Water
Sample ID: FFMP033W **Date Received:** 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/29/18 03:18	PDK	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 03:18	PDK	G
<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)	106		%	62 - 133	SW846 8260B			8/29/18 03:18	PDK	G
4-Bromofluorobenzene (S)	99.7		%	79 - 114	SW846 8260B			8/29/18 03:18	PDK	G
Dibromofluoromethane (S)	100		%	78 - 116	SW846 8260B			8/29/18 03:18	PDK	G
Toluene-d8 (S)	101		%	76 - 127	SW846 8260B			8/29/18 03:18	PDK	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	70		mg/L	5	SM2320B-2011			8/27/18 10:55	MSA	B
Alkalinity, Total	70	3	mg/L	5	SM2320B-2011			8/27/18 10:55	MSA	B
Ammonia-N	1.12		mg/L	0.100	D6919-09			9/5/18 19:42	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/29/18 17:58	AK	A
Chloride	43.3		mg/L	2.0	EPA 300.0			8/23/18 12:09	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/23/18 12:09	CHW	B
Nitrate-N	8.6		mg/L	0.20	EPA 300.0			8/23/18 12:09	CHW	B
pH	6.60	1	pH_Units		S4500HB-11			8/25/18 20:30	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	325		umhos/cm	1	SW846 9050A			8/25/18 20:30	MSA	B
Sulfate	6.6		mg/L	2.0	EPA 300.0			8/23/18 12:09	CHW	B
Total Dissolved Solids	193	2	mg/L	5	S2540C-11			8/25/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.81		mg/L	0.50	SW846 9060A			8/28/18 15:53	PAG	D
Turbidity	81.8		NTU	0.10	SM2130B-2011			8/24/18 04:50	MSA	B

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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254003** Date Collected: 8/22/2018 12:55 Matrix: Ground Water
Sample ID: **FFMP033W** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	28.9		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:52	SRT	J1
Iron, Total	30.8		mg/L	0.067	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:52	SRT	J1
Magnesium, Total	9.0		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:52	SRT	J1
Manganese, Total	1.0		mg/L	0.0056	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:52	SRT	J1
Potassium, Total	1.7		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:52	SRT	J1
Sodium, Total	14.1		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:52	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	18.230		Feet		Field			8/22/18 13:10	BGS	C
Elev Top MW Casing above MSL	516.52		Feet		Field			8/22/18 13:10	BGS	C
Flow Rate	1.34		gal/min		Field			8/22/18 13:10	BGS	C
Ground Water Elevation	498.290		ft/MSL		Field			8/22/18 13:10	BGS	C
pH, Field (SM4500B)	5.950		pH_Units		Field			8/22/18 13:10	BGS	C
Sample Depth	79.000		Feet		Field			8/22/18 13:10	BGS	C
Specific Conductance, Field	402		umhos/cm	1	Field			8/22/18 13:10	BGS	C
Temperature	12.69		Deg. C		Field			8/22/18 13:10	BGS	C
Total Well Depth	100.000		Feet		Field			8/22/18 13:10	BGS	C
Volume in Water Column	120.202		Gallons		Field			8/22/18 13:10	BGS	C
Water Level After Purge	20.730		Feet		Field			8/22/18 13:10	BGS	C
Well Volumes Purged	0.83		Vol		Field			8/22/18 13:10	BGS	C



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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

 Lab ID: **2334254004** Date Collected: 8/22/2018 14:07 Matrix: Ground Water
 Sample ID: **FFMP002W** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/29/18 03:40	PDK	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 03:40	PDK	G
<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)	106		%	62 - 133	SW846 8260B			8/29/18 03:40	PDK	G
4-Bromofluorobenzene (S)	99.6		%	79 - 114	SW846 8260B			8/29/18 03:40	PDK	G
Dibromofluoromethane (S)	99.6		%	78 - 116	SW846 8260B			8/29/18 03:40	PDK	G
Toluene-d8 (S)	98.3		%	76 - 127	SW846 8260B			8/29/18 03:40	PDK	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	SM2320B-2011			8/27/18 11:03	MSA	B
Alkalinity, Total	ND	3	mg/L	5	SM2320B-2011			8/27/18 11:03	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			9/5/18 19:56	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/29/18 17:58	AK	A
Chloride	23.1		mg/L	2.0	EPA 300.0			8/23/18 12:22	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/23/18 12:22	CHW	B
Nitrate-N	27.8		mg/L	1.0	EPA 300.0			8/23/18 12:35	CHW	B
pH	5.51	1	pH_Units		S4500HB-11			8/25/18 20:39	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	302		umhos/cm	1	SW846 9050A			8/25/18 20:39	MSA	B
Sulfate	8.9		mg/L	2.0	EPA 300.0			8/23/18 12:22	CHW	B
Total Dissolved Solids	262	2	mg/L	5	S2540C-11			8/25/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.84		mg/L	0.50	SW846 9060A			8/28/18 15:53	PAG	D
Turbidity	0.11		NTU	0.10	SM2130B-2011			8/24/18 04:50	MSA	B

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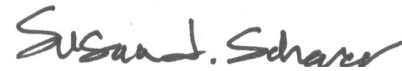
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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254004** Date Collected: 8/22/2018 14:07 Matrix: Ground Water
Sample ID: **FFMP002W** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	24.0		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:55	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:55	SRT	J1
Magnesium, Total	9.5		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:55	SRT	J1
Manganese, Total	0.27		mg/L	0.0056	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:55	SRT	J1
Potassium, Total	1.3		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:55	SRT	J1
Sodium, Total	14.4		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 11:55	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	62.120		Feet		Field			8/22/18 14:07	BGS	C
Elev Top MW Casing above MSL	613.20		Feet		Field			8/22/18 14:07	BGS	C
Flow Rate	1.28		gal/min		Field			8/22/18 14:07	BGS	C
Ground Water Elevation	551.080		ft/MSL		Field			8/22/18 14:07	BGS	C
pH, Field (SM4500B)	4.430		pH_Units		Field			8/22/18 14:07	BGS	C
Sample Depth	85.000		Feet		Field			8/22/18 14:07	BGS	C
Specific Conductance, Field	350		umhos/cm	1	Field			8/22/18 14:07	BGS	C
Temperature	13.20		Deg. C		Field			8/22/18 14:07	BGS	C
Total Well Depth	90.020		Feet		Field			8/22/18 14:07	BGS	C
Volume in Water Column	41.013		Gallons		Field			8/22/18 14:07	BGS	C
Water Level After Purge	79.620		Feet		Field			8/22/18 14:07	BGS	C
Well Volumes Purged	0.93		Vol		Field			8/22/18 14:07	BGS	C



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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254005** Date Collected: 8/22/2018 15:27 Matrix: Ground Water
Sample ID: **FFMP02DW** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/29/18 04:01	PDK	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 04:01	PDK	G
<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)	105		%	62 - 133	SW846 8260B			8/29/18 04:01	PDK	G
4-Bromofluorobenzene (S)	99.5		%	79 - 114	SW846 8260B			8/29/18 04:01	PDK	G
Dibromofluoromethane (S)	99.4		%	78 - 116	SW846 8260B			8/29/18 04:01	PDK	G
Toluene-d8 (S)	98.2		%	76 - 127	SW846 8260B			8/29/18 04:01	PDK	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	130		mg/L	5	SM2320B-2011			8/27/18 11:52	MSA	B
Alkalinity, Total	130	3	mg/L	5	SM2320B-2011			8/27/18 11:52	MSA	B
Ammonia-N	0.113		mg/L	0.100	D6919-09			9/5/18 20:10	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/29/18 17:58	AK	A
Chloride	327		mg/L	5.0	EPA 300.0			8/23/18 12:48	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			8/23/18 12:48	CHW	B
Nitrate-N	4.1		mg/L	0.50	EPA 300.0			8/23/18 12:48	CHW	B
pH	7.54	1	pH_Units		S4500HB-11			8/25/18 20:49	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	1410		umhos/cm	1	SW846 9050A			8/25/18 20:49	MSA	B
Sulfate	34.2		mg/L	5.0	EPA 300.0			8/23/18 12:48	CHW	B
Total Dissolved Solids	896	2	mg/L	5	S2540C-11			8/25/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.96		mg/L	0.50	SW846 9060A			8/28/18 15:53	PAG	D
Turbidity	5.81		NTU	0.10	SM2130B-2011			8/24/18 04:50	MSA	B

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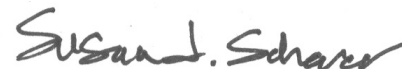
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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254005** Date Collected: 8/22/2018 15:27 Matrix: Ground Water
Sample ID: **FFMP02DW** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr	
METALS									
Calcium, Total	121		mg/L	0.11	SW846 6010C	8/24/18 17:05 AHI	8/28/18 11:59 SRT	J1	
Iron, Total	0.75		mg/L	0.067	SW846 6010C	8/24/18 17:05 AHI	8/28/18 11:59 SRT	J1	
Magnesium, Total	19.5		mg/L	0.11	SW846 6010C	8/24/18 17:05 AHI	8/28/18 11:59 SRT	J1	
Manganese, Total	0.52		mg/L	0.0056	SW846 6010C	8/24/18 17:05 AHI	8/28/18 11:59 SRT	J1	
Potassium, Total	2.0		mg/L	0.56	SW846 6010C	8/24/18 17:05 AHI	8/28/18 11:59 SRT	J1	
Sodium, Total	98.5		mg/L	0.56	SW846 6010C	8/24/18 17:05 AHI	8/28/18 11:59 SRT	J1	
FIELD PARAMETERS									
Depth to Water Level	19.360		Feet		Field		8/22/18 15:27 BGS	C	
Elev Top MW Casing above MSL	509.60		Feet		Field		8/22/18 15:27 BGS	C	
Flow Rate	1.43		gal/min		Field		8/22/18 15:27 BGS	C	
Ground Water Elevation	490.240		ft/MSL		Field		8/22/18 15:27 BGS	C	
pH, Field (SM4500B)	6.970		pH_Units		Field		8/22/18 15:27 BGS	C	
Sample Depth	120.000		Feet		Field		8/22/18 15:27 BGS	C	
Specific Conductance, Field	1417		umhos/cm	1	Field		8/22/18 15:27 BGS	C	
Temperature	15.27		Deg. C		Field		8/22/18 15:27 BGS	C	
Total Well Depth	153.000		Feet		Field		8/22/18 15:27 BGS	C	
Volume in Water Column	196.451		Gallons		Field		8/22/18 15:27 BGS	C	
Water Level After Purge	48.310		Feet		Field		8/22/18 15:27 BGS	C	
Well Volumes Purged	0.44		Vol		Field		8/22/18 15:27 BGS	C	



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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254006** Date Collected: 8/22/2018 15:54 Matrix: Ground Water
Sample ID: **FFMP02SW** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/29/18 04:23	PDK	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 04:23	PDK	G
<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)	105		%	62 - 133	SW846 8260B			8/29/18 04:23	PDK	G
4-Bromofluorobenzene (S)	98.6		%	79 - 114	SW846 8260B			8/29/18 04:23	PDK	G
Dibromofluoromethane (S)	98.8		%	78 - 116	SW846 8260B			8/29/18 04:23	PDK	G
Toluene-d8 (S)	98.4		%	76 - 127	SW846 8260B			8/29/18 04:23	PDK	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	31		mg/L	5	SM2320B-2011			8/27/18 12:01	MSA	B
Alkalinity, Total	31	3	mg/L	5	SM2320B-2011			8/27/18 12:01	MSA	B
Ammonia-N	0.109		mg/L	0.100	D6919-09			9/5/18 20:24	CMM	A
Chemical Oxygen Demand (COD)	18		mg/L	15	EPA 410.4			8/29/18 17:58	AK	A
Chloride	48.9		mg/L	2.0	EPA 300.0			8/23/18 13:01	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/23/18 13:01	CHW	B
Nitrate-N	4.8		mg/L	0.20	EPA 300.0			8/23/18 13:01	CHW	B
pH	6.50	1	pH_Units		S4500HB-11			8/25/18 20:58	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	290		umhos/cm	1	SW846 9050A			8/25/18 20:58	MSA	B
Sulfate	26.5		mg/L	2.0	EPA 300.0			8/23/18 13:01	CHW	B
Total Dissolved Solids	286	2	mg/L	5	S2540C-11			8/25/18 11:45	BMK	B
Total Organic Carbon (TOC)	8.8		mg/L	0.50	SW846 9060A			9/4/18 21:27	PAG	D
Turbidity	96.8		NTU	0.10	SM2130B-2011			8/24/18 04:50	MSA	B

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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254006** Date Collected: 8/22/2018 15:54 Matrix: Ground Water
Sample ID: **FFMP02SW** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	13.6		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:03	SRT	J1
Iron, Total	2.7		mg/L	0.067	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:03	SRT	J1
Magnesium, Total	4.9		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:03	SRT	J1
Manganese, Total	0.041		mg/L	0.0056	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:03	SRT	J1
Potassium, Total	5.3		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:03	SRT	J1
Sodium, Total	38.9		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:03	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	14.000		Feet		Field			8/22/18 15:51	BGS	C
Elev Top MW Casing above MSL	509.90		Feet		Field			8/22/18 15:51	BGS	C
Flow Rate	0.50		gal/min		Field			8/22/18 15:51	BGS	C
Ground Water Elevation	495.900		ft/MSL		Field			8/22/18 15:51	BGS	C
pH, Field (SM4500B)	5.520		pH_Units		Field			8/22/18 15:51	BGS	C
Sample Depth	18.000		Feet		Field			8/22/18 15:51	BGS	C
Specific Conductance, Field	281		umhos/cm	1	Field			8/22/18 15:51	BGS	C
Temperature	14.64		Deg. C		Field			8/22/18 15:51	BGS	C
Total Well Depth	22.700		Feet		Field			8/22/18 15:51	BGS	C
Volume in Water Column	5.655		Gallons		Field			8/22/18 15:51	BGS	C
Water Level After Purge	18.000		Feet		Field			8/22/18 15:51	BGS	C
Well Volumes Purged	1.06		Vol		Field			8/22/18 15:51	BGS	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

 Lab ID: **2334254007** Date Collected: 8/22/2018 14:30 Matrix: Ground Water
 Sample ID: **FIELD BLANK** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/29/18 01:06	PDK	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 01:06	PDK	G
<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)	103		%	62 - 133	SW846 8260B			8/29/18 01:06	PDK	G
4-Bromofluorobenzene (S)	99.1		%	79 - 114	SW846 8260B			8/29/18 01:06	PDK	G
Dibromofluoromethane (S)	97.3		%	78 - 116	SW846 8260B			8/29/18 01:06	PDK	G
Toluene-d8 (S)	97.6		%	76 - 127	SW846 8260B			8/29/18 01:06	PDK	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	SM2320B-2011			8/27/18 05:44	MSA	B
Alkalinity, Total	ND	3	mg/L	5	SM2320B-2011			8/27/18 05:44	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			9/5/18 20:38	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/29/18 17:58	AK	A
Chloride	ND		mg/L	1.0	EPA 300.0			8/23/18 13:13	CHW	B
Fluoride	ND		mg/L	0.10	EPA 300.0			8/23/18 13:13	CHW	B
Nitrate-N	ND		mg/L	0.10	EPA 300.0			8/23/18 13:13	CHW	B
pH	6.32	1	pH_Units		S4500HB-11			8/25/18 21:07	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	ND		umhos/cm	1	SW846 9050A			8/27/18 05:44	MSA	B
Sulfate	ND		mg/L	1.0	EPA 300.0			8/23/18 13:13	CHW	B
Total Dissolved Solids	9	2	mg/L	5	S2540C-11			8/25/18 11:45	BMK	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			8/28/18 15:53	PAG	D
Turbidity	ND		NTU	0.10	SM2130B-2011			8/24/18 04:50	MSA	B

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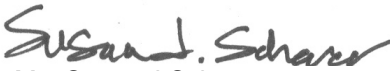
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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254007** Date Collected: 8/22/2018 14:30 Matrix: Ground Water
Sample ID: **FIELD BLANK** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	ND		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:06	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:06	SRT	J1
Magnesium, Total	ND		mg/L	0.11	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:06	SRT	J1
Manganese, Total	ND		mg/L	0.0056	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:06	SRT	J1
Potassium, Total	ND		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:06	SRT	J1
Sodium, Total	ND		mg/L	0.56	SW846 6010C	8/24/18 17:05	AHI	8/28/18 12:06	SRT	J1



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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2334254008** Date Collected: 8/22/2018 17:32 Matrix: Ground Water
Sample ID: **TRIP BLANK** Date Received: 8/22/2018 17:32

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
Toluene	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/29/18 21:19	PDK	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/29/18 21:19	PDK	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)	103		%	62 - 133	SW846 8260B			8/29/18 21:19	PDK	A
4-Bromofluorobenzene (S)	99.6		%	79 - 114	SW846 8260B			8/29/18 21:19	PDK	A
Dibromofluoromethane (S)	97.1		%	78 - 116	SW846 8260B			8/29/18 21:19	PDK	A
Toluene-d8 (S)	98.8		%	76 - 127	SW846 8260B			8/29/18 21:19	PDK	A



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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2334254001	1	FFMP017W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2334254001	2	FFMP017W	S2540C-11	Total Dissolved Solids
The evaporating dish for this sample was heated in a 180 degree C oven for 13 hours instead of the method required 16 hours due to an analyst error. The laboratory control sample, the method blank, and the temperature blank were all within control limits.				
2334254001	3	FFMP017W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2334254002	1	FFMP03AW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2334254002	2	FFMP03AW	S2540C-11	Total Dissolved Solids
The evaporating dish for this sample was heated in a 180 degree C oven for 13 hours instead of the method required 16 hours due to an analyst error. The laboratory control sample, the method blank, and the temperature blank were all within control limits.				
2334254002	3	FFMP03AW	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2334254003	1	FFMP033W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2334254003	2	FFMP033W	S2540C-11	Total Dissolved Solids
The evaporating dish for this sample was heated in a 180 degree C oven for 13 hours instead of the method required 16 hours due to an analyst error. The laboratory control sample, the method blank, and the temperature blank were all within control limits.				
2334254003	3	FFMP033W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2334254004	1	FFMP002W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2334254004	2	FFMP002W	S2540C-11	Total Dissolved Solids
The evaporating dish for this sample was heated in a 180 degree C oven for 13 hours instead of the method required 16 hours due to an analyst error. The laboratory control sample, the method blank, and the temperature blank were all within control limits.				
2334254004	3	FFMP002W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2334254005	1	FFMP02DW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2334254005	2	FFMP02DW	S2540C-11	Total Dissolved Solids
The evaporating dish for this sample was heated in a 180 degree C oven for 13 hours instead of the method required 16 hours due to an analyst error. The laboratory control sample, the method blank, and the temperature blank were all within control limits.				
2334254005	3	FFMP02DW	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2334254006	1	FFMP02SW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				

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ANALYTICAL RESULTS

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

2334254006	2	FFMP02SW	S2540C-11	Total Dissolved Solids
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The evaporating dish for this sample was heated in a 180 degree C oven for 13 hours instead of the method required 16 hours due to an analyst error. The laboratory control sample, the method blank, and the temperature blank were all within control limits.

2334254006	3	FFMP02SW	SM2320B-2011	Alkalinity, Total
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The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO₃/L.

2334254007	1	FIELD BLANK	S4500HB-11	pH
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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.

2334254007	2	FIELD BLANK	S2540C-11	Total Dissolved Solids
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The evaporating dish for this sample was heated in a 180 degree C oven for 13 hours instead of the method required 16 hours due to an analyst error. The laboratory control sample, the method blank, and the temperature blank were all within control limits.

2334254007	3	FIELD BLANK	SM2320B-2011	Alkalinity, Total
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The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO₃/L.

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2334254001	FFMP017W	D6919-09	
2334254001	FFMP017W	EPA 300.0	
2334254001	FFMP017W	EPA 410.4	
2334254001	FFMP017W	Field	
2334254001	FFMP017W	S2540C-11	
2334254001	FFMP017W	S4500HB-11	
2334254001	FFMP017W	SM2130B-2011	
2334254001	FFMP017W	SM2320B-2011	
2334254001	FFMP017W	SW846 6010C	SW846 3015
2334254001	FFMP017W	SW846 8260B	
2334254001	FFMP017W	SW846 9050A	
2334254001	FFMP017W	SW846 9060A	
2334254001	FFMP017W	SW846 9066	420.4/9066
2334254002	FFMP03AW	D6919-09	
2334254002	FFMP03AW	EPA 300.0	
2334254002	FFMP03AW	EPA 410.4	
2334254002	FFMP03AW	Field	
2334254002	FFMP03AW	S2540C-11	
2334254002	FFMP03AW	S4500HB-11	
2334254002	FFMP03AW	SM2130B-2011	
2334254002	FFMP03AW	SM2320B-2011	
2334254002	FFMP03AW	SW846 6010C	SW846 3015
2334254002	FFMP03AW	SW846 8260B	
2334254002	FFMP03AW	SW846 9050A	
2334254002	FFMP03AW	SW846 9060A	
2334254002	FFMP03AW	SW846 9066	420.4/9066
2334254003	FFMP033W	D6919-09	
2334254003	FFMP033W	EPA 300.0	
2334254003	FFMP033W	EPA 410.4	
2334254003	FFMP033W	Field	
2334254003	FFMP033W	S2540C-11	
2334254003	FFMP033W	S4500HB-11	
2334254003	FFMP033W	SM2130B-2011	
2334254003	FFMP033W	SM2320B-2011	
2334254003	FFMP033W	SW846 6010C	SW846 3015
2334254003	FFMP033W	SW846 8260B	
2334254003	FFMP033W	SW846 9050A	
2334254003	FFMP033W	SW846 9060A	
2334254003	FFMP033W	SW846 9066	420.4/9066
2334254004	FFMP002W	D6919-09	
2334254004	FFMP002W	EPA 300.0	
2334254004	FFMP002W	EPA 410.4	
2334254004	FFMP002W	Field	
2334254004	FFMP002W	S2540C-11	
2334254004	FFMP002W	S4500HB-11	
2334254004	FFMP002W	SM2130B-2011	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2334254 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2334254004	FFMP002W	SM2320B-2011	
2334254004	FFMP002W	SW846 6010C	SW846 3015
2334254004	FFMP002W	SW846 8260B	
2334254004	FFMP002W	SW846 9050A	
2334254004	FFMP002W	SW846 9060A	
2334254004	FFMP002W	SW846 9066	420.4/9066
2334254005	FFMP02DW	D6919-09	
2334254005	FFMP02DW	EPA 300.0	
2334254005	FFMP02DW	EPA 410.4	
2334254005	FFMP02DW	Field	
2334254005	FFMP02DW	S2540C-11	
2334254005	FFMP02DW	S4500HB-11	
2334254005	FFMP02DW	SM2130B-2011	
2334254005	FFMP02DW	SM2320B-2011	
2334254005	FFMP02DW	SW846 6010C	SW846 3015
2334254005	FFMP02DW	SW846 8260B	
2334254005	FFMP02DW	SW846 9050A	
2334254005	FFMP02DW	SW846 9060A	
2334254005	FFMP02DW	SW846 9066	420.4/9066
2334254006	FFMP02SW	D6919-09	
2334254006	FFMP02SW	EPA 300.0	
2334254006	FFMP02SW	EPA 410.4	
2334254006	FFMP02SW	Field	
2334254006	FFMP02SW	S2540C-11	
2334254006	FFMP02SW	S4500HB-11	
2334254006	FFMP02SW	SM2130B-2011	
2334254006	FFMP02SW	SM2320B-2011	
2334254006	FFMP02SW	SW846 6010C	SW846 3015
2334254006	FFMP02SW	SW846 8260B	
2334254006	FFMP02SW	SW846 9050A	
2334254006	FFMP02SW	SW846 9060A	
2334254006	FFMP02SW	SW846 9066	420.4/9066
2334254007	FIELD BLANK	D6919-09	
2334254007	FIELD BLANK	EPA 300.0	
2334254007	FIELD BLANK	EPA 410.4	
2334254007	FIELD BLANK	S2540C-11	
2334254007	FIELD BLANK	S4500HB-11	
2334254007	FIELD BLANK	SM2130B-2011	
2334254007	FIELD BLANK	SM2320B-2011	
2334254007	FIELD BLANK	SW846 6010C	SW846 3015
2334254007	FIELD BLANK	SW846 8260B	
2334254007	FIELD BLANK	SW846 9050A	
2334254007	FIELD BLANK	SW846 9060A	
2334254007	FIELD BLANK	SW846 9066	420.4/9066
2334254008	TRIP BLANK	SW846 8260B	

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September 8, 2018

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

Certificate of Analysis

Project Name:	FREY FARM	Workorder:	2333877
Purchase Order:	PO1000126	Workorder ID:	3RD QTR 2018 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, August 21, 2018.

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

If you have any questions regarding this certificate of analysis, please contact Ms. Susan J Scherer (Project Coordinator) at (717) 944-5541.

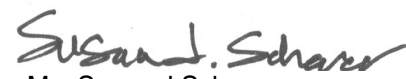
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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


Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2333877001	FFMP30RW	Ground Water	8/21/2018 09:42	8/21/2018 16:30	Mr. Brian G Shade
2333877002	FFMP04AW	Ground Water	8/21/2018 10:51	8/21/2018 16:30	Mr. Brian G Shade
2333877003	FFMP015W	Ground Water	8/21/2018 12:38	8/21/2018 16:30	Mr. Brian G Shade
2333877004	FFMP025W	Ground Water	8/21/2018 13:26	8/21/2018 16:30	Mr. Brian G Shade
2333877005	FFMP028W	Ground Water	8/21/2018 15:00	8/21/2018 16:30	Mr. Brian G Shade
2333877006	FFMP016W	Ground Water	8/21/2018 15:27	8/21/2018 16:30	Mr. Brian G Shade
2333877007	FIELD BLANK	Ground Water	8/21/2018 15:41	8/21/2018 16:30	Mr. Brian G Shade
2333877008	TRIP BLANK	Ground Water	8/21/2018 16:30	8/21/2018 16:30	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2333877 3RD QTR 2018 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: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: 2333877001 **Date Collected:** 8/21/2018 09:42 **Matrix:** Ground Water
Sample ID: FFMP30RW **Date Received:** 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/27/18 15:04	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 15:04	TMP	G
<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)	125		%	62 - 133	SW846 8260B			8/27/18 15:04	TMP	G
4-Bromofluorobenzene (S)	108		%	79 - 114	SW846 8260B			8/27/18 15:04	TMP	G
Dibromofluoromethane (S)	117	2	%	78 - 116	SW846 8260B			8/27/18 15:04	TMP	G
Toluene-d8 (S)	110		%	76 - 127	SW846 8260B			8/27/18 15:04	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	31		mg/L	5	SM2320B-2011			8/25/18 05:10	MSA	B
Alkalinity, Total	31	3	mg/L	5	SM2320B-2011			8/25/18 05:10	MSA	B
Ammonia-N	0.113		mg/L	0.100	D6919-09			9/6/18 20:20	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	129		mg/L	2.0	EPA 300.0			8/22/18 15:10	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/22/18 15:10	CHW	B
Nitrate-N	4.2		mg/L	0.20	EPA 300.0			8/22/18 15:10	CHW	B
pH	5.90	1	pH_Units		S4500HB-11			8/25/18 05:10	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	546		umhos/cm	1	SW846 9050A			8/25/18 05:10	MSA	B
Sulfate	15.4		mg/L	2.0	EPA 300.0			8/22/18 15:10	CHW	B
Total Dissolved Solids	298		mg/L	5	S2540C-11			8/24/18 14:10	BMK	B
Total Organic Carbon (TOC)	0.58		mg/L	0.50	SW846 9060A			8/25/18 23:56	PAG	D
Turbidity	0.79		NTU	0.10	SM2130B-2011			8/23/18 06:01	MSA	B

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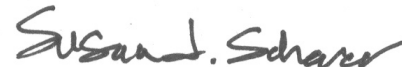
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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877001** Date Collected: 8/21/2018 09:42 Matrix: Ground Water
Sample ID: **FFMP30RW** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	20.9		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:41	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:41	SRT	J1
Magnesium, Total	13.4		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:41	SRT	J1
Manganese, Total	1.1		mg/L	0.0056	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:41	SRT	J1
Potassium, Total	2.9		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:41	SRT	J1
Sodium, Total	52.8		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:41	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	32.120		Feet		Field			8/21/18 09:42	BGS	C
Elev Top MW Casing above MSL	562.30		Feet		Field			8/21/18 09:42	BGS	C
Flow Rate	2.14		gal/min		Field			8/21/18 09:42	BGS	C
Ground Water Elevation	530.180		ft/MSL		Field			8/21/18 09:42	BGS	C
pH, Field (SM4500B)	4.230		pH_Units		Field			8/21/18 09:42	BGS	C
Sample Depth	85.000		Feet		Field			8/21/18 09:42	BGS	C
Specific Conductance, Field	574		umhos/cm	1	Field			8/21/18 09:42	BGS	C
Temperature	10.95		Deg. C		Field			8/21/18 09:42	BGS	C
Total Well Depth	94.200		Feet		Field			8/21/18 09:42	BGS	C
Volume in Water Column	91.258		Gallons		Field			8/21/18 09:42	BGS	C
Water Level After Purge	36.470		Feet		Field			8/21/18 09:42	BGS	C
Well Volumes Purged	1.41		Vol		Field			8/21/18 09:42	BGS	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

 Lab ID: **2333877002** Date Collected: 8/21/2018 10:51 Matrix: Ground Water
 Sample ID: **FFMP04AW** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/27/18 15:27	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 15:27	TMP	G
<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			8/27/18 15:27	TMP	G
4-Bromofluorobenzene (S)	110		%	79 - 114	SW846 8260B			8/27/18 15:27	TMP	G
Dibromofluoromethane (S)	117	2	%	78 - 116	SW846 8260B			8/27/18 15:27	TMP	G
Toluene-d8 (S)	110		%	76 - 127	SW846 8260B			8/27/18 15:27	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	214		mg/L	5	SM2320B-2011			8/25/18 07:16	MSA	B
Alkalinity, Total	214	3	mg/L	5	SM2320B-2011			8/25/18 07:16	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			9/6/18 20:36	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	315		mg/L	10.0	EPA 300.0			8/22/18 15:44	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/22/18 15:27	CHW	B
Nitrate-N	0.22		mg/L	0.20	EPA 300.0			8/22/18 15:27	CHW	B
pH	7.56	1	pH_Units		S4500HB-11			8/25/18 07:16	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	1470		umhos/cm	1	SW846 9050A			8/25/18 07:16	MSA	B
Sulfate	49.5		mg/L	2.0	EPA 300.0			8/22/18 15:27	CHW	B
Total Dissolved Solids	860		mg/L	5	S2540C-11			8/24/18 14:10	BMK	B
Total Organic Carbon (TOC)	0.72		mg/L	0.50	SW846 9060A			8/25/18 23:56	PAG	D
Turbidity	0.44		NTU	0.10	SM2130B-2011			8/23/18 06:01	MSA	B

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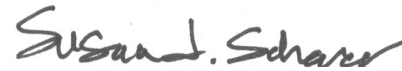
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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877002** Date Collected: 8/21/2018 10:51 Matrix: Ground Water
Sample ID: **FFMP04AW** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	151		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:52	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:52	SRT	J1
Magnesium, Total	26.2		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:52	SRT	J1
Manganese, Total	0.36		mg/L	0.0056	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:52	SRT	J1
Potassium, Total	2.5		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:52	SRT	J1
Sodium, Total	88.6		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:52	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	31.810		Feet		Field			8/21/18 10:51	BGS	C
Elev Top MW Casing above MSL	560.72		Feet		Field			8/21/18 10:51	BGS	C
Flow Rate	1.95		gal/min		Field			8/21/18 10:51	BGS	C
Ground Water Elevation	528.910		ft/MSL		Field			8/21/18 10:51	BGS	C
pH, Field (SM4500B)	6.630		pH_Units		Field			8/21/18 10:51	BGS	C
Sample Depth	146.000		Feet		Field			8/21/18 10:51	BGS	C
Specific Conductance, Field	1502		umhos/cm	1	Field			8/21/18 10:51	BGS	C
Temperature	11.98		Deg. C		Field			8/21/18 10:51	BGS	C
Total Well Depth	148.500		Feet		Field			8/21/18 10:51	BGS	C
Volume in Water Column	171.534		Gallons		Field			8/21/18 10:51	BGS	C
Water Level After Purge	82.580		Feet		Field			8/21/18 10:51	BGS	C
Well Volumes Purged	0.68		Vol		Field			8/21/18 10:51	BGS	C



Ms. Susan J Scherer
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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877003** Date Collected: 8/21/2018 12:38 Matrix: Ground Water
Sample ID: **FFMP015W** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/27/18 15:50	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 15:50	TMP	G
<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			8/27/18 15:50	TMP	G
4-Bromofluorobenzene (S)	110		%	79 - 114	SW846 8260B			8/27/18 15:50	TMP	G
Dibromofluoromethane (S)	118	2	%	78 - 116	SW846 8260B			8/27/18 15:50	TMP	G
Toluene-d8 (S)	110		%	76 - 127	SW846 8260B			8/27/18 15:50	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	22		mg/L	5	SM2320B-2011			8/25/18 10:47	MSA	B
Alkalinity, Total	22	3	mg/L	5	SM2320B-2011			8/25/18 10:47	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			9/6/18 20:52	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	10.2		mg/L	2.0	EPA 300.0			8/22/18 16:01	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/22/18 16:01	CHW	B
Nitrate-N	7.2		mg/L	0.20	EPA 300.0			8/22/18 16:01	CHW	B
pH	6.23	1	pH_Units		S4500HB-11			8/25/18 10:47	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	226		umhos/cm	1	SW846 9050A			8/25/18 10:47	MSA	B
Sulfate	48.6		mg/L	2.0	EPA 300.0			8/22/18 16:01	CHW	B
Total Dissolved Solids	168		mg/L	5	S2540C-11			8/24/18 14:10	BMK	B
Total Organic Carbon (TOC)	0.75		mg/L	0.50	SW846 9060A			8/25/18 23:56	PAG	D
Turbidity	ND		NTU	0.10	SM2130B-2011			8/23/18 06:01	MSA	B

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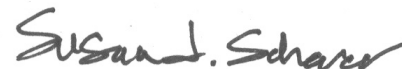
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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877003** Date Collected: 8/21/2018 12:38 Matrix: Ground Water
Sample ID: **FFMP015W** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	11.1		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:55	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:55	SRT	J1
Magnesium, Total	8.9		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:55	SRT	J1
Manganese, Total	0.014		mg/L	0.0056	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:55	SRT	J1
Potassium, Total	1.9		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:55	SRT	J1
Sodium, Total	21.1		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:55	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	58.200		Feet		Field			8/21/18 12:38	BGS	C
Elev Top MW Casing above MSL	576.40		Feet		Field			8/21/18 12:38	BGS	C
Flow Rate	1.95		gal/min		Field			8/21/18 12:38	BGS	C
Ground Water Elevation	518.200		ft/MSL		Field			8/21/18 12:38	BGS	C
pH, Field (SM4500B)	5.170		pH_Units		Field			8/21/18 12:38	BGS	C
Sample Depth	135.000		Feet		Field			8/21/18 12:38	BGS	C
Specific Conductance, Field	261		umhos/cm	1	Field			8/21/18 12:38	BGS	C
Temperature	12.27		Deg. C		Field			8/21/18 12:38	BGS	C
Total Well Depth	149.900		Feet		Field			8/21/18 12:38	BGS	C
Volume in Water Column	134.799		Gallons		Field			8/21/18 12:38	BGS	C
Water Level After Purge	94.910		Feet		Field			8/21/18 12:38	BGS	C
Well Volumes Purged	1.23		Vol		Field			8/21/18 12:38	BGS	C



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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877004** Date Collected: 8/21/2018 13:26 Matrix: Ground Water
Sample ID: **FFMP025W** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/27/18 16:13	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 16:13	TMP	G
<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			8/27/18 16:13	TMP	G
4-Bromofluorobenzene (S)	110		%	79 - 114	SW846 8260B			8/27/18 16:13	TMP	G
Dibromofluoromethane (S)	114		%	78 - 116	SW846 8260B			8/27/18 16:13	TMP	G
Toluene-d8 (S)	109		%	76 - 127	SW846 8260B			8/27/18 16:13	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	35		mg/L	5	SM2320B-2011			8/25/18 11:33	MSA	B
Alkalinity, Total	35	2	mg/L	5	SM2320B-2011			8/25/18 11:33	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			9/6/18 21:08	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	74.3		mg/L	2.0	EPA 300.0			8/22/18 16:18	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/22/18 16:18	CHW	B
Nitrate-N	4.8		mg/L	0.20	EPA 300.0			8/22/18 16:18	CHW	B
pH	6.55	1	pH_Units		S4500HB-11			8/25/18 11:33	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	444		umhos/cm	1	SW846 9050A			8/25/18 11:33	MSA	B
Sulfate	39.9		mg/L	2.0	EPA 300.0			8/22/18 16:18	CHW	B
Total Dissolved Solids	256		mg/L	5	S2540C-11			8/24/18 14:10	BMK	B
Total Organic Carbon (TOC)	1.5		mg/L	0.50	SW846 9060A			8/25/18 23:56	PAG	D
Turbidity	ND		NTU	0.10	SM2130B-2011			8/23/18 06:01	MSA	B

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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877004** Date Collected: 8/21/2018 13:26 Matrix: Ground Water
Sample ID: **FFMP025W** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	28.2		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:59	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:59	SRT	J1
Magnesium, Total	15.6		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:59	SRT	J1
Manganese, Total	0.0061		mg/L	0.0056	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:59	SRT	J1
Potassium, Total	2.2		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:59	SRT	J1
Sodium, Total	24.1		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 11:59	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	23.680		Feet		Field			8/21/18 13:26	BGS	C
Elev Top MW Casing above MSL	476.80		Feet		Field			8/21/18 13:26	BGS	C
Flow Rate	4.20		gal/min		Field			8/21/18 13:26	BGS	C
Ground Water Elevation	453.120		ft/MSL		Field			8/21/18 13:26	BGS	C
pH, Field (SM4500B)	5.090		pH_Units		Field			8/21/18 13:26	BGS	C
Sample Depth	39.000		Feet		Field			8/21/18 13:26	BGS	C
Specific Conductance, Field	467		umhos/cm	1	Field			8/21/18 13:26	BGS	C
Temperature	10.90		Deg. C		Field			8/21/18 13:26	BGS	C
Total Well Depth	41.500		Feet		Field			8/21/18 13:26	BGS	C
Volume in Water Column	26.195		Gallons		Field			8/21/18 13:26	BGS	C
Water Level After Purge	24.730		Feet		Field			8/21/18 13:26	BGS	C
Well Volumes Purged	4.81		Vol		Field			8/21/18 13:26	BGS	C



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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877005** Date Collected: 8/21/2018 15:00 Matrix: Ground Water
Sample ID: **FFMP028W** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/27/18 16:36	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 16:36	TMP	G
<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			8/27/18 16:36	TMP	G
4-Bromofluorobenzene (S)	108		%	79 - 114	SW846 8260B			8/27/18 16:36	TMP	G
Dibromofluoromethane (S)	114		%	78 - 116	SW846 8260B			8/27/18 16:36	TMP	G
Toluene-d8 (S)	107		%	76 - 127	SW846 8260B			8/27/18 16:36	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	31		mg/L	5	SM2320B-2011			8/25/18 11:41	MSA	I
Alkalinity, Total	31	2	mg/L	5	SM2320B-2011			8/25/18 11:41	MSA	I
Ammonia-N	0.267		mg/L	0.100	D6919-09			9/6/18 21:24	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	76.2		mg/L	5.0	EPA 300.0			8/22/18 16:35	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			8/22/18 16:35	CHW	B
Nitrate-N	15.4		mg/L	0.50	EPA 300.0			8/22/18 16:35	CHW	B
pH	6.34	1	pH_Units		S4500HB-11			8/25/18 11:41	MSA	I
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	576		umhos/cm	1	SW846 9050A			8/25/18 11:41	MSA	I
Sulfate	18.4		mg/L	5.0	EPA 300.0			8/22/18 16:35	CHW	B
Total Dissolved Solids	370		mg/L	5	S2540C-11			8/24/18 14:10	BMK	B
Total Organic Carbon (TOC)	1.1		mg/L	0.50	SW846 9060A			8/25/18 23:56	PAG	D
Turbidity	ND		NTU	0.10	SM2130B-2011			8/23/18 06:01	MSA	B

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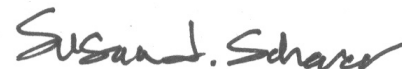
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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877005** Date Collected: 8/21/2018 15:00 Matrix: Ground Water
Sample ID: **FFMP028W** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	42.1		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:03	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:03	SRT	J1
Magnesium, Total	17.8		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:03	SRT	J1
Manganese, Total	0.011		mg/L	0.0056	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:03	SRT	J1
Potassium, Total	2.3		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:03	SRT	J1
Sodium, Total	28.4		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:03	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	5.270		Feet		Field			8/21/18 15:00	BGS	C
Elev Top MW Casing above MSL	465.00		Feet		Field			8/21/18 15:00	BGS	C
Flow Rate	0.97		gal/min		Field			8/21/18 15:00	BGS	C
Ground Water Elevation	459.730		ft/MSL		Field			8/21/18 15:00	BGS	C
pH, Field (SM4500B)	5.080		pH_Units		Field			8/21/18 15:00	BGS	C
Sample Depth	50.000		Feet		Field			8/21/18 15:00	BGS	C
Specific Conductance, Field	601		umhos/cm	1	Field			8/21/18 15:00	BGS	C
Temperature	10.86		Deg. C		Field			8/21/18 15:00	BGS	C
Total Well Depth	60.000		Feet		Field			8/21/18 15:00	BGS	C
Volume in Water Column	80.453		Gallons		Field			8/21/18 15:00	BGS	C
Water Level After Purge	22.770		Feet		Field			8/21/18 15:00	BGS	C
Well Volumes Purged	1.01		Vol		Field			8/21/18 15:00	BGS	C



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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877006** Date Collected: 8/21/2018 15:27 Matrix: Ground Water
Sample ID: **FFMP016W** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/27/18 16:59	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 16:59	TMP	G
<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)	124		%	62 - 133	SW846 8260B			8/27/18 16:59	TMP	G
4-Bromofluorobenzene (S)	108		%	79 - 114	SW846 8260B			8/27/18 16:59	TMP	G
Dibromofluoromethane (S)	118	2	%	78 - 116	SW846 8260B			8/27/18 16:59	TMP	G
Toluene-d8 (S)	109		%	76 - 127	SW846 8260B			8/27/18 16:59	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	33		mg/L	5	SM2320B-2011			8/25/18 11:50	MSA	B
Alkalinity, Total	33	3	mg/L	5	SM2320B-2011			8/25/18 11:50	MSA	B
Ammonia-N	0.206		mg/L	0.100	D6919-09			9/6/18 21:40	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	72.7		mg/L	2.0	EPA 300.0			8/22/18 18:17	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/22/18 18:17	CHW	B
Nitrate-N	6.4		mg/L	0.20	EPA 300.0			8/22/18 18:17	CHW	B
pH	6.48	1	pH_Units		S4500HB-11			8/25/18 11:50	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	450		umhos/cm	1	SW846 9050A			8/25/18 11:50	MSA	B
Sulfate	38.5		mg/L	2.0	EPA 300.0			8/22/18 18:17	CHW	B
Total Dissolved Solids	244		mg/L	5	S2540C-11			8/24/18 14:10	BMK	B
Total Organic Carbon (TOC)	1.3		mg/L	0.50	SW846 9060A			8/25/18 23:56	PAG	D
Turbidity	0.21		NTU	0.10	SM2130B-2011			8/23/18 06:01	MSA	B

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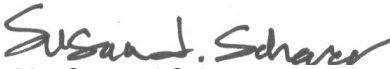
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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877006** Date Collected: 8/21/2018 15:27 Matrix: Ground Water
Sample ID: **FFMP016W** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	31.7		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:13	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:13	SRT	J1
Magnesium, Total	15.8		mg/L	0.11	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:13	SRT	J1
Manganese, Total	0.016		mg/L	0.0056	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:13	SRT	J1
Potassium, Total	2.4		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:13	SRT	J1
Sodium, Total	26.9		mg/L	0.56	SW846 6010C	8/22/18 19:40	AHI	8/23/18 12:13	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	21.390		Feet		Field			8/21/18 15:27	BGS	C
Elev Top MW Casing above MSL	474.60		Feet		Field			8/21/18 15:27	BGS	C
Flow Rate	14.00		gal/min		Field			8/21/18 15:27	BGS	C
Ground Water Elevation	453.210		ft/MSL		Field			8/21/18 15:27	BGS	C
pH, Field (SM4500B)	5.340		pH_Units		Field			8/21/18 15:27	BGS	C
Sample Depth	135.000		Feet		Field			8/21/18 15:27	BGS	C
Specific Conductance, Field	470		umhos/cm	1	Field			8/21/18 15:27	BGS	C
Temperature	12.78		Deg. C		Field			8/21/18 15:27	BGS	C
Total Well Depth	149.800		Feet		Field			8/21/18 15:27	BGS	C
Volume in Water Column	335.150		Gallons		Field			8/21/18 15:27	BGS	C



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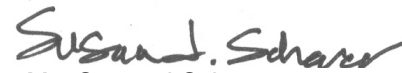
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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877007** Date Collected: 8/21/2018 15:41 Matrix: Ground Water
Sample ID: **FIELD BLANK** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/27/18 14:41	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 14:41	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)	120		%	62 - 133	SW846 8260B			8/27/18 14:41	TMP	A
4-Bromofluorobenzene (S)	108		%	79 - 114	SW846 8260B			8/27/18 14:41	TMP	A
Dibromofluoromethane (S)	114		%	78 - 116	SW846 8260B			8/27/18 14:41	TMP	A
Toluene-d8 (S)	107		%	76 - 127	SW846 8260B			8/27/18 14:41	TMP	A



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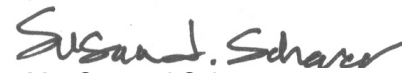
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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333877008** Date Collected: 8/21/2018 16:30 Matrix: Ground Water
Sample ID: **TRIP BLANK** Date Received: 8/21/2018 16:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/27/18 14:19	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/27/18 14:19	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)	119		%	62 - 133	SW846 8260B			8/27/18 14:19	TMP	A
4-Bromofluorobenzene (S)	112		%	79 - 114	SW846 8260B			8/27/18 14:19	TMP	A
Dibromofluoromethane (S)	115		%	78 - 116	SW846 8260B			8/27/18 14:19	TMP	A
Toluene-d8 (S)	108		%	76 - 127	SW846 8260B			8/27/18 14:19	TMP	A



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ANALYTICAL RESULTS

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2333877001	1	FFMP30RW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2333877001	2	FFMP30RW	SW846 8260B	Dibromofluoromethane
The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 117 and the control limits were 78 to 116. This result was reported at a dilution of 1.				
2333877001	3	FFMP30RW	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2333877002	1	FFMP04AW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2333877002	2	FFMP04AW	SW846 8260B	Dibromofluoromethane
The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 117 and the control limits were 78 to 116. This result was reported at a dilution of 1.				
2333877002	3	FFMP04AW	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2333877003	1	FFMP015W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2333877003	2	FFMP015W	SW846 8260B	Dibromofluoromethane
The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 118 and the control limits were 78 to 116. This result was reported at a dilution of 1.				
2333877003	3	FFMP015W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2333877004	1	FFMP025W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2333877004	2	FFMP025W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2333877005	1	FFMP028W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2333877005	2	FFMP028W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2333877006	1	FFMP016W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2333877006	2	FFMP016W	SW846 8260B	Dibromofluoromethane
The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 118 and the control limits were 78 to 116. This result was reported at a dilution of 1.				
2333877006	3	FFMP016W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2333877001	FFMP30RW	D6919-09	
2333877001	FFMP30RW	EPA 300.0	
2333877001	FFMP30RW	EPA 410.4	
2333877001	FFMP30RW	Field	
2333877001	FFMP30RW	S2540C-11	
2333877001	FFMP30RW	S4500HB-11	
2333877001	FFMP30RW	SM2130B-2011	
2333877001	FFMP30RW	SM2320B-2011	
2333877001	FFMP30RW	SW846 6010C	SW846 3015
2333877001	FFMP30RW	SW846 8260B	
2333877001	FFMP30RW	SW846 9050A	
2333877001	FFMP30RW	SW846 9060A	
2333877001	FFMP30RW	SW846 9066	420.4/9066
2333877002	FFMP04AW	D6919-09	
2333877002	FFMP04AW	EPA 300.0	
2333877002	FFMP04AW	EPA 410.4	
2333877002	FFMP04AW	Field	
2333877002	FFMP04AW	S2540C-11	
2333877002	FFMP04AW	S4500HB-11	
2333877002	FFMP04AW	SM2130B-2011	
2333877002	FFMP04AW	SM2320B-2011	
2333877002	FFMP04AW	SW846 6010C	SW846 3015
2333877002	FFMP04AW	SW846 8260B	
2333877002	FFMP04AW	SW846 9050A	
2333877002	FFMP04AW	SW846 9060A	
2333877002	FFMP04AW	SW846 9066	420.4/9066
2333877003	FFMP015W	D6919-09	
2333877003	FFMP015W	EPA 300.0	
2333877003	FFMP015W	EPA 410.4	
2333877003	FFMP015W	Field	
2333877003	FFMP015W	S2540C-11	
2333877003	FFMP015W	S4500HB-11	
2333877003	FFMP015W	SM2130B-2011	
2333877003	FFMP015W	SM2320B-2011	
2333877003	FFMP015W	SW846 6010C	SW846 3015
2333877003	FFMP015W	SW846 8260B	
2333877003	FFMP015W	SW846 9050A	
2333877003	FFMP015W	SW846 9060A	
2333877003	FFMP015W	SW846 9066	420.4/9066
2333877004	FFMP025W	D6919-09	
2333877004	FFMP025W	EPA 300.0	
2333877004	FFMP025W	EPA 410.4	
2333877004	FFMP025W	Field	
2333877004	FFMP025W	S2540C-11	
2333877004	FFMP025W	S4500HB-11	
2333877004	FFMP025W	SM2130B-2011	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2333877 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2333877004	FFMP025W	SM2320B-2011	
2333877004	FFMP025W	SW846 6010C	SW846 3015
2333877004	FFMP025W	SW846 8260B	
2333877004	FFMP025W	SW846 9050A	
2333877004	FFMP025W	SW846 9060A	
2333877004	FFMP025W	SW846 9066	420.4/9066
2333877005	FFMP028W	D6919-09	
2333877005	FFMP028W	EPA 300.0	
2333877005	FFMP028W	EPA 410.4	
2333877005	FFMP028W	Field	
2333877005	FFMP028W	S2540C-11	
2333877005	FFMP028W	S4500HB-11	
2333877005	FFMP028W	SM2130B-2011	
2333877005	FFMP028W	SM2320B-2011	
2333877005	FFMP028W	SW846 6010C	SW846 3015
2333877005	FFMP028W	SW846 8260B	
2333877005	FFMP028W	SW846 9050A	
2333877005	FFMP028W	SW846 9060A	
2333877005	FFMP028W	SW846 9066	420.4/9066
2333877006	FFMP016W	D6919-09	
2333877006	FFMP016W	EPA 300.0	
2333877006	FFMP016W	EPA 410.4	
2333877006	FFMP016W	Field	
2333877006	FFMP016W	S2540C-11	
2333877006	FFMP016W	S4500HB-11	
2333877006	FFMP016W	SM2130B-2011	
2333877006	FFMP016W	SM2320B-2011	
2333877006	FFMP016W	SW846 6010C	SW846 3015
2333877006	FFMP016W	SW846 8260B	
2333877006	FFMP016W	SW846 9050A	
2333877006	FFMP016W	SW846 9060A	
2333877006	FFMP016W	SW846 9066	420.4/9066
2333877007	FIELD BLANK	SW846 8260B	
2333877008	TRIP BLANK	SW846 8260B	

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

Client Name: Lancaster County Solid Waste MA

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

Lancaster, PA 17604

Contact: Mark Reider

Phone#: (717) 735-0193

Project Name#: Frey Farm Quarterly (GWMP)

Bill To: Lancaster County Solid Waste MA 524435 #2021

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

Date Required: _____ Approved By: _____

Email? -Y mreider@LCSWMA.com

Fax? -Y No: (717) 397-9973

Sample Description/Location (as it will appear on the lab report)	Sample Date		Time	Matrix	Enter Number of Containers Per Sample or Field Results Below.															
	1	2			3	4	5	6	7	8	9	10								
1. FFMP03RW		8-21-18	0942	G GW	2	1	2	X	X	1	1	1	1	1	1	1	1	1	1	1
2. FFMP04AW			1007																	
3. FFMP015W			1238																	
4. FFMP025W			1326																	
5. FFMP028W			1608																	
6. FFMP016W			1527																	
7. Field Blank			1541																	
8. Trip Blank			1630																	
9.																				
10.																				

Project Comments:

Relinquished By/Company Name: ALS Date: 8-21-18 Time: 1600

Received By/Company Name: Jessie AS Date: 8/24/18 Time: 1630

LOGGED BY (signature): _____

REVIEWED BY (signature): _____

Standard CLP-like USACE

Deliverables: USACE Navy

Reportable to PADEP? Yes No

PWSID # _____

EDDS: Format Type _____

Receipt Information (completed by Receiving Lab)

Cooler Temp: _____ Therm ID: 359

No. of Coolers: _____ Y N Initial GM

Custody Seals Present?

(if present) Seals Intact?

Received on Ico?

COC/Labels Complete/Accurate?

Cont. in Good Cond.?

Correct Containers?

Correct Sample Volumes?

Correct Preservation?

HeadSpace/Volatiles?

Courier Tracking #: _____

Sample/COC Comments: _____

ANALYSES/METHOD REQUESTED	Container Type	AG	AN	CG	PL	PL	PL	PL	PL
TOC	40 ml	HCl	H2SO4	HCl	500 ml	500 ml	500 ml	500 ml	500 ml
O-H	40 ml	H2SO4	HCl	H2SO4	500 ml	500 ml	500 ml	500 ml	500 ml
VOC - Form 190	40 ml	HCl	H2SO4	HCl	500 ml	500 ml	500 ml	500 ml	500 ml
Field Measurements									
Sample Depth for AUX Data									
NH3-N, COD									
Metals: Fe, Mn, Na, Ca, K, Mg									
PH, Cl, SPC, F, SO4, TDS, NO3, Turb									
Alkalinity Bicarbonate									

ALS Field Services: Pickup Labor

Composite_Sampling Rental_Equipment Other: _____

Special Processing: USACE Navy

State Samples Collected In: NY NJ PA NC

Sample Disposal: Lab Special



1 of 1

COC
ALS



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

September 5, 2018

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

Certificate of Analysis

Project Name:	FREY FARM	Workorder:	2333582
Purchase Order:	PO1000126	Workorder ID:	3RD QTR 2018 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Monday, August 20, 2018.

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

If you have any questions regarding this certificate of analysis, please contact Ms. Susan J Scherer (Project Coordinator) at (717) 944-5541.

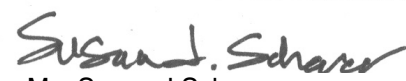
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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


Ms. Susan J Scherer
Project Coordinator

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Re: Power Outage at ALS – Middletown Facility

To Whom It May Concern,

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

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

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

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

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

Sincerely,



Scott Brunk

Laboratory Director

ALS Environmental, Middletown

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SAMPLE SUMMARY

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2333582001	FFMP029W	Ground Water	8/20/2018 09:49	8/20/2018 17:14	Mr. Brian G Shade
2333582002	FFMP018W	Ground Water	8/20/2018 10:15	8/20/2018 17:14	Mr. Brian G Shade
2333582003	FFMP019W	Ground Water	8/20/2018 11:04	8/20/2018 17:14	Mr. Brian G Shade
2333582004	FFMP005W	Ground Water	8/20/2018 12:29	8/20/2018 17:14	Mr. Brian G Shade
2333582005	FFMP26RW	Ground Water	8/20/2018 13:23	8/20/2018 17:14	Mr. Brian G Shade
2333582006	FFMP031W	Ground Water	8/20/2018 14:43	8/20/2018 17:14	Mr. Brian G Shade
2333582007	FFMP032W	Ground Water	8/20/2018 16:00	8/20/2018 17:14	Mr. Brian G Shade
2333582008	FIELD BLANK	Ground Water	8/20/2018 16:11	8/20/2018 17:14	Mr. Brian G Shade
2333582009	TRIP BLANK	Ground Water	8/20/2018 17:14	8/20/2018 17:14	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2333582 3RD QTR 2018 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: 2333582 3RD QTR 2018 GWMP-FORM 19Q

 Lab ID: **2333582001** Date Collected: 8/20/2018 09:49 Matrix: Ground Water
 Sample ID: **FFMP029W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
1,1-Dichloroethane	ND	7	ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
1,1-Dichloroethene	ND	3	ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
trans-1,2-Dichloroethene	ND	5,6	ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
Methylene Chloride	ND	4	ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/24/18 14:26	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
Trichloroethene	ND	8	ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 14:26	TMP	G
<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)	118		%	62 - 133	SW846 8260B			8/24/18 14:26	TMP	G
4-Bromofluorobenzene (S)	105		%	79 - 114	SW846 8260B			8/24/18 14:26	TMP	G
Dibromofluoromethane (S)	118	2	%	78 - 116	SW846 8260B			8/24/18 14:26	TMP	G
Toluene-d8 (S)	99.5		%	76 - 127	SW846 8260B			8/24/18 14:26	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	11		mg/L	5	SM2320B-2011			8/24/18 19:36	MSA	B
Alkalinity, Total	11	9	mg/L	5	SM2320B-2011			8/24/18 19:36	MSA	B
Ammonia-N	0.183		mg/L	0.100	D6919-09			9/4/18 20:08	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	31.6		mg/L	2.0	EPA 300.0			8/21/18 10:51	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/21/18 10:51	CHW	B
Nitrate-N	3.2		mg/L	0.20	EPA 300.0			8/21/18 10:51	CHW	B
pH	6.13	1	pH_Units		S4500HB-11			8/24/18 19:36	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/27/18 19:13	RXB	8/28/18 13:12	RXB	F
Specific Conductance	141		umhos/cm	1	SW846 9050A			8/24/18 19:36	MSA	B
Sulfate	ND		mg/L	2.0	EPA 300.0			8/21/18 10:51	CHW	B
Total Dissolved Solids	46	10	mg/L	5	S2540C-11			8/28/18 14:30	BMK	B
Total Organic Carbon (TOC)	0.52		mg/L	0.50	SW846 9060A			8/24/18 18:36	PAG	D
Turbidity	0.82		NTU	0.10	SM2130B-2011			8/22/18 04:00	MSA	B

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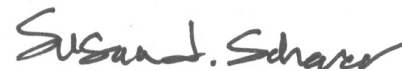
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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582001** Date Collected: 8/20/2018 09:49 Matrix: Ground Water
Sample ID: **FFMP029W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	5.6		mg/L	0.11	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:02	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:02	SRT	J1
Magnesium, Total	4.9		mg/L	0.11	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:02	SRT	J1
Manganese, Total	0.015		mg/L	0.0056	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:02	SRT	J1
Potassium, Total	1.6		mg/L	0.56	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:02	SRT	J1
Sodium, Total	13.0		mg/L	0.56	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:02	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	36.510		Feet		Field			8/20/18 09:39	BGS	C
Elev Top MW Casing above MSL	477.30		Feet		Field			8/20/18 09:39	BGS	C
Flow Rate	2.56		gal/min		Field			8/20/18 09:39	BGS	C
Ground Water Elevation	440.790		ft/MSL		Field			8/20/18 09:39	BGS	C
pH, Field (SM4500B)	4.040		pH_Units		Field			8/20/18 09:39	BGS	C
Sample Depth	55.000		Feet		Field			8/20/18 09:39	BGS	C
Specific Conductance, Field	163		umhos/cm	1	Field			8/20/18 09:39	BGS	C
Temperature	12.24		Deg. C		Field			8/20/18 09:39	BGS	C
Total Well Depth	60.500		Feet		Field			8/20/18 09:39	BGS	C
Volume in Water Column	35.265		Gallons		Field			8/20/18 09:39	BGS	C
Water Level After Purge	44.230		Feet		Field			8/20/18 09:39	BGS	C
Well Volumes Purged	2.91		Vol		Field			8/20/18 09:39	BGS	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

 Lab ID: **2333582002** Date Collected: 8/20/2018 10:15 Matrix: Ground Water
 Sample ID: **FFMP018W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/24/18 14:49	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 14:49	TMP	G
<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)	118		%	62 - 133	SW846 8260B			8/24/18 14:49	TMP	G
4-Bromofluorobenzene (S)	109		%	79 - 114	SW846 8260B			8/24/18 14:49	TMP	G
Dibromofluoromethane (S)	116		%	78 - 116	SW846 8260B			8/24/18 14:49	TMP	G
Toluene-d8 (S)	101		%	76 - 127	SW846 8260B			8/24/18 14:49	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	24		mg/L	5	SM2320B-2011			8/24/18 21:58	MSA	B
Alkalinity, Total	24	2	mg/L	5	SM2320B-2011			8/24/18 21:58	MSA	B
Ammonia-N	0.842		mg/L	0.100	D6919-09			9/4/18 20:25	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	142		mg/L	5.0	EPA 300.0			8/21/18 11:08	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			8/21/18 11:08	CHW	B
Nitrate-N	5.7		mg/L	0.50	EPA 300.0			8/21/18 11:08	CHW	B
pH	6.19	1	pH_Units		S4500HB-11			8/24/18 21:58	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/27/18 19:13	RXB	8/28/18 13:12	RXB	F
Specific Conductance	696		umhos/cm	1	SW846 9050A			8/24/18 21:58	MSA	B
Sulfate	55.1		mg/L	5.0	EPA 300.0			8/21/18 11:08	CHW	B
Total Dissolved Solids	350		mg/L	5	S2540C-11			8/23/18 15:10	BMK	B
Total Organic Carbon (TOC)	1.4		mg/L	0.50	SW846 9060A			8/24/18 18:36	PAG	D
Turbidity	ND		NTU	0.10	SM2130B-2011			8/22/18 04:00	MSA	B

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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582003** Date Collected: 8/20/2018 11:04 Matrix: Ground Water
Sample ID: **FFMP019W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/24/18 15:11	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 15:11	TMP	G
<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)	117		%	62 - 133	SW846 8260B			8/24/18 15:11	TMP	G
4-Bromofluorobenzene (S)	108		%	79 - 114	SW846 8260B			8/24/18 15:11	TMP	G
Dibromofluoromethane (S)	117	2	%	78 - 116	SW846 8260B			8/24/18 15:11	TMP	G
Toluene-d8 (S)	102		%	76 - 127	SW846 8260B			8/24/18 15:11	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	75		mg/L	5	SM2320B-2011			8/24/18 22:31	MSA	B
Alkalinity, Total	75	3	mg/L	5	SM2320B-2011			8/24/18 22:31	MSA	B
Ammonia-N	0.130		mg/L	0.100	D6919-09			9/4/18 20:41	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	80.6		mg/L	2.0	EPA 300.0			8/21/18 11:25	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/21/18 11:25	CHW	B
Nitrate-N	0.42		mg/L	0.20	EPA 300.0			8/21/18 11:25	CHW	B
pH	7.02	1	pH_Units		S4500HB-11			8/24/18 22:31	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/27/18 19:13	RXB	8/28/18 13:12	RXB	F
Specific Conductance	438		umhos/cm	1	SW846 9050A			8/24/18 22:31	MSA	B
Sulfate	20.1		mg/L	2.0	EPA 300.0			8/21/18 11:25	CHW	B
Total Dissolved Solids	275		mg/L	5	S2540C-11			8/23/18 15:30	BMK	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			8/24/18 18:36	PAG	D
Turbidity	ND		NTU	0.10	SM2130B-2011			8/22/18 04:00	MSA	B

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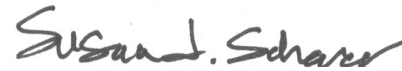
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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582003** Date Collected: 8/20/2018 11:04 Matrix: Ground Water
Sample ID: **FFMP019W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	56.8		mg/L	0.11	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:09	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:09	SRT	J1
Magnesium, Total	5.4		mg/L	0.11	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:09	SRT	J1
Manganese, Total	ND		mg/L	0.0056	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:09	SRT	J1
Potassium, Total	1.0		mg/L	0.56	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:09	SRT	J1
Sodium, Total	10.3		mg/L	0.56	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:09	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	26.080		Feet		Field			8/20/18 11:04	BGS	C
Elev Top MW Casing above MSL	471.95		Feet		Field			8/20/18 11:04	BGS	C
Flow Rate	4.41		gal/min		Field			8/20/18 11:04	BGS	C
Ground Water Elevation	445.870		ft/MSL		Field			8/20/18 11:04	BGS	C
pH, Field (SM4500B)	5.980		pH_Units		Field			8/20/18 11:04	BGS	C
Sample Depth	49.000		Feet		Field			8/20/18 11:04	BGS	C
Specific Conductance, Field	456		umhos/cm	1	Field			8/20/18 11:04	BGS	C
Temperature	11.75		Deg. C		Field			8/20/18 11:04	BGS	C
Total Well Depth	132.790		Feet		Field			8/20/18 11:04	BGS	C
Volume in Water Column	69.362		Gallons		Field			8/20/18 11:04	BGS	C
Water Level After Purge	33.530		Feet		Field			8/20/18 11:04	BGS	C
Well Volumes Purged	2.86		Vol		Field			8/20/18 11:04	BGS	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582004** Date Collected: 8/20/2018 12:29 Matrix: Ground Water
Sample ID: **FFMP005W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/24/18 15:34	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 15:34	TMP	G
<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)	117		%	62 - 133	SW846 8260B			8/24/18 15:34	TMP	G
4-Bromofluorobenzene (S)	106		%	79 - 114	SW846 8260B			8/24/18 15:34	TMP	G
Dibromofluoromethane (S)	116		%	78 - 116	SW846 8260B			8/24/18 15:34	TMP	G
Toluene-d8 (S)	99.6		%	76 - 127	SW846 8260B			8/24/18 15:34	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	45		mg/L	5	SM2320B-2011			8/24/18 22:39	MSA	B
Alkalinity, Total	45	2	mg/L	5	SM2320B-2011			8/24/18 22:39	MSA	B
Ammonia-N	0.135		mg/L	0.100	D6919-09			9/4/18 20:57	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	303		mg/L	5.0	EPA 300.0			8/22/18 07:37	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/21/18 11:42	CHW	B
Nitrate-N	4.2		mg/L	0.20	EPA 300.0			8/21/18 11:42	CHW	B
pH	6.12	1	pH_Units		S4500HB-11			8/24/18 22:39	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/27/18 19:13	RXB	8/28/18 13:12	RXB	F
Specific Conductance	1230		umhos/cm	1	SW846 9050A			8/24/18 22:39	MSA	B
Sulfate	70.8		mg/L	2.0	EPA 300.0			8/21/18 11:42	CHW	B
Total Dissolved Solids	807		mg/L	5	S2540C-11			8/23/18 15:30	BMK	B
Total Organic Carbon (TOC)	1.4		mg/L	0.50	SW846 9060A			8/24/18 18:36	PAG	D
Turbidity	ND		NTU	0.10	SM2130B-2011			8/22/18 04:00	MSA	B

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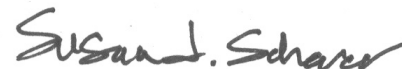
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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582004** Date Collected: 8/20/2018 12:29 Matrix: Ground Water
Sample ID: **FFMP005W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	103		mg/L	0.11	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:13	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:13	SRT	J1
Magnesium, Total	25.5		mg/L	0.11	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:13	SRT	J1
Manganese, Total	0.086		mg/L	0.0056	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:13	SRT	J1
Potassium, Total	3.2		mg/L	0.56	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:13	SRT	J1
Sodium, Total	66.7		mg/L	0.56	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:13	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	58.600		Feet		Field			8/20/18 12:29	BGS	C
Elev Top MW Casing above MSL	537.40		Feet		Field			8/20/18 12:29	BGS	C
Flow Rate	2.68		gal/min		Field			8/20/18 12:29	BGS	C
Ground Water Elevation	478.800		ft/MSL		Field			8/20/18 12:29	BGS	C
pH, Field (SM4500B)	5.110		pH_Units		Field			8/20/18 12:29	BGS	C
Sample Depth	135.000		Feet		Field			8/20/18 12:29	BGS	C
Specific Conductance, Field	1243		umhos/cm	1	Field			8/20/18 12:29	BGS	C
Temperature	11.24		Deg. C		Field			8/20/18 12:29	BGS	C
Total Well Depth	149.700		Feet		Field			8/20/18 12:29	BGS	C
Volume in Water Column	133.917		Gallons		Field			8/20/18 12:29	BGS	C
Water Level After Purge	76.340		Feet		Field			8/20/18 12:29	BGS	C
Well Volumes Purged	1.40		Vol		Field			8/20/18 12:29	BGS	C



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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

 Lab ID: **2333582005** Date Collected: 8/20/2018 13:23 Matrix: Ground Water
 Sample ID: **FFMP26RW** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/24/18 15:57	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 15:57	TMP	G
<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)	116		%	62 - 133	SW846 8260B			8/24/18 15:57	TMP	G
4-Bromofluorobenzene (S)	108		%	79 - 114	SW846 8260B			8/24/18 15:57	TMP	G
Dibromofluoromethane (S)	113		%	78 - 116	SW846 8260B			8/24/18 15:57	TMP	G
Toluene-d8 (S)	98.6		%	76 - 127	SW846 8260B			8/24/18 15:57	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	43		mg/L	5	SM2320B-2011			8/24/18 22:48	MSA	B
Alkalinity, Total	43	2	mg/L	5	SM2320B-2011			8/24/18 22:48	MSA	B
Ammonia-N	0.118		mg/L	0.100	D6919-09			9/4/18 21:13	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	280		mg/L	5.0	EPA 300.0			8/21/18 12:50	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			8/21/18 12:50	CHW	B
Nitrate-N	2.6		mg/L	0.50	EPA 300.0			8/21/18 12:50	CHW	B
pH	5.94	1	pH_Units		S4500HB-11			8/24/18 22:48	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/27/18 19:13	RXB	8/28/18 13:12	RXB	F
Specific Conductance	1220		umhos/cm	1	SW846 9050A			8/24/18 22:48	MSA	B
Sulfate	88.8		mg/L	5.0	EPA 300.0			8/21/18 12:50	CHW	B
Total Dissolved Solids	713		mg/L	5	S2540C-11			8/23/18 15:30	BMK	B
Total Organic Carbon (TOC)	1.5		mg/L	0.50	SW846 9060A			8/24/18 18:36	PAG	D
Turbidity	0.26		NTU	0.10	SM2130B-2011			8/22/18 04:00	MSA	B

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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582006** Date Collected: 8/20/2018 14:43 Matrix: Ground Water
Sample ID: **FFMP031W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/24/18 16:20	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 16:20	TMP	G
<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			8/24/18 16:20	TMP	G
4-Bromofluorobenzene (S)	106		%	79 - 114	SW846 8260B			8/24/18 16:20	TMP	G
Dibromofluoromethane (S)	121	2	%	78 - 116	SW846 8260B			8/24/18 16:20	TMP	G
Toluene-d8 (S)	100		%	76 - 127	SW846 8260B			8/24/18 16:20	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	53		mg/L	5	SM2320B-2011			8/24/18 22:57	MSA	B
Alkalinity, Total	53	3	mg/L	5	SM2320B-2011			8/24/18 22:57	MSA	B
Ammonia-N	0.884		mg/L	0.100	D6919-09			9/4/18 22:01	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/23/18 15:36	AK	A
Chloride	24.9		mg/L	2.0	EPA 300.0			8/21/18 13:07	CHW	B
Fluoride	0.26		mg/L	0.20	EPA 300.0			8/21/18 13:07	CHW	B
Nitrate-N	ND		mg/L	0.20	EPA 300.0			8/21/18 13:07	CHW	B
pH	7.19	1	pH_Units		S4500HB-11			8/24/18 22:57	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/27/18 19:13	RXB	8/28/18 13:12	RXB	F
Specific Conductance	254		umhos/cm	1	SW846 9050A			8/24/18 22:57	MSA	B
Sulfate	49.7		mg/L	2.0	EPA 300.0			8/21/18 13:07	CHW	B
Total Dissolved Solids	186		mg/L	5	S2540C-11			8/23/18 15:30	BMK	B
Total Organic Carbon (TOC)	0.63		mg/L	0.50	SW846 9060A			8/24/18 18:36	PAG	D
Turbidity	12.8		NTU	0.10	SM2130B-2011			8/22/18 04:00	MSA	B

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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582007** Date Collected: 8/20/2018 16:00 Matrix: Ground Water
Sample ID: **FFMP032W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/24/18 16:43	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 16:43	TMP	G
<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)	118		%	62 - 133	SW846 8260B			8/24/18 16:43	TMP	G
4-Bromofluorobenzene (S)	106		%	79 - 114	SW846 8260B			8/24/18 16:43	TMP	G
Dibromofluoromethane (S)	119	2	%	78 - 116	SW846 8260B			8/24/18 16:43	TMP	G
Toluene-d8 (S)	100		%	76 - 127	SW846 8260B			8/24/18 16:43	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	80		mg/L	5	SM2320B-2011			8/24/18 23:07	MSA	B
Alkalinity, Total	80	3	mg/L	5	SM2320B-2011			8/24/18 23:07	MSA	B
Ammonia-N	0.981		mg/L	0.100	D6919-09			9/4/18 22:17	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			8/28/18 21:49	AK	A
Chloride	22.7		mg/L	2.0	EPA 300.0			8/21/18 13:24	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			8/21/18 13:24	CHW	B
Nitrate-N	ND		mg/L	0.20	EPA 300.0			8/21/18 13:24	CHW	B
pH	7.15	1	pH_Units		S4500HB-11			8/24/18 23:07	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	8/29/18 13:40	RXB	8/30/18 08:24	C_D	F
Specific Conductance	185		umhos/cm	1	SW846 9050A			8/24/18 23:07	MSA	B
Sulfate	ND		mg/L	2.0	EPA 300.0			8/21/18 13:24	CHW	B
Total Dissolved Solids	92		mg/L	5	S2540C-11			8/23/18 15:30	BMK	B
Total Organic Carbon (TOC)	0.65		mg/L	0.50	SW846 9060A			8/24/18 18:36	PAG	D
Turbidity	127		NTU	0.10	SM2130B-2011			8/22/18 04:00	MSA	B

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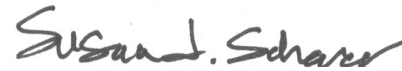
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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582007** Date Collected: 8/20/2018 16:00 Matrix: Ground Water
Sample ID: **FFMP032W** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	16.0		mg/L	0.11	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:24	SRT	J1
Iron, Total	9.2		mg/L	0.067	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:24	SRT	J1
Magnesium, Total	4.9		mg/L	0.11	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:24	SRT	J1
Manganese, Total	0.72		mg/L	0.0056	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:24	SRT	J1
Potassium, Total	1.3		mg/L	0.56	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:24	SRT	J1
Sodium, Total	13.9		mg/L	0.56	SW846 6010C	8/21/18 11:09	DXC	8/22/18 15:24	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	50.190		Feet		Field			8/20/18 16:00	BGS	C
Elev Top MW Casing above MSL	594.09		Feet		Field			8/20/18 16:00	BGS	C
Flow Rate	0.59		gal/min		Field			8/20/18 16:00	BGS	C
Ground Water Elevation	543.900		ft/MSL		Field			8/20/18 16:00	BGS	C
pH, Field (SM4500B)	6.380		pH_Units		Field			8/20/18 16:00	BGS	C
Sample Depth	62.000		Feet		Field			8/20/18 16:00	BGS	C
Specific Conductance, Field	236		umhos/cm	1	Field			8/20/18 16:00	BGS	C
Temperature	13.92		Deg. C		Field			8/20/18 16:00	BGS	C
Total Well Depth	77.600		Feet		Field			8/20/18 16:00	BGS	C
Volume in Water Column	40.293		Gallons		Field			8/20/18 16:00	BGS	C
Water Level After Purge	56.080		Feet		Field			8/20/18 16:00	BGS	C
Well Volumes Purged	0.88		Vol		Field			8/20/18 16:00	BGS	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582008** Date Collected: 8/20/2018 16:11 Matrix: Ground Water
Sample ID: **FIELD BLANK** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/24/18 13:40	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 13:40	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)	112		%	62 - 133	SW846 8260B			8/24/18 13:40	TMP	A
4-Bromofluorobenzene (S)	111		%	79 - 114	SW846 8260B			8/24/18 13:40	TMP	A
Dibromofluoromethane (S)	112		%	78 - 116	SW846 8260B			8/24/18 13:40	TMP	A
Toluene-d8 (S)	101		%	76 - 127	SW846 8260B			8/24/18 13:40	TMP	A



Ms. Susan J Scherer
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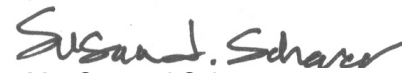
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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID: **2333582009** Date Collected: 8/20/2018 17:14 Matrix: Ground Water
Sample ID: **TRIP BLANK** Date Received: 8/20/2018 17:14

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			8/24/18 14:03	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			8/24/18 14:03	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)	114		%	62 - 133	SW846 8260B			8/24/18 14:03	TMP	A
4-Bromofluorobenzene (S)	107		%	79 - 114	SW846 8260B			8/24/18 14:03	TMP	A
Dibromofluoromethane (S)	114		%	78 - 116	SW846 8260B			8/24/18 14:03	TMP	A
Toluene-d8 (S)	98.2		%	76 - 127	SW846 8260B			8/24/18 14:03	TMP	A



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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2333582001	1	FFMP029W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2333582001	2	FFMP029W	SW846 8260B	Dibromofluoromethane
The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 118 and the control limits were 78 to 116. This result was reported at a dilution of 1.				
2333582001	3	FFMP029W	SW846 8260B	1,1-Dichloroethene
The QC sample type MS for method SW846 8260B was outside the control limits for the analyte 1,1-Dichloroethene. The % Recovery was reported as 131 and the control limits were 63 to 128.				
2333582001	4	FFMP029W	SW846 8260B	Methylene Chloride
The QC sample type MS for method SW846 8260B was outside the control limits for the analyte Methylene Chloride. The % Recovery was reported as 122 and the control limits were 76 to 121.				
2333582001	5	FFMP029W	SW846 8260B	trans-1,2-Dichloroethene
The QC sample type MS for method SW846 8260B was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 137 and the control limits were 71 to 122.				
2333582001	6	FFMP029W	SW846 8260B	trans-1,2-Dichloroethene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 130 and the control limits were 71 to 122.				
2333582001	7	FFMP029W	SW846 8260B	1,1-Dichloroethane
The QC sample type MS for method SW846 8260B was outside the control limits for the analyte 1,1-Dichloroethane. The % Recovery was reported as 130 and the control limits were 78 to 124.				
2333582001	8	FFMP029W	SW846 8260B	Trichloroethene
The QC sample type MS for method SW846 8260B was outside the control limits for the analyte Trichloroethene. The % Recovery was reported as 127 and the control limits were 77 to 124.				
2333582001	9	FFMP029W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2333582001	10	FFMP029W	S2540C-11	Total Dissolved Solids
The sample was originally run within hold time, but required further analysis that exceeded hold time.				
2333582002	1	FFMP018W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2333582002	2	FFMP018W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2333582003	1	FFMP019W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2333582003	2	FFMP019W	SW846 8260B	Dibromofluoromethane
The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 117 and the control limits were 78 to 116. This result was reported at a dilution of 1.				
2333582003	3	FFMP019W	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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ANALYTICAL RESULTS

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

2333582004	1	FFMP005W	S4500HB-11	pH
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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.

2333582004	2	FFMP005W	SM2320B-2011	Alkalinity, Total
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The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO₃/L.

2333582005	1	FFMP26RW	S4500HB-11	pH
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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.

2333582005	2	FFMP26RW	SM2320B-2011	Alkalinity, Total
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The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO₃/L.

2333582006	1	FFMP031W	S4500HB-11	pH
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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.

2333582006	2	FFMP031W	SW846 8260B	Dibromofluoromethane
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The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 121 and the control limits were 78 to 116. This result was reported at a dilution of 1.

2333582006	3	FFMP031W	SM2320B-2011	Alkalinity, Total
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The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO₃/L.

2333582007	1	FFMP032W	S4500HB-11	pH
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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.

2333582007	2	FFMP032W	SW846 8260B	Dibromofluoromethane
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The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 119 and the control limits were 78 to 116. This result was reported at a dilution of 1.

2333582007	3	FFMP032W	SM2320B-2011	Alkalinity, Total
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The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO₃/L.

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2333582001	FFMP029W	D6919-09	
2333582001	FFMP029W	EPA 300.0	
2333582001	FFMP029W	EPA 410.4	
2333582001	FFMP029W	Field	
2333582001	FFMP029W	S2540C-11	
2333582001	FFMP029W	S4500HB-11	
2333582001	FFMP029W	SM2130B-2011	
2333582001	FFMP029W	SM2320B-2011	
2333582001	FFMP029W	SW846 6010C	SW846 3015
2333582001	FFMP029W	SW846 8260B	
2333582001	FFMP029W	SW846 9050A	
2333582001	FFMP029W	SW846 9060A	
2333582001	FFMP029W	SW846 9066	420.4/9066
2333582002	FFMP018W	D6919-09	
2333582002	FFMP018W	EPA 300.0	
2333582002	FFMP018W	EPA 410.4	
2333582002	FFMP018W	Field	
2333582002	FFMP018W	S2540C-11	
2333582002	FFMP018W	S4500HB-11	
2333582002	FFMP018W	SM2130B-2011	
2333582002	FFMP018W	SM2320B-2011	
2333582002	FFMP018W	SW846 6010C	SW846 3015
2333582002	FFMP018W	SW846 8260B	
2333582002	FFMP018W	SW846 9050A	
2333582002	FFMP018W	SW846 9060A	
2333582002	FFMP018W	SW846 9066	420.4/9066
2333582003	FFMP019W	D6919-09	
2333582003	FFMP019W	EPA 300.0	
2333582003	FFMP019W	EPA 410.4	
2333582003	FFMP019W	Field	
2333582003	FFMP019W	S2540C-11	
2333582003	FFMP019W	S4500HB-11	
2333582003	FFMP019W	SM2130B-2011	
2333582003	FFMP019W	SM2320B-2011	
2333582003	FFMP019W	SW846 6010C	SW846 3015
2333582003	FFMP019W	SW846 8260B	
2333582003	FFMP019W	SW846 9050A	
2333582003	FFMP019W	SW846 9060A	
2333582003	FFMP019W	SW846 9066	420.4/9066
2333582004	FFMP005W	D6919-09	
2333582004	FFMP005W	EPA 300.0	
2333582004	FFMP005W	EPA 410.4	
2333582004	FFMP005W	Field	
2333582004	FFMP005W	S2540C-11	
2333582004	FFMP005W	S4500HB-11	
2333582004	FFMP005W	SM2130B-2011	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2333582004	FFMP005W	SM2320B-2011	
2333582004	FFMP005W	SW846 6010C	SW846 3015
2333582004	FFMP005W	SW846 8260B	
2333582004	FFMP005W	SW846 9050A	
2333582004	FFMP005W	SW846 9060A	
2333582004	FFMP005W	SW846 9066	420.4/9066
2333582005	FFMP26RW	D6919-09	
2333582005	FFMP26RW	EPA 300.0	
2333582005	FFMP26RW	EPA 410.4	
2333582005	FFMP26RW	Field	
2333582005	FFMP26RW	S2540C-11	
2333582005	FFMP26RW	S4500HB-11	
2333582005	FFMP26RW	SM2130B-2011	
2333582005	FFMP26RW	SM2320B-2011	
2333582005	FFMP26RW	SW846 6010C	SW846 3015
2333582005	FFMP26RW	SW846 8260B	
2333582005	FFMP26RW	SW846 9050A	
2333582005	FFMP26RW	SW846 9060A	
2333582005	FFMP26RW	SW846 9066	420.4/9066
2333582006	FFMP031W	D6919-09	
2333582006	FFMP031W	EPA 300.0	
2333582006	FFMP031W	EPA 410.4	
2333582006	FFMP031W	Field	
2333582006	FFMP031W	S2540C-11	
2333582006	FFMP031W	S4500HB-11	
2333582006	FFMP031W	SM2130B-2011	
2333582006	FFMP031W	SM2320B-2011	
2333582006	FFMP031W	SW846 6010C	SW846 3015
2333582006	FFMP031W	SW846 8260B	
2333582006	FFMP031W	SW846 9050A	
2333582006	FFMP031W	SW846 9060A	
2333582006	FFMP031W	SW846 9066	420.4/9066
2333582007	FFMP032W	D6919-09	
2333582007	FFMP032W	EPA 300.0	
2333582007	FFMP032W	EPA 410.4	
2333582007	FFMP032W	Field	
2333582007	FFMP032W	S2540C-11	
2333582007	FFMP032W	S4500HB-11	
2333582007	FFMP032W	SM2130B-2011	
2333582007	FFMP032W	SM2320B-2011	
2333582007	FFMP032W	SW846 6010C	SW846 3015
2333582007	FFMP032W	SW846 8260B	
2333582007	FFMP032W	SW846 9050A	
2333582007	FFMP032W	SW846 9060A	
2333582007	FFMP032W	SW846 9066	420.4/9066
2333582008	FIELD BLANK	SW846 8260B	

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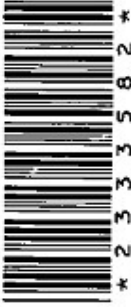
ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2333582 3RD QTR 2018 GWMP-FORM 19Q

Lab ID	Sample ID	Analysis Method	Prep Method
2333582009	TRIP BLANK	SW846 8260B	

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COC # 1 of 1
ALS Q

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



ALS Environmental
34 Dogwood Lane • Middletown, PA 17057 • Phone: 717.944.5511 • Fax: 717.944.1430
www.als.com

Client Name: Lancaster County Solid Waste MA
Address: 1299 Harrisburg Pike, P.O. Box 4424
Lancaster, PA 17604

Contact: Mark Reider
Phone#: (717) 735-0193

Project Name#: Frey Farm Quarterly (GWMP)

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 mreider@LCSWMA.com

Fax? -Y No: (717) 397-9973

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

Sample Date

Time

Matrix

Enter Number of Containers Per Sample or Field Results Below.

Field Measurements

VOC - Form 19C

O-H

NH3-N, COD

Metals: Fe, Mn, Na, Ca, K, Mg

PH, Cl, SPC, F, SO4, TDS, NO3, Turb.

Alkalinity Bicarbonate

Sample/COC Comments

ALS Field Services: Pickup Labor

Composite_Sampling Rental_Equipment

Other:

Standard

CLP-like

USACE

Special Processing

USACE

Navy

State Samples Collected In

NY

NJ

PA

NC

Reportable to PADEP?

Yes

Sample Disposal

Lab

Special

PWSID #

EDDS: Format Type-

LOGGED BY (signature): *[Signature]*

REVIEWED BY (signature): *[Signature]*

Date

Time

Received By / Company Name

ALS

8/20/18 17:14

2

4

6

8

10

Project Comments:

Blank

Blank

Blank

Blank

Blank

Blank

Blank

Blank

Blank

Blank

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	2334254004	08/22/2018	GW		
NITRATE-NITROGEN	mg/l	27.80	10.00		EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP028W	2333877005	08/21/2018	GW		
NITRATE-NITROGEN	mg/l	15.40	10.00		EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP03AW	2334254002	08/22/2018	GW		
NITRATE-NITROGEN	mg/l	20.30	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	2334254004	08/22/2018	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>	
FFMP005W	2333582004	08/20/2018	GW		
CHLORIDE	mg/l	303.00	250.00		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.09	0.05		EPA-SMCL
TDS (TOT. DISSOLVED SOLIDS)	mg/l	807.00	500.00		EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP017W	2334254001	08/22/2018	GW		
CHLORIDE	mg/l	340.00	250.00		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.56	0.05		EPA-SMCL
TDS (TOT. DISSOLVED SOLIDS)	mg/l	893.00	500.00		EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP018W	2333582002	08/20/2018	GW		
MANGANESE, TOTAL	mg/l	0.60	0.05		EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP02DW	2334254005	08/22/2018	GW		
CHLORIDE	mg/l	327.00	250.00		EPA-SMCL
IRON, TOTAL	mg/l	0.75	0.30		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.52	0.05		EPA-SMCL
TDS (TOT. DISSOLVED SOLIDS)	mg/l	896.00	500.00		EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP02SW	2334254006	08/22/2018	GW		
IRON, TOTAL	mg/l	2.70	0.30		EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP031W	2333582006	08/20/2018	GW		
IRON, TOTAL	mg/l	3.20	0.30		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.25	0.05		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>	
FFMP032W	2333582007	08/20/2018	GW		
IRON, TOTAL	mg/l	9.20	0.30	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.72	0.05	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP033W	2334254003	08/22/2018	GW		
IRON, TOTAL	mg/l	30.80	0.30	EPA-SMCL	
MANGANESE, TOTAL	mg/l	1.00	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	2334254002	08/22/2018	GW		
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>	
FFMP04AW	2333877002	08/21/2018	GW		
CHLORIDE	mg/l	315.00	250.00	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.36	0.05	EPA-SMCL	
TDS (TOT. DISSOLVED SOLIDS)	mg/l	860.00	500.00	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP26RW	2333582005	08/20/2018	GW		
CHLORIDE	mg/l	280.00	250.00	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.88	0.05	EPA-SMCL	
TDS (TOT. DISSOLVED SOLIDS)	mg/l	713.00	500.00	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP30RW	2333877001	08/21/2018	GW		
MANGANESE, TOTAL	mg/l	1.10	0.05	EPA-SMCL	