

April 6, 2017

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, 3, 16, 23, 27 & 28 exceeded the primary standard for nitrate, samples are consistent with historic data the cause is attributed to agricultural impacts (as well 2 our up gradient well shows our highest concentrations). No other MCL's were exceeded.
2. USEPA SMCL's exceedance report; Samples 2, 3, 4, 16, 17, 18, 23, 26 & 30) exceeded the secondary standard for manganese, Samples 13 & 18 exceeded the secondary standard for iron, Samples 4, 5, 13, 17, 26, & 30 exceeded the secondary standard for total dissolved solids, and Samples 4, 17 & 30 exceeded the secondary standard for chlorides all samples are consistent with historic levels and exceedances are attributed to soil parent material, geologic conditions and historic land use. No other SMCL's were exceeded.
3. A copy of the field sampling data sheets for all locations.

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

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

Respectfully Submitted,



Mark D. Reider
Director of Environmental Compliance

Enclosures:

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



Date Prepared/Revised
03/21/2017

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 X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level: 60.22 ft Measured from: Land Surface X TOC

Casing Stickup: 1.90 ft Elevation of Water Level: 516.18 ft./MSL

Sampling Depth:	135 ft	Volume of Water Column:	130.24 gal
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Total Well Depth: 148.9 ft Sampling Method: X 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): 2/23/2017 Sample Collection Time: 9:52

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210577001 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP015W

Sample Date 2/23/2017

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	16	SM20-2320B
CALCIUM, TOTAL	7.6	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	6.6	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	6.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	7	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	5.3	EPA 300
pH-FIELD (SU)	8.8	FIELD
pH-LAB (SU)	6.05	SM20-4500HB
POTASSIUM, TOTAL	1.2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	9.6	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	177	FIELD
SPEC. COND., LAB (umhos/cm)	141	SW846 9050A
SULFATE	29.7	EPA 300
ALKALINITY	16	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	81	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. FFMP015W

Sample Date 2/23/2017

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

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

T Please indicate detection limit if analyte is not detected.



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MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP023W

X	Well	Spring	Stream	Other
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X	Upgradient/Upstream	Downgradient/Downstream
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11	1	1
12	1	1
13	1	1
14	1	1
15	1	1
16	1	1
17	1	1
18	1	1
19	1	1
20	1	1
21	1	1
22	1	1
23	1	1
24	1	1
25	1	1
26	1	1
27	1	1
28	1	1
29	1	1
30	1	1
31	1	1
32	1	1
33	1	1
34	1	1
35	1	1
36	1	1
37	1	1
38	1	1
39	1	1
40	1	1
41	1	1
42	1	1
43	1	1
44	1	1
45	1	1
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48	1	1
49	1	1
50	1	1
51	1	1
52	1	1
53	1	1
54	1	1
55	1	1
56	1	1
57	1	1
58	1	1
59	1	1
60	1	1
61	1	1
62	1	1
63	1	1
64	1	1
65	1	1
66	1	1
67	1	1
68	1	1
69	1	1
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72	1	1
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75	1	1
76	1	1
77	1	1
78	1	1
79	1	1
80	1	1
81	1	1
82	1	1
83	1	1
84	1	1
85	1	1
86	1	1
87	1	1
88	1	1
89	1	1
90	1	1
91	1	1
92	1	1
93	1	1
94	1	1
95	1	1
96	1	1
97	1	1
98	1	1
99	1	1
100	1	1

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 31.62 "

Longitude: 76 ° 27 ' 24.05 "

Depth to Water Level: 64.42 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.50 ft

Elevation of Water Level: 547.38 ft./MSL

Sampling Depth: 79 ft

Volume of Water Column:	25.82	gal
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Total Well Depth: 82 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 4.7

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/23/2017

Sample Collection Time: 10:51

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210577002 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP023W

Sample Date 2/23/2017

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	SM20-2320B
CALCIUM, TOTAL	10.1	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	26.1	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	8.3	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	190	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	14.1	EPA 300
pH-FIELD (SU)	4.49	FIELD
pH-LAB (SU)	5.39	SM20-4500HB
POTASSIUM, TOTAL	1.1	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	8.9	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	231	FIELD
SPEC. COND., LAB (umhos/cm)	184	SW846 9050A
SULFATE	2 ND	EPA 300
ALKALINITY	5	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	145	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.77	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.33	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

^T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP023W

Sample Date 2/23/2017

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
03/21/2017

DEP USE ONLY

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP024W

☒ Well ☐ Spring ☐ Stream ☐ Other

☒ Upgradient/Upstream ☐ Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 31.52 "

Longitude: 76 ° 27 ' 24.75 "

Depth to Water Level: 65.08 ft

Measured from: ☐ Land Surface ☒ TOC

Casing Stickup: 0.82 ft

Elevation of Water Level: 546.34 ft./MSL

Sampling Depth: 180.78 ft

Volume of Water Column: 199.35 gal

Total Well Depth: 200.82 ft

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.6

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 2/23/2017

Sample Collection Time: 12:02

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210577003 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP024W

Sample Date 2/23/2017

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	124	SM20-2320B
CALCIUM, TOTAL	43.2	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	16.4	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	210	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	5.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	19	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	5.7	EPA 300
pH-FIELD (SU)	6.71	FIELD
pH-LAB (SU)	7.48	SM20-4500HB
POTASSIUM, TOTAL	1	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	21.1	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	409	FIELD
SPEC. COND., LAB (umhos/cm)	329	SW846 9050A
SULFATE	28.4	EPA 300
ALKALINITY	124	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	230	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.7	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.21	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. FFMP024W

Sample Date 2/23/2017

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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SECTION B. FACILITY INFORMATION

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Monitoring Point Number: FFMP03AW X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level: 54.82 ft Measured from: Land Surface X TOC

Casing Stickup: 1.20 ft Elevation of Water Level: 536.08 ft./MSL

Sampling Depth:	130 ft	Volume of Water Column:	135.67 gal
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Total Well Depth: 147.2 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 0.8

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/23/2017 Sample Collection Time: 13:21

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210577004 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP03AW

Sample Date 2/23/2017

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	16	SM20-2320B
CALCIUM, TOTAL	17.2	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	26.1	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	11.9	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	210	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	22.2	EPA 300
pH-FIELD (SU)	4.95	FIELD
pH-LAB (SU)	5.72	SM20-4500HB
POTASSIUM, TOTAL	1.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	11.8	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	320	FIELD
SPEC. COND., LAB (umhos/cm)	258	SW846 9050A
SULFATE	7.5	EPA 300
ALKALINITY	16	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	202	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.73	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 2/23/2017

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
03/21/2017

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: 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: 67.7 ft Measured from: ☐ Land Surface ☒ TOC

Casing Stickup: 1.70 ft Elevation of Water Level: 469.70 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 120.87 gal

Total Well Depth: 150 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): 2/23/2017 Sample Collection Time: 14:36

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210577005 Final Lab Analysis Completion Date: 3/7/2017

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP005W

Sample Date 2/23/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	42	SM20-2320B
CALCIUM, TOTAL	76.4	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	199	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	110	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	18.2	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	45	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	3.7	EPA 300
pH-FIELD (SU)	5.35	FIELD
pH-LAB (SU)	6.05	SM20-4500HB
POTASSIUM, TOTAL	2.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	43.4	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	932	FIELD
SPEC. COND., LAB (umhos/cm)	844	SW846 9050A
SULFATE	48.7	EPA 300
ALKALINITY	42	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	608	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.3	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

^T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP005W

Sample Date 2/23/2017

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

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

T Please indicate detection limit if analyte is not detected.



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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP26RW X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level: 79.48 ft Measured from: Land Surface X TOC

Casing Stickup: 3.30 ft Elevation of Water Level: 467.92 ft./MSL

Sampling Depth:	105 ft	Volume of Water Column:	50.70 gal
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Total Well Depth: 114 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 1.5

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/23/2017 Sample Collection Time: 15:30

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210577006 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP26RW

Sample Date 2/23/2017

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	38	SM20-2320B
CALCIUM, TOTAL	71	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	216	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	20.7	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	440	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	2	EPA 300
pH-FIELD (SU)	5.21	FIELD
pH-LAB (SU)	5.91	SM20-4500HB
POTASSIUM, TOTAL	8	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	60.7	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1019	FIELD
SPEC. COND., LAB (umhos/cm)	922	SW846 9050A
SULFATE	70.3	EPA 300
ALKALINITY	38	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	570	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.4	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.05	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 2/23/2017

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

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

T Please indicate detection limit if analyte is not detected.



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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP017W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 8.5 " Longitude: 76 ° 27 ' 6.17 "

Depth to Water Level:	41.06	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 2.00 ft Elevation of Water Level: 439.64 ft./MSL

Sampling Depth:	135 ft	Volume of Water Column:	160.73 gal
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Total Well Depth: 150.5 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X 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): 2/24/2017 Sample Collection Time: 9:53

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210886001 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP017W

Sample Date 2/24/2017

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	0.119	D6919-09
BICARBONATE ALKALINITY	52	SM20-2320B
CALCIUM, TOTAL	92.3	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	13	EPA 410.4
CHLORIDE	336	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	42.4	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	410	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	3.2	EPA 300
pH-FIELD (SU)	5.42	FIELD
pH-LAB (SU)	6.18	SM20-4500HB
POTASSIUM, TOTAL	4.8	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	70.8	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1412	FIELD
SPEC. COND., LAB (umhos/cm)	1280	SW846 9050A
SULFATE	64.9	EPA 300
ALKALINITY	52	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	710	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.8	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.25	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 2/24/2017

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

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

T Please indicate detection limit if analyte is not detected.



Date Prepared/Revised
03/21/2017

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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: FFMP029W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 12.93 " Longitude: 76 ° 27 ' 0.67 "

Depth to Water Level:	39.01	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 2.00 ft Elevation of Water Level: 438.29 ft./MSL

Sampling Depth:	55 ft	Volume of Water Column:	28.62 gal
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Total Well Depth: 58.5 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 3.8

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/24/2017 Sample Collection Time: 11:04

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210886002 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP029W

Sample Date 2/24/2017

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	0.112	D6919-09
BICARBONATE ALKALINITY	11	SM20-2320B
CALCIUM, TOTAL	18.3	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	87.3	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	11.3	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	41	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	4.2	EPA 300
pH-FIELD (SU)	5.08	FIELD
pH-LAB (SU)	5.89	SM20-4500HB
POTASSIUM, TOTAL	2.4	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	25.3	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	400	FIELD
SPEC. COND., LAB (umhos/cm)	314	SW846 9050A
SULFATE	11.4	EPA 300
ALKALINITY	11	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	202	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.18	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 2/24/2017

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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Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP013W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level:	16.48	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 1.40 ft Elevation of Water Level: 491.12 ft./MSL

Sampling Depth:	135 ft	Volume of Water Column:	197.56 gal
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Total Well Depth: 151 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 0.8

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/24/2017 Sample Collection Time: 12:40

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210886003 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP013W

Sample Date 2/24/2017

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	0.129	D6919-09
BICARBONATE ALKALINITY	165	SM20-2320B
CALCIUM, TOTAL	107	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	178	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	1900	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	13.8	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	10	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	7.1	EPA 300
pH-FIELD (SU)	7.09	FIELD
pH-LAB (SU)	7.68	SM20-4500HB
POTASSIUM, TOTAL	1.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	51.3	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1049	FIELD
SPEC. COND., LAB (umhos/cm)	940	SW846 9050A
SULFATE	32.9	EPA 300
ALKALINITY	165	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	541	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.52	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	13.6	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

^T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP013W

Sample Date 2/24/2017

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

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

T Please indicate detection limit if analyte is not detected.



Date Prepared/Revised
03/21/2017

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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: FFMP014W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 28.15 " Longitude: 76 ° 27 ' 3.25 "

Depth to Water Level: 10.65 ft Measured from: Land Surface X TOC

Casing Stickup: 1.60 ft Elevation of Water Level: 496.65 ft./MSL

Sampling Depth:	24.5 ft	Volume of Water Column:	12.37 gal
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Total Well Depth: 29.6 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 4.6

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/24/2017 Sample Collection Time: 13:01

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210886004 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP014W

Sample Date 2/24/2017

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	0.291	D6919-09
BICARBONATE ALKALINITY	27	SM20-2320B
CALCIUM, TOTAL	20.9	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	105	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	120	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	12.9	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	15	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	6.7	EPA 300
pH-FIELD (SU)	5.17	FIELD
pH-LAB (SU)	5.98	SM20-4500HB
POTASSIUM, TOTAL	2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	49.7	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	547	FIELD
SPEC. COND., LAB (umhos/cm)	494	SW846 9050A
SULFATE	41.5	EPA 300
ALKALINITY	27	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	266	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.69	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	4.33	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

^T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP014W

Sample Date 2/24/2017

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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03/21/2017

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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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Monitoring Point Number: FFMP027W

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

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 32.62 "

Longitude: 76° 27' 7.12"

Depth to Water Level: 22.17 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.50 ft

Elevation of Water Level: 499.93 ft./MSL

Sampling Depth: 45 ft

Volume of Water Column:	42.34	gal
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Total Well Depth: 51 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 4.2

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/24/2017

Sample Collection Time: 13:54

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2210886005 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP027W

Sample Date 2/24/2017

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	0.155	D6919-09
BICARBONATE ALKALINITY	10	SM20-2320B
CALCIUM, TOTAL	15.1	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	32.9	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	9.8	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	23	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	10.6	EPA 300
pH-FIELD (SU)	4.75	FIELD
pH-LAB (SU)	5.78	SM20-4500HB
POTASSIUM, TOTAL	1.4	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	10.8	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	277	FIELD
SPEC. COND., LAB (umhos/cm)	224	SW846 9050A
SULFATE	6.9	EPA 300
ALKALINITY	10	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	160	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. FFMP027W

Sample Date 2/24/2017

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

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

T Please indicate detection limit if analyte is not detected.



Date Prepared/Revised
03/21/2017

DEP USE ONLY

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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP30RW X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 15.52 " Longitude: 76 ° 27 ' 26.8 "

Depth to Water Level:	35.71	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 2.20 ft Elevation of Water Level: 526.59 ft./MSL

Sampling Depth:	85 ft	Volume of Water Column:	79.73 gal
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Total Well Depth: 90 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 1.8

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/27/2017 Sample Collection Time: 10:00

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2211130001 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP30RW

Sample Date 2/27/2017

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	0.131	D6919-09
BICARBONATE ALKALINITY	45	SM20-2320B
CALCIUM, TOTAL	56.7	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	14	EPA 410.4
CHLORIDE	330	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	110	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	19.8	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	3900	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	5.8	EPA 300
pH-FIELD (SU)	5.28	FIELD
pH-LAB (SU)	6.36	SM20-4500HB
POTASSIUM, TOTAL	7.8	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	127	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1266	FIELD
SPEC. COND., LAB (umhos/cm)	1230	SW846 9050A
SULFATE	50.5	EPA 300
ALKALINITY	45	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	631	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.79	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	3.07	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 2/27/2017

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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03/21/2017

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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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General Reference: Section 273.284
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SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP04AW X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level:	35.71	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 2.52 ft Elevation of Water Level: 525.01 ft./MSL

Sampling Depth:	146 ft	Volume of Water Column:	390.38 gal
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Total Well Depth: 301.52 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 0.9

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/27/2017 Sample Collection Time: 11:05

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2211130002 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP04AW

Sample Date 2/27/2017

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	195	SM20-2320B
CALCIUM, TOTAL	142	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	8	EPA 410.4
CHLORIDE	317	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	24.7	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	140	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	0.5 ND	EPA 300
pH-FIELD (SU)	5.28	FIELD
pH-LAB (SU)	7.59	SM20-4500HB
POTASSIUM, TOTAL	2.1	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	79.6	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	1266	FIELD
SPEC. COND., LAB (umhos/cm)	1390	SW846 9050A
SULFATE	56.9	EPA 300
ALKALINITY	195	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	760	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.71	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.67	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

^T Please indicate detection limit if analyte is not detected.

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Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP04AW

Sample Date 2/27/2017

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

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

T Please indicate detection limit if analyte is not detected.



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QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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Site Name: Frey Farm Landfill

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SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP018W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level:	27.61	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 2.46 ft Elevation of Water Level: 444.59 ft./MSL

Sampling Depth:	40 ft	Volume of Water Column:	15.55 gal
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Total Well Depth: 51.43 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 3.1

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/27/2017 Sample Collection Time: 11:31

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2211130003 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP018W

Sample Date 2/27/2017

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	12	SM20-2320B
CALCIUM, TOTAL	33.2	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	9	EPA 410.4
CHLORIDE	129	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	340	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	18.1	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	310	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	5.5	EPA 300
pH-FIELD (SU)	5.05	FIELD
pH-LAB (SU)	5.98	SM20-4500HB
POTASSIUM, TOTAL	4.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	42.9	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	657	FIELD
SPEC. COND., LAB (umhos/cm)	606	SW846 9050A
SULFATE	46.7	EPA 300
ALKALINITY	12	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	313	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.7	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.99	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 2/27/2017

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

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

T Please indicate detection limit if analyte is not detected.



Date Prepared/Revised
03/21/2017

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: FFMP019W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 11.58 " Longitude: 76 ° 27 ' 5.75 "

Depth to Water Level:	28.31	ft	Measured from:	Land Surface	X	TOC
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Casing Stickup: 1.79 ft Elevation of Water Level: 443.64 ft./MSL

Sampling Depth:	49 ft	Volume of Water Column:	68.20 gal
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Total Well Depth: 132.79 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 3.1

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/27/2017 Sample Collection Time: 12:16

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2211130004 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP019W

Sample Date 2/27/2017

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	65	SM20-2320B
CALCIUM, TOTAL	56.4	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7	EPA 410.4
CHLORIDE	79.5	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	5.6	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	5.6 ND	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	0.62	EPA 300
pH-FIELD (SU)	6.27	FIELD
pH-LAB (SU)	7.22	SM20-4500HB
POTASSIUM, TOTAL	0.96	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	9.7	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	469	FIELD
SPEC. COND., LAB (umhos/cm)	422	SW846 9050A
SULFATE	14.4	EPA 300
ALKALINITY	65	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	216	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 2/27/2017

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

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

T Please indicate detection limit if analyte is not detected.



Date Prepared/Revised
03/21/2017

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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: FFMP002W

X	Well	Spring	Stream	Other
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X	Upgradient/Upstream	Downgradient/Downstream
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11	1	1
12	1	1
13	1	1
14	1	1
15	1	1
16	1	1
17	1	1
18	1	1
19	1	1
20	1	1
21	1	1
22	1	1
23	1	1
24	1	1
25	1	1
26	1	1
27	1	1
28	1	1
29	1	1
30	1	1
31	1	1
32	1	1
33	1	1
34	1	1
35	1	1
36	1	1
37	1	1
38	1	1
39	1	1
40	1	1
41	1	1
42	1	1
43	1	1
44	1	1
45	1	1
46	1	1
47	1	1
48	1	1
49	1	1
50	1	1
51	1	1
52	1	1
53	1	1
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61	1	1
62	1	1
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69	1	1
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74	1	1
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76	1	1
77	1	1
78	1	1
79	1	1
80	1	1
81	1	1
82	1	1
83	1	1
84	1	1
85	1	1
86	1	1
87	1	1
88	1	1
89	1	1
90	1	1
91	1	1
92	1	1
93	1	1
94	1	1
95	1	1
96	1	1
97	1	1
98	1	1
99	1	1
100	1	1

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point Latitude: 39 ° 57 ' 32.25 "

Longitude: 76 ° 27 ' 24.03 "

Depth to Water Level: 67.23 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.60 ft

Elevation of Water Level: 545.97 ft./MSL

Sampling Depth: 85 ft

Volume of Water Column:	150.35	gal
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Total Well Depth: 169.6 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 0.9

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/27/2017

Sample Collection Time: 12:53

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2211130005 Final Lab Analysis CompletionDate: 3/7/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP002W

Sample Date 2/27/2017

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	19.5	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	22.3	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	110	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	8.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	260	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	20	EPA 300
pH-FIELD (SU)	4.61	FIELD
pH-LAB (SU)	5.5	SM20-4500HB
POTASSIUM, TOTAL	1.7	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	14.4	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	325	FIELD
SPEC. COND., LAB (umhos/cm)	263	SW846 9050A
SULFATE	23.6	EPA 300
ALKALINITY	5 ND	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	165	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.58	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 2/27/2017

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
03/21/2017

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: 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: 6.85 ft Measured from: ☐ Land Surface ☒ TOC

Casing Stickup: 2.50 ft Elevation of Water Level: 458.15 ft./MSL

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

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

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

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/28/2017 Sample Collection Time: 10:09

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2211398001 Final Lab Analysis Completion Date: 3/8/2017

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP028W

Sample Date 2/28/2017

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	28	SM20-2320B
CALCIUM, TOTAL	40.8	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	96.6	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	18.5	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	14	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	20.8	EPA 300
pH-FIELD (SU)	5.17	FIELD
pH-LAB (SU)	6.17	SM20-4500HB
POTASSIUM, TOTAL	2.3	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	29.4	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	631	FIELD
SPEC. COND., LAB (umhos/cm)	563	SW846 9050A
SULFATE	23.9	EPA 300
ALKALINITY	28	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	310	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. FFMP028W

Sample Date 2/28/2017

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

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

T Please indicate detection limit if analyte is not detected.



Date Prepared/Revised
03/21/2017

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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP025W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level: 25.37 ft Measured from: Land Surface X TOC

Casing Stickup: 1.50 ft Elevation of Water Level: 451.43 ft./MSL

Sampling Depth:	39 ft	Volume of Water Column:	21.49 gal
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Total Well Depth: 40 ft Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No Well Volumes Purged: 3.9

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 2/28/2017 Sample Collection Time: 10:46

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2211398002 Final Lab Analysis CompletionDate: 3/8/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP025W

Sample Date 2/28/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	D6919-09
BICARBONATE ALKALINITY	17	SM20-2320B
CALCIUM, TOTAL	22.1	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	10	EPA 410.4
CHLORIDE	83.9	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	13.4	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	11	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	8	EPA 300
pH-FIELD (SU)	5.2	FIELD
pH-LAB (SU)	6.02	SM20-4500HB
POTASSIUM, TOTAL	2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	18.6	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	597	FIELD
SPEC. COND., LAB (umhos/cm)	408	SW846 9050A
SULFATE	30.6	EPA 300
ALKALINITY	17	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	253	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.1	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.22	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 2/28/2017

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
03/21/2017

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: 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: 23.24 ft Measured from: ☐ Land Surface ☒ TOC

Casing Stickup: 1.97 ft Elevation of Water Level: 451.36 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 185.87 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): 2/28/2017 Sample Collection Time: 11:10

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2211398003 Final Lab Analysis Completion Date: 3/9/2017

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP016W

Sample Date 2/28/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.11	D6919-09
BICARBONATE ALKALINITY	41	SM20-2320B
CALCIUM, TOTAL	39.4	SW846 6010C
CALCIUM, DISSOLVED		SW846 6010C
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	108	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	67 ND	SW846 6010C
IRON, DISSOLVED (ug/l)		SW846 6010C
MAGNESIUM, TOTAL	17.1	SW846 6010C
MAGNESIUM, DISSOLVED		SW846 6010C
MANGANESE, TOTAL (ug/l)	58	SW846 6010C
MANGANESE, DISSOLVED (ug/l)		SW846 6010C
NITRATE-NITROGEN	12.4	EPA 300
pH-FIELD (SU)	5.66	FIELD
pH-LAB (SU)	6.37	SM20-4500HB
POTASSIUM, TOTAL	2.2	SW846 6010C
POTASSIUM, DISSOLVED		SW846 6010C
SODIUM, TOTAL	30.7	SW846 6010C
SODIUM, DISSOLVED		SW846 6010C
SPEC. COND., FIELD (umhos/cm)	597	FIELD
SPEC. COND., LAB (umhos/cm)	576	SW846 9050A
SULFATE	29.7	EPA 300
ALKALINITY	41	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	301	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.2	SW846 9060A
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.16	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

^T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 101389

Monitoring Point No. FFMP016W

Sample Date 2/28/2017

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.

March 8, 2017

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

Certificate of Analysis

Project Name: 2017-FREY FARM	Workorder: 2210577
Purchase Order:	Workorder ID: 1ST QTR 2017 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Thursday, February 23, 2017.

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

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

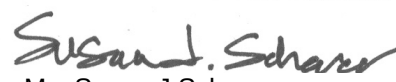
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

CC: Mr. Mark Reider , Mr. Jeff Musser

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


Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2210577001	FFMP015W	Ground Water	2/23/2017 09:52	2/23/2017 16:31	Mr. Brian G Shade
2210577002	FFMP023W	Ground Water	2/23/2017 10:51	2/23/2017 16:31	Mr. Brian G Shade
2210577003	FFMP024W	Ground Water	2/23/2017 12:02	2/23/2017 16:31	Mr. Brian G Shade
2210577004	FFMP03AW	Ground Water	2/23/2017 13:21	2/23/2017 16:31	Mr. Brian G Shade
2210577005	FFMP005W	Ground Water	2/23/2017 14:36	2/23/2017 16:31	Mr. Brian G Shade
2210577006	FFMP26RW	Ground Water	2/23/2017 15:30	2/23/2017 16:31	Mr. Brian G Shade
2210577007	Field Blank	Ground Water	2/23/2017 15:16	2/23/2017 16:31	Mr. Brian G Shade
2210577008	Trip Blank	Ground Water	2/23/2017 16:31	2/23/2017 16:31	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2210577 1ST QTR 2017 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: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577001**
Sample ID: **FFMP015W**

Date Collected: 2/23/2017 09:52 Matrix: Ground Water
Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/1/17 16:06	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 16:06	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)	96.6		%	62 - 133	SW846 8260B			3/1/17 16:06	TMP	G
4-Bromofluorobenzene (S)	93.7		%	79 - 114	SW846 8260B			3/1/17 16:06	TMP	G
Dibromofluoromethane (S)	96.3		%	78 - 116	SW846 8260B			3/1/17 16:06	TMP	G
Toluene-d8 (S)	96		%	76 - 127	SW846 8260B			3/1/17 16:06	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	16		mg/L	5	S2320B-97			2/24/17 04:05	MSA	B
Alkalinity, Total	16	2	mg/L	5	S2320B-97			2/24/17 04:05	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/2/17 11:39	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/24/17 15:52	AK	A
Chloride	6.6		mg/L	2.0	EPA 300.0			2/24/17 13:55	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/24/17 13:55	CHW	B
Nitrate-N	5.3		mg/L	0.20	EPA 300.0			2/24/17 13:55	CHW	B
pH	6.05	1	pH_Units		S4500HB-00			2/24/17 04:05	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	141		umhos/cm	1	SW846 9050A			2/24/17 04:05	MSA	B
Sulfate	29.7		mg/L	2.0	EPA 300.0			2/24/17 13:55	CHW	B
Total Dissolved Solids	81		mg/L	5	S2540C-11			2/27/17 16:01	JAS	B
Total Organic Carbon (TOC)	1.1		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	ND		NTU	0.10	S2130B-01			2/23/17 16:53	MSA	B

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577001**
Sample ID: **FFMP015W**

Date Collected: 2/23/2017 09:52 Matrix: Ground Water
Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	7.6		mg/L	0.11	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:39	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:39	SRT	J1
Magnesium, Total	6.5		mg/L	0.11	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:39	SRT	J1
Manganese, Total	0.0070		mg/L	0.0056	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:39	SRT	J1
Potassium, Total	1.2		mg/L	0.56	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:39	SRT	J1
Sodium, Total	9.6		mg/L	0.56	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:39	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	60.220		Feet		Field			2/23/17 09:52	CLT	C
Elev Top MW Casing above MSL	576.40		Feet		Field			2/23/17 09:52	CLT	C
Flow Rate	2.28		gal/min		Field			2/23/17 09:52	CLT	C
Ground Water Elevation	516.180		ft/MSL		Field			2/23/17 09:52	CLT	C
pH, Field (SM4500B)	8.800		pH_Units		Field			2/23/17 09:52	CLT	C
Sample Depth	135.000		Feet		Field			2/23/17 09:52	CLT	C
Specific Conductance, Field	177		umhos/cm	1	Field			2/23/17 09:52	CLT	C
Temperature	11.82		Deg. C		Field			2/23/17 09:52	CLT	C
Total Well Depth	149.900		Feet		Field			2/23/17 09:52	CLT	C
Volume in Water Column	131.830		Gallons		Field			2/23/17 09:52	CLT	C
Water Level After Purge	109.650		Feet		Field			2/23/17 09:52	CLT	C
Well Volumes Purged	1.21		Vol		Field			2/23/17 09:52	CLT	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577002**

Date Collected: 2/23/2017 10:51

Matrix: Ground Water

Sample ID: **FFMP023W**

Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/1/17 16:24	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 16:24	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)	98.5		%	62 - 133	SW846 8260B			3/1/17 16:24	TMP	G
4-Bromofluorobenzene (S)	90.9		%	79 - 114	SW846 8260B			3/1/17 16:24	TMP	G
Dibromofluoromethane (S)	98.1		%	78 - 116	SW846 8260B			3/1/17 16:24	TMP	G
Toluene-d8 (S)	96.6		%	76 - 127	SW846 8260B			3/1/17 16:24	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	5		mg/L	5	S2320B-97			2/24/17 04:13	MSA	B
Alkalinity, Total	5	2	mg/L	5	S2320B-97			2/24/17 04:13	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/2/17 11:58	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/24/17 15:52	AK	A
Chloride	26.1		mg/L	2.0	EPA 300.0			2/24/17 14:09	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/24/17 14:09	CHW	B
Nitrate-N	14.1		mg/L	0.20	EPA 300.0			2/24/17 14:09	CHW	B
pH	5.39	1	pH_Units		S4500HB-00			2/24/17 04:13	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	184		umhos/cm	1	SW846 9050A			2/24/17 04:13	MSA	B
Sulfate	ND		mg/L	2.0	EPA 300.0			2/24/17 14:09	CHW	B
Total Dissolved Solids	145		mg/L	5	S2540C-11			2/27/17 16:01	JAS	B
Total Organic Carbon (TOC)	0.77		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	0.33		NTU	0.10	S2130B-01			2/23/17 16:53	MSA	B

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577002**
Sample ID: **FFMP023W**

Date Collected: 2/23/2017 10:51 Matrix: Ground Water
Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	10.1		mg/L	0.11	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:43	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:43	SRT	J1
Magnesium, Total	8.3		mg/L	0.11	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:43	SRT	J1
Manganese, Total	0.19		mg/L	0.0056	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:43	SRT	J1
Potassium, Total	1.1		mg/L	0.56	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:43	SRT	J1
Sodium, Total	8.9		mg/L	0.56	SW846 6010C	2/28/17 13:03	TRR	3/7/17 10:43	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	64.420		Feet		Field			2/23/17 10:51	CLT	C
Elev Top MW Casing above MSL	611.80		Feet		Field			2/23/17 10:51	CLT	C
Flow Rate	2.96		gal/min		Field			2/23/17 10:51	CLT	C
Ground Water Elevation	547.380		ft/MSL		Field			2/23/17 10:51	CLT	C
pH, Field (SM4500B)	4.490		pH_Units		Field			2/23/17 10:51	CLT	C
Sample Depth	79.000		Feet		Field			2/23/17 10:51	CLT	C
Specific Conductance, Field	231		umhos/cm	1	Field			2/23/17 10:51	CLT	C
Temperature	11.92		Deg. C		Field			2/23/17 10:51	CLT	C
Total Well Depth	81.500		Feet		Field			2/23/17 10:51	CLT	C
Volume in Water Column	25.108		Gallons		Field			2/23/17 10:51	CLT	C
Well Volumes Purged	4.72		Vol		Field			2/23/17 10:51	CLT	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577003**

Date Collected: 2/23/2017 12:02

Matrix: Ground Water

Sample ID: **FFMP024W**

Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/1/17 16:42	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 16:42	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)	99.7		%	62 - 133	SW846 8260B			3/1/17 16:42	TMP	G
4-Bromofluorobenzene (S)	91.5		%	79 - 114	SW846 8260B			3/1/17 16:42	TMP	G
Dibromofluoromethane (S)	96.9		%	78 - 116	SW846 8260B			3/1/17 16:42	TMP	G
Toluene-d8 (S)	97.8		%	76 - 127	SW846 8260B			3/1/17 16:42	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	124		mg/L	5	S2320B-97			2/24/17 05:01	MSA	B
Alkalinity, Total	124	2	mg/L	5	S2320B-97			2/24/17 05:01	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/2/17 12:17	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/24/17 15:52	AK	A
Chloride	16.4		mg/L	2.0	EPA 300.0			2/24/17 14:23	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/24/17 14:23	CHW	B
Nitrate-N	5.7		mg/L	0.20	EPA 300.0			2/24/17 14:23	CHW	B
pH	7.48	1	pH_Units		S4500HB-00			2/24/17 05:01	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	329		umhos/cm	1	SW846 9050A			2/24/17 05:01	MSA	B
Sulfate	28.4		mg/L	2.0	EPA 300.0			2/24/17 14:23	CHW	B
Total Dissolved Solids	230		mg/L	5	S2540C-11			2/27/17 16:01	JAS	B
Total Organic Carbon (TOC)	0.70		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	1.21		NTU	0.10	S2130B-01			2/23/17 16:53	MSA	B

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577003**
Sample ID: **FFMP024W**

Date Collected: 2/23/2017 12:02 Matrix: Ground Water
Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	43.2		mg/L	0.11	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:26	SRT	J1
Iron, Total	0.21		mg/L	0.067	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:26	SRT	J1
Magnesium, Total	5.5		mg/L	0.11	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:26	SRT	J1
Manganese, Total	0.019		mg/L	0.0056	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:26	SRT	J1
Potassium, Total	1.0		mg/L	0.56	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:26	SRT	J1
Sodium, Total	21.1		mg/L	0.56	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:26	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	65.080		Feet		Field			2/23/17 12:02	CLT	C
Elev Top MW Casing above MSL	611.42		Feet		Field			2/23/17 12:02	CLT	C
Flow Rate	2.16		gal/min		Field			2/23/17 12:02	CLT	C
Ground Water Elevation	546.340		ft/MSL		Field			2/23/17 12:02	CLT	C
pH, Field (SM4500B)	6.710		pH_Units		Field			2/23/17 12:02	CLT	C
Sample Depth	180.780		Feet		Field			2/23/17 12:02	CLT	C
Specific Conductance, Field	409		umhos/cm	1	Field			2/23/17 12:02	CLT	C
Temperature	12.41		Deg. C		Field			2/23/17 12:02	CLT	C
Total Well Depth	200.820		Feet		Field			2/23/17 12:02	CLT	C
Volume in Water Column	199.538		Gallons		Field			2/23/17 12:02	CLT	C
Water Level After Purge	121.610		Feet		Field			2/23/17 12:02	CLT	C
Well Volumes Purged	0.65		Vol		Field			2/23/17 12:02	CLT	C



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577004**
Sample ID: **FFMP03AW**

Date Collected: 2/23/2017 13:21 Matrix: Ground Water
Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/1/17 17:01	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 17:01	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)	96.9		%	62 - 133	SW846 8260B			3/1/17 17:01	TMP	G
4-Bromofluorobenzene (S)	90.2		%	79 - 114	SW846 8260B			3/1/17 17:01	TMP	G
Dibromofluoromethane (S)	95.1		%	78 - 116	SW846 8260B			3/1/17 17:01	TMP	G
Toluene-d8 (S)	94.8		%	76 - 127	SW846 8260B			3/1/17 17:01	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	16		mg/L	5	S2320B-97			2/24/17 05:09	MSA	B
Alkalinity, Total	16	2	mg/L	5	S2320B-97			2/24/17 05:09	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/2/17 12:36	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/24/17 15:52	AK	A
Chloride	26.1		mg/L	2.0	EPA 300.0			2/24/17 14:51	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/24/17 14:51	CHW	B
Nitrate-N	22.2		mg/L	0.50	EPA 300.0			2/24/17 14:51	CHW	B
pH	5.72	1	pH_Units		S4500HB-00			2/24/17 05:09	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	258		umhos/cm	1	SW846 9050A			2/24/17 05:09	MSA	B
Sulfate	7.5		mg/L	2.0	EPA 300.0			2/24/17 14:51	CHW	B
Total Dissolved Solids	202		mg/L	5	S2540C-11			2/27/17 16:01	JAS	B
Total Organic Carbon (TOC)	0.73		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	ND		NTU	0.10	S2130B-01			2/23/17 16:53	MSA	B

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577004**
Sample ID: **FFMP03AW**

Date Collected: 2/23/2017 13:21 Matrix: Ground Water
Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	17.2		mg/L	0.11	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:29	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:29	SRT	J1
Magnesium, Total	11.9		mg/L	0.11	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:29	SRT	J1
Manganese, Total	0.21		mg/L	0.0056	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:29	SRT	J1
Potassium, Total	1.3		mg/L	0.56	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:29	SRT	J1
Sodium, Total	11.8		mg/L	0.56	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:29	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	54.820		Feet		Field			2/23/17 13:21	CLT	C
Elev Top MW Casing above MSL	590.90		Feet		Field			2/23/17 13:21	CLT	C
Flow Rate	1.85		gal/min		Field			2/23/17 13:21	CLT	C
Ground Water Elevation	536.080		ft/MSL		Field			2/23/17 13:21	CLT	C
pH, Field (SM4500B)	4.950		pH_Units		Field			2/23/17 13:21	CLT	C
Sample Depth	130.000		Feet		Field			2/23/17 13:21	CLT	C
Specific Conductance, Field	320		umhos/cm	1	Field			2/23/17 13:21	CLT	C
Temperature	11.92		Deg. C		Field			2/23/17 13:21	CLT	C
Total Well Depth	148.400		Feet		Field			2/23/17 13:21	CLT	C
Volume in Water Column	137.563		Gallons		Field			2/23/17 13:21	CLT	C
Water Level After Purge	85.060		Feet		Field			2/23/17 13:21	CLT	C
Well Volumes Purged	0.81		Vol		Field			2/23/17 13:21	CLT	C



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577005**

Date Collected: 2/23/2017 14:36

Matrix: Ground Water

Sample ID: **FFMP005W**

Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/1/17 17:19	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 17:19	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)	96.1		%	62 - 133	SW846 8260B			3/1/17 17:19	TMP	G
4-Bromofluorobenzene (S)	91.1		%	79 - 114	SW846 8260B			3/1/17 17:19	TMP	G
Dibromofluoromethane (S)	97.8		%	78 - 116	SW846 8260B			3/1/17 17:19	TMP	G
Toluene-d8 (S)	96.9		%	76 - 127	SW846 8260B			3/1/17 17:19	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	42		mg/L	5	S2320B-97			2/24/17 05:19	MSA	B
Alkalinity, Total	42	2	mg/L	5	S2320B-97			2/24/17 05:19	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/2/17 12:55	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/24/17 15:52	AK	A
Chloride	199		mg/L	2.0	EPA 300.0			2/24/17 15:05	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/24/17 15:05	CHW	B
Nitrate-N	3.7		mg/L	0.20	EPA 300.0			2/24/17 15:05	CHW	B
pH	6.05	1	pH_Units		S4500HB-00			2/24/17 05:19	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	844		umhos/cm	1	SW846 9050A			2/24/17 05:19	MSA	B
Sulfate	48.7		mg/L	2.0	EPA 300.0			2/24/17 15:05	CHW	B
Total Dissolved Solids	608		mg/L	5	S2540C-11			2/27/17 16:01	JAS	B
Total Organic Carbon (TOC)	1.3		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	ND		NTU	0.10	S2130B-01			2/23/17 16:53	MSA	B

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577005**

Date Collected: 2/23/2017 14:36

Matrix: Ground Water

Sample ID: **FFMP005W**

Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	76.4		mg/L	0.11	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:33	SRT	J1
Iron, Total	0.11		mg/L	0.067	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:33	SRT	J1
Magnesium, Total	18.2		mg/L	0.11	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:33	SRT	J1
Manganese, Total	0.045		mg/L	0.0056	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:33	SRT	J1
Potassium, Total	2.3		mg/L	0.56	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:33	SRT	J1
Sodium, Total	43.4		mg/L	0.56	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:33	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	67.700		Feet		Field			2/23/17 14:36	CLT	C
Elev Top MW Casing above MSL	537.40		Feet		Field			2/23/17 14:36	CLT	C
Flow Rate	2.38		gal/min		Field			2/23/17 14:36	CLT	C
Ground Water Elevation	469.700		ft/MSL		Field			2/23/17 14:36	CLT	C
pH, Field (SM4500B)	5.350		pH_Units		Field			2/23/17 14:36	CLT	C
Sample Depth	135.000		Feet		Field			2/23/17 14:36	CLT	C
Specific Conductance, Field	932		umhos/cm	1	Field			2/23/17 14:36	CLT	C
Temperature	11.51		Deg. C		Field			2/23/17 14:36	CLT	C
Total Well Depth	149.700		Feet		Field			2/23/17 14:36	CLT	C
Volume in Water Column	120.540		Gallons		Field			2/23/17 14:36	CLT	C
Water Level After Purge	97.110		Feet		Field			2/23/17 14:36	CLT	C
Well Volumes Purged	1.18		Vol		Field			2/23/17 14:36	CLT	C



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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577006**

Date Collected: 2/23/2017 15:30

Matrix: Ground Water

Sample ID: **FFMP26RW**

Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/1/17 17:37	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 17:37	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)	95		%	62 - 133	SW846 8260B			3/1/17 17:37	TMP	G
4-Bromofluorobenzene (S)	91		%	79 - 114	SW846 8260B			3/1/17 17:37	TMP	G
Dibromofluoromethane (S)	95.2		%	78 - 116	SW846 8260B			3/1/17 17:37	TMP	G
Toluene-d8 (S)	95.9		%	76 - 127	SW846 8260B			3/1/17 17:37	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	38		mg/L	5	S2320B-97			2/24/17 05:27	MSA	B
Alkalinity, Total	38	2	mg/L	5	S2320B-97			2/24/17 05:27	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/7/17 01:31	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/24/17 15:52	AK	A
Chloride	216		mg/L	5.0	EPA 300.0			2/25/17 07:36	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/24/17 12:39	CHW	B
Nitrate-N	2.0		mg/L	0.20	EPA 300.0			2/24/17 12:39	CHW	B
pH	5.91	1	pH_Units		S4500HB-00			2/24/17 05:27	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	922		umhos/cm	1	SW846 9050A			2/24/17 05:27	MSA	B
Sulfate	70.3		mg/L	2.0	EPA 300.0			2/24/17 12:39	CHW	B
Total Dissolved Solids	570		mg/L	5	S2540C-11			2/27/17 16:01	JAS	B
Total Organic Carbon (TOC)	1.4		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	1.05		NTU	0.10	S2130B-01			2/23/17 16:53	MSA	B

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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577006**
Sample ID: **FFMP26RW**

Date Collected: 2/23/2017 15:30 Matrix: Ground Water
Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	71.0		mg/L	0.11	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:37	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:37	SRT	J1
Magnesium, Total	20.7		mg/L	0.11	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:37	SRT	J1
Manganese, Total	0.44		mg/L	0.0056	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:37	SRT	J1
Potassium, Total	8.0		mg/L	0.56	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:37	SRT	J1
Sodium, Total	60.7		mg/L	0.56	SW846 6010C	2/28/17 14:19	TRR	3/1/17 13:37	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	79.480		Feet		Field			2/23/17 15:30	CLT	C
Elev Top MW Casing above MSL	547.40		Feet		Field			2/23/17 15:30	CLT	C
Flow Rate	2.17		gal/min		Field			2/23/17 15:30	CLT	C
Ground Water Elevation	467.920		ft/MSL		Field			2/23/17 15:30	CLT	C
pH, Field (SM4500B)	5.210		pH_Units		Field			2/23/17 15:30	CLT	C
Sample Depth	105.000		Feet		Field			2/23/17 15:30	CLT	C
Specific Conductance, Field	1019		umhos/cm	1	Field			2/23/17 15:30	CLT	C
Temperature	12.24		Deg. C		Field			2/23/17 15:30	CLT	C
Total Well Depth	118.300		Feet		Field			2/23/17 15:30	CLT	C
Volume in Water Column	57.065		Gallons		Field			2/23/17 15:30	CLT	C
Water Level After Purge	95.380		Feet		Field			2/23/17 15:30	CLT	C
Well Volumes Purged	1.52		Vol		Field			2/23/17 15:30	CLT	C



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ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577007**

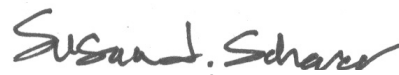
Date Collected: 2/23/2017 15:16

Matrix: Ground Water

Sample ID: **Field Blank**

Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/1/17 15:48	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 15:48	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)	94		%	62 - 133	SW846 8260B			3/1/17 15:48	TMP	A
4-Bromofluorobenzene (S)	92		%	79 - 114	SW846 8260B			3/1/17 15:48	TMP	A
Dibromofluoromethane (S)	93.5		%	78 - 116	SW846 8260B			3/1/17 15:48	TMP	A
Toluene-d8 (S)	94.6		%	76 - 127	SW846 8260B			3/1/17 15:48	TMP	A



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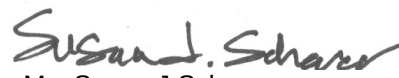
ANALYTICAL RESULTS

Workorder: 2210577 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210577008**
Sample ID: **Trip Blank**

Date Collected: 2/23/2017 16:31 Matrix: Ground Water
Date Received: 2/23/2017 16:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/1/17 15:29	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/1/17 15:29	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)	96.2		%	62 - 133	SW846 8260B			3/1/17 15:29	TMP	A
4-Bromofluorobenzene (S)	91.6		%	79 - 114	SW846 8260B			3/1/17 15:29	TMP	A
Dibromofluoromethane (S)	94.2		%	78 - 116	SW846 8260B			3/1/17 15:29	TMP	A
Toluene-d8 (S)	96.3		%	76 - 127	SW846 8260B			3/1/17 15:29	TMP	A


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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2210577001	1	FFMP015W	S4500HB-00	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.				
2210577001	2	FFMP015W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2210577002	1	FFMP023W	S4500HB-00	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.				
2210577002	2	FFMP023W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2210577003	1	FFMP024W	S4500HB-00	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.				
2210577003	2	FFMP024W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2210577004	1	FFMP03AW	S4500HB-00	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.				
2210577004	2	FFMP03AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2210577005	1	FFMP005W	S4500HB-00	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.				
2210577005	2	FFMP005W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2210577006	1	FFMP26RW	S4500HB-00	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.				
2210577006	2	FFMP26RW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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Client Name: Lancaster County Solid Waste MA

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

Lancaster, PA 17604

Contact: Brooks Norris

Phone#: (717) 397-9968

Project Name#: Frey Farm Quarterly

Bill To: Lancaster County Solid Waste MA

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

Date Required: Approved By:

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

Fax? ☒ Y ☐ N No.: (717) 397-9973

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

Sample Date	Time
1. FFMP005W	2-23-17 0952
2. FFMP0023W	1051
3. FFMP0024W	1202
4. FFMP0034W	1321
5. FFMP005W	1436
6. FFMP006W	1630
7. Field Blank	1676
8. Trip Blank	1631
9.	
10.	

Project Comments:

LOGGED BY (signature): *Amber*

REVIEWED BY (signature):

Relinquished By / Company Name

Date Time

Received By / Company Name

Date Time

2-23-17 1621

2-23-17 1631

2-23-17 1631

2-23-17 1631

2-23-17 1631

2-23-17 1631

2-23-17 1631

COC #:

SS

REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT /

SAMPLER. INSTRUCTIONS ON THE BACK.

ALS Quote

Therm ID: 352

No. of Coolers: Y N Initial

Cooler Temp: 352

Custody Seals Present? ☒

(if present) Seals Intact? ☒

Received on Ice? ☒

COC Labels Complete/Accurate? ☒

Cont. In Good Cond.? ☒

Correct Containers? ☒

Correct Sample Volumes? ☒

Correct Preservation? ☒

Headspace/Volatiles? ☒

Courier Tracking #:

Sample/COC Comments

Enter Number of Containers Per Sample or Field Results Below.	PH, Cl, SPC, F, SO4, TDS, NO3	Metals: Fe, Mn, Na, Ca, K, Mg	NH3-N, COD	Sample Depth for AUX Data	Field Measurements	VOC - Form 190	O-H	TOC	Matrix
1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

Standard ☐ CLP-like ☐ USACE ☐

Deliverables ☐ USACE ☐ Navy ☐

Special Processing ☐ USACE ☐ Navy ☐

State Samples Collected In ☐ NY ☐ NJ ☐ PA ☐ NC ☐

Reportable to PADEP? ☐ Yes ☐ No ☐ Lab ☐ Special ☐

PWSID #

EDDS: Format Type

Waste Water

Waste Water

Waste Water

Waste Water

Waste Water

March 8, 2017

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

Certificate of Analysis

Project Name:	2017-FREY FARM	Workorder:	2210886
Purchase Order:		Workorder ID:	1ST QTR 2017 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Friday, February 24, 2017.

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

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

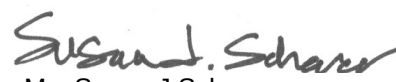
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

CC: Mr. Mark Reider , Mr. Jeff Musser

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


Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2210886001	FFMP017W	Ground Water	2/24/2017 09:53	2/24/2017 15:05	Mr. Brian G Shade
2210886002	FFMP029W	Ground Water	2/24/2017 11:04	2/24/2017 15:05	Mr. Brian G Shade
2210886003	FFMP013W	Ground Water	2/24/2017 12:40	2/24/2017 15:05	Mr. Brian G Shade
2210886004	FFMP014W	Ground Water	2/24/2017 13:01	2/24/2017 15:05	Mr. Brian G Shade
2210886005	FFMP027W	Ground Water	2/24/2017 13:54	2/24/2017 15:05	Mr. Brian G Shade
2210886006	FIELD BLANK	Ground Water	2/24/2017 14:14	2/24/2017 15:05	Mr. Brian G Shade
2210886007	TRIP BLANK	Ground Water	2/24/2017 15:01	2/24/2017 15:05	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2210886 1ST QTR 2017 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: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886001**
Sample ID: **FFMP017W**

Date Collected: 2/24/2017 09:53 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 15:25	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 15:25	DD	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)	93.6		%	62 - 133	SW846 8260B			3/2/17 15:25	DD	G
4-Bromofluorobenzene (S)	80.8		%	79 - 114	SW846 8260B			3/2/17 15:25	DD	G
Dibromofluoromethane (S)	86.3		%	78 - 116	SW846 8260B			3/2/17 15:25	DD	G
Toluene-d8 (S)	85.3		%	76 - 127	SW846 8260B			3/2/17 15:25	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	52		mg/L	5	S2320B-97			2/27/17 06:19	MSA	B
Alkalinity, Total	52	2	mg/L	5	S2320B-97			2/27/17 06:19	MSA	B
Ammonia-N	0.119		mg/L	0.100	D6919-09			3/4/17 08:31	CMM	A
Chemical Oxygen Demand (COD)	13		mg/L	7	EPA 410.4			2/27/17 14:50	AK	A
Chloride	336		mg/L	5.0	EPA 300.0			2/25/17 13:40	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			2/25/17 13:40	CHW	B
Nitrate-N	3.2		mg/L	0.50	EPA 300.0			2/25/17 13:40	CHW	B
pH	6.18	1	pH_Units		S4500HB-00			2/27/17 06:19	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	1280		umhos/cm	1	SW846 9050A			2/27/17 06:19	MSA	B
Sulfate	64.9		mg/L	5.0	EPA 300.0			2/25/17 13:40	CHW	B
Total Dissolved Solids	710		mg/L	5	S2540C-11			2/28/17 17:52	JAS	B
Total Organic Carbon (TOC)	1.8		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	0.25		NTU	0.10	S2130B-01			2/25/17 05:05	MBW	B

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ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886001**
Sample ID: **FFMP017W**

Date Collected: 2/24/2017 09:53 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	92.3		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 11:59	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	3/1/17 09:25	TRR	3/7/17 11:59	SRT	J1
Magnesium, Total	42.4		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 11:59	SRT	J1
Manganese, Total	0.41		mg/L	0.0056	SW846 6010C	3/1/17 09:25	TRR	3/7/17 11:59	SRT	J1
Potassium, Total	4.8		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 11:59	SRT	J1
Sodium, Total	70.8		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 11:59	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	41.060		Feet		Field			2/24/17 09:53	CLT	C
Elev Top MW Casing above MSL	480.70		Feet		Field			2/24/17 09:53	CLT	C
Flow Rate	2.22		gal/min		Field			2/24/17 09:53	CLT	C
Ground Water Elevation	439.640		ft/MSL		Field			2/24/17 09:53	CLT	C
pH, Field (SM4500B)	5.420		pH_Units		Field			2/24/17 09:53	CLT	C
Sample Depth	135.000		Feet		Field			2/24/17 09:53	CLT	C
Specific Conductance, Field	1412		umhos/cm	1	Field			2/24/17 09:53	CLT	C
Temperature	10.90		Deg. C		Field			2/24/17 09:53	CLT	C
Total Well Depth	150.500		Feet		Field			2/24/17 09:53	CLT	C
Volume in Water Column	160.877		Gallons		Field			2/24/17 09:53	CLT	C
Water Level After Purge	47.630		Feet		Field			2/24/17 09:53	CLT	C
Well Volumes Purged	1.10		Vol		Field			2/24/17 09:53	CLT	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886002**
Sample ID: **FFMP029W**

Date Collected: 2/24/2017 11:04 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 15:46	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 15:46	DD	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)	91		%	62 - 133	SW846 8260B			3/2/17 15:46	DD	G
4-Bromofluorobenzene (S)	79.9		%	79 - 114	SW846 8260B			3/2/17 15:46	DD	G
Dibromofluoromethane (S)	84.1		%	78 - 116	SW846 8260B			3/2/17 15:46	DD	G
Toluene-d8 (S)	83.6		%	76 - 127	SW846 8260B			3/2/17 15:46	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	11		mg/L	5	S2320B-97			2/27/17 06:28	MSA	B
Alkalinity, Total	11	2	mg/L	5	S2320B-97			2/27/17 06:28	MSA	B
Ammonia-N	0.112		mg/L	0.100	D6919-09			3/4/17 09:48	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/27/17 14:50	AK	A
Chloride	87.3		mg/L	2.0	EPA 300.0			2/25/17 13:54	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/25/17 13:54	CHW	B
Nitrate-N	4.2		mg/L	0.20	EPA 300.0			2/25/17 13:54	CHW	B
pH	5.89	1	pH_Units		S4500HB-00			2/27/17 06:28	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	314		umhos/cm	1	SW846 9050A			2/27/17 06:28	MSA	B
Sulfate	11.4		mg/L	2.0	EPA 300.0			2/25/17 13:54	CHW	B
Total Dissolved Solids	202		mg/L	5	S2540C-11			2/28/17 17:52	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	0.18		NTU	0.10	S2130B-01			2/25/17 05:05	MBW	B

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ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886002**
Sample ID: **FFMP029W**

Date Collected: 2/24/2017 11:04 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	18.3		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:10	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:10	SRT	J1
Magnesium, Total	11.3		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:10	SRT	J1
Manganese, Total	0.041		mg/L	0.0056	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:10	SRT	J1
Potassium, Total	2.4		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:10	SRT	J1
Sodium, Total	25.3		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:10	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	39.010		Feet		Field			2/24/17 11:04	CLT	C
Elev Top MW Casing above MSL	477.30		Feet		Field			2/24/17 11:04	CLT	C
Flow Rate	2.42		gal/min		Field			2/24/17 11:04	CLT	C
Ground Water Elevation	438.290		ft/MSL		Field			2/24/17 11:04	CLT	C
pH, Field (SM4500B)	5.080		pH_Units		Field			2/24/17 11:04	CLT	C
Sample Depth	55.000		Feet		Field			2/24/17 11:04	CLT	C
Specific Conductance, Field	400		umhos/cm	1	Field			2/24/17 11:04	CLT	C
Temperature	12.59		Deg. C		Field			2/24/17 11:04	CLT	C
Total Well Depth	60.500		Feet		Field			2/24/17 11:04	CLT	C
Volume in Water Column	31.590		Gallons		Field			2/24/17 11:04	CLT	C
Water Level After Purge	46.730		Feet		Field			2/24/17 11:04	CLT	C
Well Volumes Purged	3.83		Vol		Field			2/24/17 11:04	CLT	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886003**
Sample ID: **FFMP013W**

Date Collected: 2/24/2017 12:40 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 16:08	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 16:08	DD	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)	92.3		%	62 - 133	SW846 8260B			3/2/17 16:08	DD	G
4-Bromofluorobenzene (S)	79.7		%	79 - 114	SW846 8260B			3/2/17 16:08	DD	G
Dibromofluoromethane (S)	83.9		%	78 - 116	SW846 8260B			3/2/17 16:08	DD	G
Toluene-d8 (S)	82.6		%	76 - 127	SW846 8260B			3/2/17 16:08	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	165		mg/L	5	S2320B-97			2/27/17 06:38	MSA	B
Alkalinity, Total	165	2	mg/L	5	S2320B-97			2/27/17 06:38	MSA	B
Ammonia-N	0.129		mg/L	0.100	D6919-09			3/4/17 10:07	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/27/17 14:50	AK	A
Chloride	178		mg/L	2.0	EPA 300.0			2/25/17 14:08	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/25/17 14:08	CHW	B
Nitrate-N	7.1		mg/L	0.20	EPA 300.0			2/25/17 14:08	CHW	B
pH	7.68	1	pH_Units		S4500HB-00			2/27/17 06:38	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	940		umhos/cm	1	SW846 9050A			2/27/17 06:38	MSA	B
Sulfate	32.9		mg/L	2.0	EPA 300.0			2/25/17 14:08	CHW	B
Total Dissolved Solids	541		mg/L	5	S2540C-11			2/28/17 17:52	JAS	B
Total Organic Carbon (TOC)	0.52		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	13.6		NTU	0.10	S2130B-01			2/25/17 05:05	MBW	B

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ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886003**
Sample ID: **FFMP013W**

Date Collected: 2/24/2017 12:40 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	107		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:13	SRT	J1
Iron, Total	1.9		mg/L	0.067	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:13	SRT	J1
Magnesium, Total	13.8		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:13	SRT	J1
Manganese, Total	0.010		mg/L	0.0056	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:13	SRT	J1
Potassium, Total	1.3		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:13	SRT	J1
Sodium, Total	51.3		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:13	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	16.480		Feet		Field			2/24/17 12:40	CLT	C
Elev Top MW Casing above MSL	507.60		Feet		Field			2/24/17 12:40	CLT	C
Flow Rate	2.34		gal/min		Field			2/24/17 12:40	CLT	C
Ground Water Elevation	491.120		ft/MSL		Field			2/24/17 12:40	CLT	C
pH, Field (SM4500B)	7.090		pH_Units		Field			2/24/17 12:40	CLT	C
Sample Depth	135.000		Feet		Field			2/24/17 12:40	CLT	C
Specific Conductance, Field	1049		umhos/cm	1	Field			2/24/17 12:40	CLT	C
Temperature	12.82		Deg. C		Field			2/24/17 12:40	CLT	C
Total Well Depth	150.500		Feet		Field			2/24/17 12:40	CLT	C
Volume in Water Column	197.009		Gallons		Field			2/24/17 12:40	CLT	C
Water Level After Purge	81.920		Feet		Field			2/24/17 12:40	CLT	C
Well Volumes Purged	0.83		Vol		Field			2/24/17 12:40	CLT	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886004**
Sample ID: **FFMP014W**

Date Collected: 2/24/2017 13:01 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 16:30	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 16:30	DD	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)	91.6		%	62 - 133	SW846 8260B			3/2/17 16:30	DD	G
4-Bromofluorobenzene (S)	82.4		%	79 - 114	SW846 8260B			3/2/17 16:30	DD	G
Dibromofluoromethane (S)	86.3		%	78 - 116	SW846 8260B			3/2/17 16:30	DD	G
Toluene-d8 (S)	84.5		%	76 - 127	SW846 8260B			3/2/17 16:30	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	27		mg/L	5	S2320B-97			2/27/17 06:46	MSA	B
Alkalinity, Total	27	2	mg/L	5	S2320B-97			2/27/17 06:46	MSA	B
Ammonia-N	0.291		mg/L	0.100	D6919-09			3/4/17 10:26	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/27/17 14:50	AK	A
Chloride	105		mg/L	2.0	EPA 300.0			2/25/17 14:22	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/25/17 14:22	CHW	B
Nitrate-N	6.7		mg/L	0.20	EPA 300.0			2/25/17 14:22	CHW	B
pH	5.98	1	pH_Units		S4500HB-00			2/27/17 06:46	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	494		umhos/cm	1	SW846 9050A			2/27/17 06:46	MSA	B
Sulfate	41.5		mg/L	2.0	EPA 300.0			2/25/17 14:22	CHW	B
Total Dissolved Solids	266		mg/L	5	S2540C-11			2/28/17 17:52	JAS	B
Total Organic Carbon (TOC)	0.69		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	4.33		NTU	0.10	S2130B-01			2/25/17 05:05	MBW	B

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ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886004**
Sample ID: **FFMP014W**

Date Collected: 2/24/2017 13:01 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	20.9		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:17	SRT	J1
Iron, Total	0.12		mg/L	0.067	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:17	SRT	J1
Magnesium, Total	12.9		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:17	SRT	J1
Manganese, Total	0.015		mg/L	0.0056	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:17	SRT	J1
Potassium, Total	2.0		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:17	SRT	J1
Sodium, Total	49.7		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:17	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	10.650		Feet		Field			2/24/17 13:01	CLT	C
Elev Top MW Casing above MSL	507.30		Feet		Field			2/24/17 13:01	CLT	C
Flow Rate	5.63		gal/min		Field			2/24/17 13:01	CLT	C
Ground Water Elevation	496.650		ft/MSL		Field			2/24/17 13:01	CLT	C
pH, Field (SM4500B)	5.170		pH_Units		Field			2/24/17 13:01	CLT	C
Sample Depth	24.500		Feet		Field			2/24/17 13:01	CLT	C
Specific Conductance, Field	547		umhos/cm	1	Field			2/24/17 13:01	CLT	C
Temperature	11.80		Deg. C		Field			2/24/17 13:01	CLT	C
Total Well Depth	29.600		Feet		Field			2/24/17 13:01	CLT	C
Volume in Water Column	12.318		Gallons		Field			2/24/17 13:01	CLT	C
Water Level After Purge	19.990		Feet		Field			2/24/17 13:01	CLT	C
Well Volumes Purged	4.57		Vol		Field			2/24/17 13:01	CLT	C



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886005**
Sample ID: **FFMP027W**

Date Collected: 2/24/2017 13:54 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 16:52	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 16:52	DD	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)	92.6		%	62 - 133	SW846 8260B			3/2/17 16:52	DD	G
4-Bromofluorobenzene (S)	79.1		%	79 - 114	SW846 8260B			3/2/17 16:52	DD	G
Dibromofluoromethane (S)	86.7		%	78 - 116	SW846 8260B			3/2/17 16:52	DD	G
Toluene-d8 (S)	82.6		%	76 - 127	SW846 8260B			3/2/17 16:52	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	10		mg/L	5	S2320B-97			2/27/17 06:55	MSA	B
Alkalinity, Total	10	2	mg/L	5	S2320B-97			2/27/17 06:55	MSA	B
Ammonia-N	0.155		mg/L	0.100	D6919-09			3/4/17 10:45	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			2/27/17 14:50	AK	A
Chloride	32.9		mg/L	2.0	EPA 300.0			2/25/17 14:36	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/25/17 14:36	CHW	B
Nitrate-N	10.6		mg/L	0.20	EPA 300.0			2/25/17 14:36	CHW	B
pH	5.78	1	pH_Units		S4500HB-00			2/27/17 06:55	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	224		umhos/cm	1	SW846 9050A			2/27/17 06:55	MSA	B
Sulfate	6.9		mg/L	2.0	EPA 300.0			2/25/17 14:36	CHW	B
Total Dissolved Solids	160		mg/L	5	S2540C-11			2/28/17 17:52	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			2/27/17 10:19	PAG	D
Turbidity	ND		NTU	0.10	S2130B-01			2/25/17 05:05	MBW	B

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ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886005**
Sample ID: **FFMP027W**

Date Collected: 2/24/2017 13:54 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	15.1		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:21	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:21	SRT	J1
Magnesium, Total	9.8		mg/L	0.11	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:21	SRT	J1
Manganese, Total	0.023		mg/L	0.0056	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:21	SRT	J1
Potassium, Total	1.4		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:21	SRT	J1
Sodium, Total	10.8		mg/L	0.56	SW846 6010C	3/1/17 09:25	TRR	3/7/17 12:21	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	22.170		Feet		Field			2/24/17 13:54	CLT	C
Elev Top MW Casing above MSL	522.10		Feet		Field			2/24/17 13:54	CLT	C
Flow Rate	4.80		gal/min		Field			2/24/17 13:54	CLT	C
Ground Water Elevation	499.930		ft/MSL		Field			2/24/17 13:54	CLT	C
pH, Field (SM4500B)	4.750		pH_Units		Field			2/24/17 13:54	CLT	C
Sample Depth	45.000		Feet		Field			2/24/17 13:54	CLT	C
Specific Conductance, Field	277		umhos/cm	1	Field			2/24/17 13:54	CLT	C
Temperature	14.41		Deg. C		Field			2/24/17 13:54	CLT	C
Total Well Depth	53.500		Feet		Field			2/24/17 13:54	CLT	C
Volume in Water Column	46.055		Gallons		Field			2/24/17 13:54	CLT	C
Water Level After Purge	22.560		Feet		Field			2/24/17 13:54	CLT	C
Well Volumes Purged	4.17		Vol		Field			2/24/17 13:54	CLT	C



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Project Coordinator

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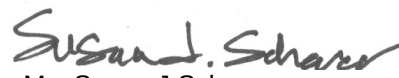
ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886006**
Sample ID: **FIELD BLANK**

Date Collected: 2/24/2017 14:14 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 14:39	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 14:39	DD	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)	105		%	62 - 133	SW846 8260B			3/2/17 14:39	DD	A
4-Bromofluorobenzene (S)	103		%	79 - 114	SW846 8260B			3/2/17 14:39	DD	A
Dibromofluoromethane (S)	92.2		%	78 - 116	SW846 8260B			3/2/17 14:39	DD	A
Toluene-d8 (S)	92.8		%	76 - 127	SW846 8260B			3/2/17 14:39	DD	A


Ms. Susan J Scherer
Project Coordinator

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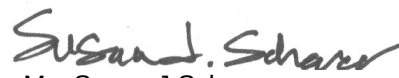
ANALYTICAL RESULTS

Workorder: 2210886 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2210886007**
Sample ID: **TRIP BLANK**

Date Collected: 2/24/2017 15:01 Matrix: Ground Water
Date Received: 2/24/2017 15:05

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 15:01	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	DD	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)	106		%	62 - 133	SW846 8260B			3/2/17 15:01	DD	A
4-Bromofluorobenzene (S)	102		%	79 - 114	SW846 8260B			3/2/17 15:01	DD	A
Dibromofluoromethane (S)	91.9		%	78 - 116	SW846 8260B			3/2/17 15:01	DD	A
Toluene-d8 (S)	93.8		%	76 - 127	SW846 8260B			3/2/17 15:01	DD	A


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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2210886001	1	FFMP017W	S4500HB-00	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.				
2210886001	2	FFMP017W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2210886002	1	FFMP029W	S4500HB-00	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.				
2210886002	2	FFMP029W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2210886003	1	FFMP013W	S4500HB-00	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.				
2210886003	2	FFMP013W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2210886004	1	FFMP014W	S4500HB-00	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.				
2210886004	2	FFMP014W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2210886005	1	FFMP027W	S4500HB-00	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.				
2210886005	2	FFMP027W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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March 9, 2017

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

Certificate of Analysis

Project Name: 2017-FREY FARM	Workorder: 2211130
Purchase Order:	Workorder ID: 1ST QTR 2017 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Monday, February 27, 2017.

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

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

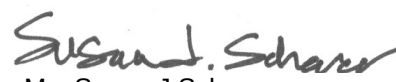
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

CC: Mr. Mark Reider , Mr. Jeff Musser

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


Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2211130001	FFMP30RW	Ground Water	2/27/2017 10:00	2/27/2017 14:31	Mr. Brian G Shade
2211130002	FFMP04AW	Ground Water	2/27/2017 11:05	2/27/2017 14:31	Mr. Brian G Shade
2211130003	FFMP018W	Ground Water	2/27/2017 11:31	2/27/2017 14:31	Mr. Brian G Shade
2211130004	FFMP019W	Ground Water	2/27/2017 12:16	2/27/2017 14:31	Mr. Brian G Shade
2211130005	FFMP002W	Ground Water	2/27/2017 12:53	2/27/2017 14:31	Mr. Brian G Shade
2211130006	FIELD BLANK	Ground Water	2/27/2017 13:40	2/27/2017 14:31	Mr. Brian G Shade
2211130007	TRIP BLANK	Ground Water	2/27/2017 14:31	2/27/2017 14:31	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2211130 1ST QTR 2017 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: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130001**
Sample ID: **FFMP30RW**

Date Collected: 2/27/2017 10:00 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 13:49	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 13:49	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)	96.2		%	62 - 133	SW846 8260B			3/2/17 13:49	TMP	G
4-Bromofluorobenzene (S)	89.2		%	79 - 114	SW846 8260B			3/2/17 13:49	TMP	G
Dibromofluoromethane (S)	97.5		%	78 - 116	SW846 8260B			3/2/17 13:49	TMP	G
Toluene-d8 (S)	94.7		%	76 - 127	SW846 8260B			3/2/17 13:49	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	45		mg/L	5	S2320B-97			2/28/17 12:01	MSA	B
Alkalinity, Total	45	2	mg/L	5	S2320B-97			2/28/17 12:01	MSA	B
Ammonia-N	0.131		mg/L	0.100	D6919-09			3/7/17 18:33	CMM	A
Chemical Oxygen Demand (COD)	14		mg/L	7	EPA 410.4			3/1/17 14:48	AK	A
Chloride	330		mg/L	5.0	EPA 300.0			2/28/17 07:58	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			2/28/17 07:58	CHW	B
Nitrate-N	5.8		mg/L	0.50	EPA 300.0			2/28/17 07:58	CHW	B
pH	6.36	1	pH_Units		S4500HB-00			2/28/17 12:01	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	1230		umhos/cm	1	SW846 9050A			2/28/17 12:01	MSA	B
Sulfate	50.5		mg/L	5.0	EPA 300.0			2/28/17 07:58	CHW	B
Total Dissolved Solids	631		mg/L	5	S2540C-11			2/28/17 18:33	JAS	B
Total Organic Carbon (TOC)	0.79		mg/L	0.50	SW846 9060A			2/28/17 12:00	PAG	D
Turbidity	3.07		NTU	0.10	S2130B-01			2/28/17 06:27	CHW	B

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ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130001**
Sample ID: **FFMP30RW**

Date Collected: 2/27/2017 10:00 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	56.7		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:13	SRT	J1
Iron, Total	0.11		mg/L	0.067	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:13	SRT	J1
Magnesium, Total	19.8		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:13	SRT	J1
Manganese, Total	3.9		mg/L	0.0056	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:13	SRT	J1
Potassium, Total	7.8		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:13	SRT	J1
Sodium, Total	127		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:13	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	35.710		Feet		Field			2/27/17 10:00	BGS	C
Elev Top MW Casing above MSL	562.30		Feet		Field			2/27/17 10:00	BGS	C
Flow Rate	2.22		gal/min		Field			2/27/17 10:00	BGS	C
Ground Water Elevation	526.590		ft/MSL		Field			2/27/17 10:00	BGS	C
pH, Field (SM4500B)	5.280		pH_Units		Field			2/27/17 10:00	BGS	C
Sample Depth	85.000		Feet		Field			2/27/17 10:00	BGS	C
Specific Conductance, Field	1266		umhos/cm	1	Field			2/27/17 10:00	BGS	C
Temperature	11.42		Deg. C		Field			2/27/17 10:00	BGS	C
Total Well Depth	94.200		Feet		Field			2/27/17 10:00	BGS	C
Volume in Water Column	85.980		Gallons		Field			2/27/17 10:00	BGS	C
Water Level After Purge	64.560		Feet		Field			2/27/17 10:00	BGS	C
Well Volumes Purged	1.81		Vol		Field			2/27/17 10:00	BGS	C



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ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130002**
Sample ID: **FFMP04AW**

Date Collected: 2/27/2017 11:05 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 14:07	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 14:07	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)	99.9		%	62 - 133	SW846 8260B			3/2/17 14:07	TMP	G
4-Bromofluorobenzene (S)	88.6		%	79 - 114	SW846 8260B			3/2/17 14:07	TMP	G
Dibromofluoromethane (S)	99.3		%	78 - 116	SW846 8260B			3/2/17 14:07	TMP	G
Toluene-d8 (S)	96.4		%	76 - 127	SW846 8260B			3/2/17 14:07	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	195		mg/L	5	S2320B-97			2/28/17 12:12	MSA	B
Alkalinity, Total	195	3	mg/L	5	S2320B-97			2/28/17 12:12	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/7/17 18:52	CMM	A
Chemical Oxygen Demand (COD)	8		mg/L	7	EPA 410.4			3/1/17 14:48	AK	A
Chloride	317		mg/L	5.0	EPA 300.0			2/28/17 08:12	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			2/28/17 08:12	CHW	B
Nitrate-N	ND		mg/L	0.50	EPA 300.0			2/28/17 08:12	CHW	B
pH	7.59	1	pH_Units		S4500HB-00			2/28/17 12:12	MSA	B
Phenolics	ND	2	mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	1390		umhos/cm	1	SW846 9050A			2/28/17 12:12	MSA	B
Sulfate	56.9		mg/L	5.0	EPA 300.0			2/28/17 08:12	CHW	B
Total Dissolved Solids	760		mg/L	5	S2540C-11			2/28/17 18:33	JAS	B
Total Organic Carbon (TOC)	0.71		mg/L	0.50	SW846 9060A			2/28/17 12:00	PAG	D
Turbidity	0.67		NTU	0.10	S2130B-01			2/28/17 06:27	CHW	B

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ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130002**
Sample ID: **FFMP04AW**

Date Collected: 2/27/2017 11:05 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	142		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:24	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:24	SRT	J1
Magnesium, Total	24.7		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:24	SRT	J1
Manganese, Total	0.14		mg/L	0.0056	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:24	SRT	J1
Potassium, Total	2.1		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:24	SRT	J1
Sodium, Total	79.6		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:24	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	35.710		Feet		Field			2/27/17 10:00	CLT	C
Elev Top MW Casing above MSL	560.72		Feet		Field			2/27/17 10:00	CLT	C
Flow Rate	2.22		gal/min		Field			2/27/17 10:00	CLT	C
Ground Water Elevation	525.010		ft/MSL		Field			2/27/17 10:00	CLT	C
pH, Field (SM4500B)	5.280		pH_Units		Field			2/27/17 10:00	CLT	C
Sample Depth	146.000		Feet		Field			2/27/17 10:00	CLT	C
Specific Conductance, Field	1266		umhos/cm	1	Field			2/27/17 10:00	CLT	C
Temperature	11.42		Deg. C		Field			2/27/17 10:00	CLT	C
Total Well Depth	148.500		Feet		Field			2/27/17 10:00	CLT	C
Volume in Water Column	165.801		Gallons		Field			2/27/17 10:00	CLT	C
Water Level After Purge	64.560		Feet		Field			2/27/17 10:00	CLT	C
Well Volumes Purged	0.94		Vol		Field			2/27/17 10:00	CLT	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130003**

Date Collected: 2/27/2017 11:31

Matrix: Ground Water

Sample ID: **FFMP018W**

Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 14:25	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 14:25	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)	96.7		%	62 - 133	SW846 8260B			3/2/17 14:25	TMP	G
4-Bromofluorobenzene (S)	85.5		%	79 - 114	SW846 8260B			3/2/17 14:25	TMP	G
Dibromofluoromethane (S)	96.8		%	78 - 116	SW846 8260B			3/2/17 14:25	TMP	G
Toluene-d8 (S)	93.3		%	76 - 127	SW846 8260B			3/2/17 14:25	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	12		mg/L	5	S2320B-97			2/28/17 12:58	MSA	B
Alkalinity, Total	12	2	mg/L	5	S2320B-97			2/28/17 12:58	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/7/17 19:11	CMM	A
Chemical Oxygen Demand (COD)	9		mg/L	7	EPA 410.4			3/1/17 14:48	AK	A
Chloride	129		mg/L	2.0	EPA 300.0			2/28/17 08:25	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/28/17 08:25	CHW	B
Nitrate-N	5.5		mg/L	0.20	EPA 300.0			2/28/17 08:25	CHW	B
pH	5.98	1	pH_Units		S4500HB-00			2/28/17 12:58	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	606		umhos/cm	1	SW846 9050A			2/28/17 12:58	MSA	B
Sulfate	46.7		mg/L	2.0	EPA 300.0			2/28/17 08:25	CHW	B
Total Dissolved Solids	313		mg/L	5	S2540C-11			2/28/17 18:33	JAS	B
Total Organic Carbon (TOC)	0.70		mg/L	0.50	SW846 9060A			2/28/17 12:00	PAG	D
Turbidity	1.99		NTU	0.10	S2130B-01			2/28/17 06:27	CHW	B

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ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130003**
Sample ID: **FFMP018W**

Date Collected: 2/27/2017 11:31 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	33.2		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:28	SRT	J1
Iron, Total	0.34		mg/L	0.067	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:28	SRT	J1
Magnesium, Total	18.1		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:28	SRT	J1
Manganese, Total	0.31		mg/L	0.0056	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:28	SRT	J1
Potassium, Total	4.3		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:28	SRT	J1
Sodium, Total	42.9		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:28	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	27.610		Feet		Field			2/27/17 11:31	CLT	C
Elev Top MW Casing above MSL	472.20		Feet		Field			2/27/17 11:31	CLT	C
Flow Rate	4.77		gal/min		Field			2/27/17 11:31	CLT	C
Ground Water Elevation	444.590		ft/MSL		Field			2/27/17 11:31	CLT	C
pH, Field (SM4500B)	5.050		pH_Units		Field			2/27/17 11:31	CLT	C
Sample Depth	40.000		Feet		Field			2/27/17 11:31	CLT	C
Specific Conductance, Field	657		umhos/cm	1	Field			2/27/17 11:31	CLT	C
Temperature	13.42		Deg. C		Field			2/27/17 11:31	CLT	C
Total Well Depth	51.460		Feet		Field			2/27/17 11:31	CLT	C
Volume in Water Column	15.503		Gallons		Field			2/27/17 11:31	CLT	C
Water Level After Purge	30.280		Feet		Field			2/27/17 11:31	CLT	C
Well Volumes Purged	3.07		Vol		Field			2/27/17 11:31	CLT	C



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130004**
Sample ID: **FFMP019W**

Date Collected: 2/27/2017 12:16 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 14:43	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 14:43	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)	99.3		%	62 - 133	SW846 8260B			3/2/17 14:43	TMP	G
4-Bromofluorobenzene (S)	88.8		%	79 - 114	SW846 8260B			3/2/17 14:43	TMP	G
Dibromofluoromethane (S)	98.7		%	78 - 116	SW846 8260B			3/2/17 14:43	TMP	G
Toluene-d8 (S)	95.1		%	76 - 127	SW846 8260B			3/2/17 14:43	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	65		mg/L	5	S2320B-97			2/28/17 13:08	MSA	B
Alkalinity, Total	65	2	mg/L	5	S2320B-97			2/28/17 13:08	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/7/17 19:30	CMM	A
Chemical Oxygen Demand (COD)	7		mg/L	7	EPA 410.4			3/1/17 14:48	AK	A
Chloride	79.5		mg/L	2.0	EPA 300.0			2/28/17 08:39	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			2/28/17 08:39	CHW	B
Nitrate-N	0.62		mg/L	0.20	EPA 300.0			2/28/17 08:39	CHW	B
pH	7.22	1	pH_Units		S4500HB-00			2/28/17 13:08	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	422		umhos/cm	1	SW846 9050A			2/28/17 13:08	MSA	B
Sulfate	14.4		mg/L	2.0	EPA 300.0			2/28/17 08:39	CHW	B
Total Dissolved Solids	216		mg/L	5	S2540C-11			2/28/17 18:33	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			2/28/17 12:00	PAG	D
Turbidity	ND		NTU	0.10	S2130B-01			2/28/17 06:27	CHW	B

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ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130004**
Sample ID: **FFMP019W**

Date Collected: 2/27/2017 12:16 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	56.4		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:32	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:32	SRT	J1
Magnesium, Total	5.6		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:32	SRT	J1
Manganese, Total	ND		mg/L	0.0056	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:32	SRT	J1
Potassium, Total	0.96		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:32	SRT	J1
Sodium, Total	9.7		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:32	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	28.310		Feet		Field			2/27/17 12:16	CLT	C
Elev Top MW Casing above MSL	471.95		Feet		Field			2/27/17 12:16	CLT	C
Flow Rate	5.22		gal/min		Field			2/27/17 12:16	CLT	C
Ground Water Elevation	443.640		ft/MSL		Field			2/27/17 12:16	CLT	C
pH, Field (SM4500B)	6.270		pH_Units		Field			2/27/17 12:16	CLT	C
Sample Depth	49.000		Feet		Field			2/27/17 12:16	CLT	C
Specific Conductance, Field	469		umhos/cm	1	Field			2/27/17 12:16	CLT	C
Temperature	12.01		Deg. C		Field			2/27/17 12:16	CLT	C
Total Well Depth	132.790		Feet		Field			2/27/17 12:16	CLT	C
Volume in Water Column	67.912		Gallons		Field			2/27/17 12:16	CLT	C
Water Level After Purge	37.180		Feet		Field			2/27/17 12:16	CLT	C
Well Volumes Purged	3.07		Vol		Field			2/27/17 12:16	CLT	C



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ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130005**

Date Collected: 2/27/2017 12:53

Matrix: Ground Water

Sample ID: **FFMP002W**

Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 15:01	TMP	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	TMP	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 15:01	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)	97.3		%	62 - 133	SW846 8260B			3/2/17 15:01	TMP	G
4-Bromofluorobenzene (S)	90.4		%	79 - 114	SW846 8260B			3/2/17 15:01	TMP	G
Dibromofluoromethane (S)	98.9		%	78 - 116	SW846 8260B			3/2/17 15:01	TMP	G
Toluene-d8 (S)	95.4		%	76 - 127	SW846 8260B			3/2/17 15:01	TMP	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			2/28/17 13:18	MSA	B
Alkalinity, Total	ND	2	mg/L	5	S2320B-97			2/28/17 13:18	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/7/17 19:49	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			3/6/17 14:44	AK	A
Chloride	22.3		mg/L	5.0	EPA 300.0			2/28/17 08:52	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			2/28/17 08:52	CHW	B
Nitrate-N	20.0		mg/L	0.50	EPA 300.0			2/28/17 08:52	CHW	B
pH	5.50	1	pH_Units		S4500HB-00			2/28/17 13:18	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	263		umhos/cm	1	SW846 9050A			2/28/17 13:18	MSA	B
Sulfate	23.6		mg/L	5.0	EPA 300.0			2/28/17 08:52	CHW	B
Total Dissolved Solids	165		mg/L	5	S2540C-11			2/28/17 18:33	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			2/28/17 12:00	PAG	D
Turbidity	0.58		NTU	0.10	S2130B-01			2/28/17 06:27	CHW	B

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ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130005**
Sample ID: **FFMP002W**

Date Collected: 2/27/2017 12:53 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	19.5		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:35	SRT	J1
Iron, Total	0.11		mg/L	0.067	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:35	SRT	J1
Magnesium, Total	8.5		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:35	SRT	J1
Manganese, Total	0.26		mg/L	0.0056	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:35	SRT	J1
Potassium, Total	1.7		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:35	SRT	J1
Sodium, Total	14.4		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:35	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	67.230		Feet		Field			2/27/17 12:53	CLT	C
Elev Top MW Casing above MSL	613.20		Feet		Field			2/27/17 12:53	CLT	C
Flow Rate	1.21		gal/min		Field			2/27/17 12:53	CLT	C
Ground Water Elevation	545.970		ft/MSL		Field			2/27/17 12:53	CLT	C
pH, Field (SM4500B)	4.610		pH_Units		Field			2/27/17 12:53	CLT	C
Sample Depth	85.000		Feet		Field			2/27/17 12:53	CLT	C
Specific Conductance, Field	325		umhos/cm	1	Field			2/27/17 12:53	CLT	C
Temperature	12.14		Deg. C		Field			2/27/17 12:53	CLT	C
Total Well Depth	90.020		Feet		Field			2/27/17 12:53	CLT	C
Volume in Water Column	33.501		Gallons		Field			2/27/17 12:53	CLT	C
Water Level After Purge	81.570		Feet		Field			2/27/17 12:53	CLT	C
Well Volumes Purged	0.87		Vol		Field			2/27/17 12:53	CLT	C



Ms. Susan J Scherer
Project Coordinator

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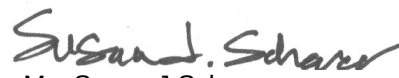
ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130006**
Sample ID: **FIELD BLANK**

Date Collected: 2/27/2017 13:40 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 13:31	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 13:31	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)	97.6		%	62 - 133	SW846 8260B			3/2/17 13:31	TMP	A
4-Bromofluorobenzene (S)	91.7		%	79 - 114	SW846 8260B			3/2/17 13:31	TMP	A
Dibromofluoromethane (S)	96.4		%	78 - 116	SW846 8260B			3/2/17 13:31	TMP	A
Toluene-d8 (S)	97.3		%	76 - 127	SW846 8260B			3/2/17 13:31	TMP	A


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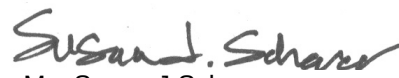
ANALYTICAL RESULTS

Workorder: 2211130 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211130007**
Sample ID: **TRIP BLANK**

Date Collected: 2/27/2017 14:31 Matrix: Ground Water
Date Received: 2/27/2017 14:31

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/2/17 13:12	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/2/17 13:12	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)	98.9		%	62 - 133	SW846 8260B			3/2/17 13:12	TMP	A
4-Bromofluorobenzene (S)	88.5		%	79 - 114	SW846 8260B			3/2/17 13:12	TMP	A
Dibromofluoromethane (S)	96.4		%	78 - 116	SW846 8260B			3/2/17 13:12	TMP	A
Toluene-d8 (S)	95		%	76 - 127	SW846 8260B			3/2/17 13:12	TMP	A


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Project Coordinator

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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2211130001	1	FFMP30RW	S4500HB-00	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.				
2211130001	2	FFMP30RW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2211130002	1	FFMP04AW	S4500HB-00	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.				
2211130002	2	FFMP04AW	SW846 9066	Phenolics
The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.				
2211130002	3	FFMP04AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2211130003	1	FFMP018W	S4500HB-00	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.				
2211130003	2	FFMP018W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2211130004	1	FFMP019W	S4500HB-00	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.				
2211130004	2	FFMP019W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2211130005	1	FFMP002W	S4500HB-00	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.				
2211130005	2	FFMP002W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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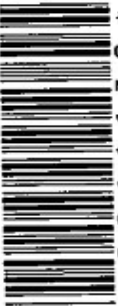
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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

COC



1 of 1

Client Name: Lancaster County Solid Waste MA

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

Lancaster, PA 17604

Contact: Brooks Norris

Phone#: (717) 397-9968

Project Name/ID: Frey Farm Quarterly

Bill To: Lancaster County Solid Waste MA

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

Date Required: _____ Approved By: _____

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

Fax? ☒ Y No.: (717) 397-9973

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time
1. FFMP30RW	2-27-17	1000
2. FFMP04AW	1105	
3. FFMP01BW	1131	
4. FFMP01BW	1216	
5. FFMP002W	1223	
6. Field Blank	1340	
7. Trip Blank	1431	
8.		
9.		
10.		

Project Comments:

Relinquished By / Company Name

Date

Time

Received By / Company Name

Date

Time

LOGGED BY (signature):

REVIEWED BY (signature):

Signature

Signature

Signature

Signature

Signature

Container Type: 125 ml
Container Size: 500 ml
Preservative: HCl
AG: H2SO4
AN: H2SO4
CG: 40 ml
Field Measurements: VOC - Form 190
Sample Depth for AUX Data: NH3-N, COD
Metals: Fe, Mn, Na, Ca, K, Mg
pH, Cl, SPC, F, SO4, TDS, NO3
Alkalinity, HCO3
Turbidity
COC Labels Complete/Accurate? ☒
Cont. in Good Cond.? ☒
Correct Containers? ☒
Correct Sample Volumes? ☒
Correct Preservation? ☒
Headspace/Volatiles? ☒
Custody Seals Present? ☒
(If present) Seals Intact? ☒
Received on Ice? ☒
COC Labels Complete/Accurate? ☒
Cont. in Good Cond.? ☒
Correct Containers? ☒
Correct Sample Volumes? ☒
Correct Preservation? ☒
Headspace/Volatiles? ☒
Courier/Tracking #: _____
Sample/COC Comments: _____

ALS Field Services: ☐ Pickup ☐ Labor
☐ Composite Sampling ☐ Rental Equipment
☐ Other: _____
Standard ☐ CLP-like ☐ USACE
Deliverables ☐ USACE ☐ Navy ☐
Special Processing ☐ USACE ☐ Navy ☐
State Samples Collected In ☐ NY ☐ NJ ☒ PA ☐ NC
Reportable to PADEP? ☐ Yes ☐ No
Sample Disposal ☒ Lab ☐ Special
PWSID # _____
EDDS: Format Type: _____

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

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

Rev 8/04

March 23, 2017

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

Certificate of Analysis

Revised Report - 3/23/2017 2:23:01 PM - See workorder comment section for explanation

Project Name:	2017-FREY FARM	Workorder:	2211398
Purchase Order:		Workorder ID:	1ST QTR 2017 GWMP-FORM 19Q

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, February 28, 2017.

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

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

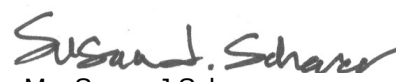
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

CC: Mr. Mark Reider , Mr. Jeff Musser

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


Ms. Susan J Scherer
Project Coordinator

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**SAMPLE SUMMARY**

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2211398001	FFMP028W	Ground Water	2/28/2017 10:09	2/28/2017 16:49	Mr. Brian G Shade
2211398002	FFMP025W	Ground Water	2/28/2017 10:46	2/28/2017 16:49	Mr. Brian G Shade
2211398003	FFMP016W	Ground Water	2/28/2017 11:10	2/28/2017 16:49	Mr. Brian G Shade
2211398004	FIELD BLANK	Ground Water	2/28/2017 15:13	2/28/2017 16:49	Mr. Brian G Shade
2211398005	TRIP BLANK	Ground Water	2/28/2017 16:49	2/28/2017 16:49	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2211398 1ST QTR 2017 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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PROJECT SUMMARY

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Workorder Comments

Results reported for Ammonia are associated with samples that were stored at temperatures exceeding the method criterion of 0-6 degrees C due to a sample storage equipment malfunction over the weekend of March 4, 2017.

Please note that reported results did not change in this revised report. Additional detailed information will be communicated by your customer service representative.

This certificate of analysis was modified to include the laboratory analysis data on the report. Originally, it was issued with only the cover page and chain of custody. SJS 03/23/17

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ANALYTICAL RESULTS

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211398001**

Date Collected: 2/28/2017 10:09

Matrix: Ground Water

Sample ID: **FFMP028W**

Date Received: 2/28/2017 16:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/3/17 12:35	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 12:35	DD	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)	95		%	62 - 133	SW846 8260B			3/3/17 12:35	DD	G
4-Bromofluorobenzene (S)	86.2		%	79 - 114	SW846 8260B			3/3/17 12:35	DD	G
Dibromofluoromethane (S)	89.7		%	78 - 116	SW846 8260B			3/3/17 12:35	DD	G
Toluene-d8 (S)	88		%	76 - 127	SW846 8260B			3/3/17 12:35	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	28		mg/L	5	S2320B-97			3/1/17 06:27	MSA	B
Alkalinity, Total	28	2	mg/L	5	S2320B-97			3/1/17 06:27	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/8/17 16:49	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			3/1/17 14:48	AK	A
Chloride	96.6		mg/L	5.0	EPA 300.0			3/1/17 09:53	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			3/1/17 09:53	CHW	B
Nitrate-N	20.8		mg/L	0.50	EPA 300.0			3/1/17 09:53	CHW	B
pH	6.17	1	pH_Units		S4500HB-00			3/1/17 06:27	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	563		umhos/cm	1	SW846 9050A			3/1/17 06:27	MSA	B
Sulfate	23.9		mg/L	5.0	EPA 300.0			3/1/17 09:53	CHW	B
Total Dissolved Solids	310		mg/L	5	S2540C-11			3/1/17 18:20	JAS	B
Total Organic Carbon (TOC)	1.5		mg/L	0.50	SW846 9060A			3/1/17 11:44	PAG	D
Turbidity	ND		NTU	0.10	S2130B-01			3/1/17 09:52	CHW	B

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ANALYTICAL RESULTS

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211398001**
Sample ID: **FFMP028W**

Date Collected: 2/28/2017 10:09 Matrix: Ground Water
Date Received: 2/28/2017 16:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	40.8		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:39	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:39	SRT	J1
Magnesium, Total	18.5		mg/L	0.11	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:39	SRT	J1
Manganese, Total	0.014		mg/L	0.0056	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:39	SRT	J1
Potassium, Total	2.3		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:39	SRT	J1
Sodium, Total	29.4		mg/L	0.56	SW846 6010C	3/1/17 11:10	TRR	3/7/17 11:39	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	6.850		Feet		Field			2/28/17 10:09	CLT	C
Elev Top MW Casing above MSL	465.00		Feet		Field			2/28/17 10:09	CLT	C
Flow Rate	3.19		gal/min		Field			2/28/17 10:09	CLT	C
Ground Water Elevation	458.150		ft/MSL		Field			2/28/17 10:09	CLT	C
pH, Field (SM4500B)	5.170		pH_Units		Field			2/28/17 10:09	CLT	C
Sample Depth	50.000		Feet		Field			2/28/17 10:09	CLT	C
Specific Conductance, Field	631		umhos/cm	1	Field			2/28/17 10:09	CLT	C
Temperature	11.06		Deg. C		Field			2/28/17 10:09	CLT	C
Total Well Depth	60.000		Feet		Field			2/28/17 10:09	CLT	C
Volume in Water Column	78.131		Gallons		Field			2/28/17 10:09	CLT	C
Water Level After Purge	35.860		Feet		Field			2/28/17 10:09	CLT	C
Well Volumes Purged	2.45		Vol		Field			2/28/17 10:09	CLT	C



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211398002**
Sample ID: **FFMP025W**

Date Collected: 2/28/2017 10:46 Matrix: Ground Water
Date Received: 2/28/2017 16:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/3/17 12:56	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 12:56	DD	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)	97.5		%	62 - 133	SW846 8260B			3/3/17 12:56	DD	G
4-Bromofluorobenzene (S)	84.8		%	79 - 114	SW846 8260B			3/3/17 12:56	DD	G
Dibromofluoromethane (S)	89.9		%	78 - 116	SW846 8260B			3/3/17 12:56	DD	G
Toluene-d8 (S)	89.4		%	76 - 127	SW846 8260B			3/3/17 12:56	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	17		mg/L	5	S2320B-97			3/1/17 06:36	MSA	B
Alkalinity, Total	17	3	mg/L	5	S2320B-97			3/1/17 06:36	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/8/17 17:08	CMM	A
Chemical Oxygen Demand (COD)	10		mg/L	7	EPA 410.4			3/2/17 13:30	AK	A
Chloride	83.9		mg/L	2.0	EPA 300.0			3/1/17 10:07	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			3/1/17 10:07	CHW	B
Nitrate-N	8.0		mg/L	0.20	EPA 300.0			3/1/17 10:07	CHW	B
pH	6.02	1	pH_Units		S4500HB-00			3/1/17 06:36	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	408		umhos/cm	1	SW846 9050A			3/1/17 06:36	MSA	B
Sulfate	30.6		mg/L	2.0	EPA 300.0			3/1/17 10:07	CHW	B
Total Dissolved Solids	253	2	mg/L	5	S2540C-11			3/1/17 18:20	JAS	B
Total Organic Carbon (TOC)	1.1		mg/L	0.50	SW846 9060A			3/1/17 11:44	PAG	D
Turbidity	0.22		NTU	0.10	S2130B-01			3/1/17 09:52	CHW	B

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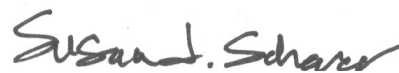
ANALYTICAL RESULTS

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211398002**
Sample ID: **FFMP025W**

Date Collected: 2/28/2017 10:46 Matrix: Ground Water
Date Received: 2/28/2017 16:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	22.1		mg/L	0.11	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:32	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:32	SRT	J1
Magnesium, Total	13.4		mg/L	0.11	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:32	SRT	J1
Manganese, Total	0.011		mg/L	0.0056	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 17:31	SRT	J1
Potassium, Total	2.0		mg/L	0.56	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:32	SRT	J1
Sodium, Total	18.6		mg/L	0.56	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:32	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	25.370		Feet		Field			2/28/17 10:46	CLT	C
Elev Top MW Casing above MSL	476.80		Feet		Field			2/28/17 10:46	CLT	C
Flow Rate	4.62		gal/min		Field			2/28/17 10:46	CLT	C
Ground Water Elevation	451.430		ft/MSL		Field			2/28/17 10:46	CLT	C
pH, Field (SM4500B)	5.200		pH_Units		Field			2/28/17 10:46	CLT	C
Sample Depth	39.000		Feet		Field			2/28/17 10:46	CLT	C
Specific Conductance, Field	597		umhos/cm	1	Field			2/28/17 10:46	CLT	C
Temperature	11.65		Deg. C		Field			2/28/17 10:46	CLT	C
Total Well Depth	41.500		Feet		Field			2/28/17 10:46	CLT	C
Volume in Water Column	23.711		Gallons		Field			2/28/17 10:46	CLT	C
Water Level After Purge	27.570		Feet		Field			2/28/17 10:46	CLT	C
Well Volumes Purged	3.90		Vol		Field			2/28/17 10:46	CLT	C



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211398003**
Sample ID: **FFMP016W**

Date Collected: 2/28/2017 11:10 Matrix: Ground Water
Date Received: 2/28/2017 16:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/3/17 13:18	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 13:18	DD	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)	97.5		%	62 - 133	SW846 8260B			3/3/17 13:18	DD	G
4-Bromofluorobenzene (S)	85.2		%	79 - 114	SW846 8260B			3/3/17 13:18	DD	G
Dibromofluoromethane (S)	90.3		%	78 - 116	SW846 8260B			3/3/17 13:18	DD	G
Toluene-d8 (S)	90.6		%	76 - 127	SW846 8260B			3/3/17 13:18	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	41		mg/L	5	S2320B-97			3/1/17 06:45	MSA	B
Alkalinity, Total	41	2	mg/L	5	S2320B-97			3/1/17 06:45	MSA	B
Ammonia-N	0.110		mg/L	0.100	D6919-09			3/8/17 17:27	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			3/9/17 13:11	AK	A
Chloride	108		mg/L	2.0	EPA 300.0			3/1/17 10:21	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			3/1/17 10:21	CHW	B
Nitrate-N	12.4		mg/L	0.20	EPA 300.0			3/1/17 10:21	CHW	B
pH	6.37	1	pH_Units		S4500HB-00			3/1/17 06:45	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	576		umhos/cm	1	SW846 9050A			3/1/17 06:45	MSA	B
Sulfate	29.7		mg/L	2.0	EPA 300.0			3/1/17 10:21	CHW	B
Total Dissolved Solids	301		mg/L	5	S2540C-11			3/1/17 18:20	JAS	B
Total Organic Carbon (TOC)	1.2		mg/L	0.50	SW846 9060A			3/1/17 11:44	PAG	D
Turbidity	0.16		NTU	0.10	S2130B-01			3/1/17 09:52	CHW	B

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ANALYTICAL RESULTS

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211398003**
Sample ID: **FFMP016W**

Date Collected: 2/28/2017 11:10 Matrix: Ground Water
Date Received: 2/28/2017 16:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	39.4		mg/L	0.11	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:36	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:36	SRT	J1
Magnesium, Total	17.1		mg/L	0.11	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:36	SRT	J1
Manganese, Total	0.058		mg/L	0.0056	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:36	SRT	J1
Potassium, Total	2.2		mg/L	0.56	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:36	SRT	J1
Sodium, Total	30.7		mg/L	0.56	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:36	SRT	J1
FIELD PARAMETERS										
Depth to Water Level	23.240		Feet		Field			12/28/16 11:10	CLT	C
Elev Top MW Casing above MSL	474.60		Feet		Field			12/28/16 11:10	CLT	C
Ground Water Elevation	451.360		ft/MSL		Field			12/28/16 11:10	CLT	C
pH, Field (SM4500B)	5.660		pH_Units		Field			12/28/16 11:10	CLT	C
Sample Depth	135.000		Feet		Field			12/28/16 11:10	CLT	C
Specific Conductance, Field	597		umhos/cm	1	Field			12/28/16 11:10	CLT	C
Temperature	10.13		Deg. C		Field			12/28/16 11:10	CLT	C
Total Well Depth	149.800		Feet		Field			12/28/16 11:10	CLT	C
Volume in Water Column	330.322		Gallons		Field			12/28/16 11:10	CLT	C


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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211398004**
Sample ID: **FIELD BLANK**

Date Collected: 2/28/2017 15:13 Matrix: Ground Water
Date Received: 2/28/2017 16:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
Toluene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/3/17 11:29	DD	G
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	G
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 11:29	DD	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)	93.3		%	62 - 133	SW846 8260B			3/3/17 11:29	DD	G
4-Bromofluorobenzene (S)	84.1		%	79 - 114	SW846 8260B			3/3/17 11:29	DD	G
Dibromofluoromethane (S)	87.5		%	78 - 116	SW846 8260B			3/3/17 11:29	DD	G
Toluene-d8 (S)	88.5		%	76 - 127	SW846 8260B			3/3/17 11:29	DD	G
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			3/1/17 07:29	MSA	B
Alkalinity, Total	ND	2	mg/L	5	S2320B-97			3/1/17 07:29	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			3/8/17 17:46	CMM	A
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			3/2/17 13:30	AK	A
Chloride	ND		mg/L	1.0	EPA 300.0			3/1/17 10:35	CHW	B
Fluoride	ND		mg/L	0.10	EPA 300.0			3/1/17 10:35	CHW	B
Nitrate-N	ND		mg/L	0.10	EPA 300.0			3/1/17 10:35	CHW	B
pH	5.99	1	pH_Units		S4500HB-00			3/1/17 07:29	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	3/7/17 00:00	JLG	3/7/17 08:51	JLG	F
Specific Conductance	ND		umhos/cm	1	SW846 9050A			3/1/17 07:29	MSA	B
Sulfate	ND		mg/L	1.0	EPA 300.0			3/1/17 10:35	CHW	B
Total Dissolved Solids	ND		mg/L	5	S2540C-11			3/1/17 18:20	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	SW846 9060A			3/1/17 11:44	PAG	D
Turbidity	ND		NTU	0.10	S2130B-01			3/1/17 09:52	CHW	B

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ANALYTICAL RESULTS

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211398004**
Sample ID: **FIELD BLANK**

Date Collected: 2/28/2017 15:13 Matrix: Ground Water
Date Received: 2/28/2017 16:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Calcium, Total	ND		mg/L	0.11	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:39	SRT	J1
Iron, Total	ND		mg/L	0.067	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:39	SRT	J1
Magnesium, Total	ND		mg/L	0.11	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:39	SRT	J1
Manganese, Total	ND		mg/L	0.0056	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:39	SRT	J1
Potassium, Total	ND		mg/L	0.56	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:39	SRT	J1
Sodium, Total	ND		mg/L	0.56	SW846 6010C	3/2/17 05:10	ZMC	3/7/17 12:39	SRT	J1


Ms. Susan J Scherer
Project Coordinator

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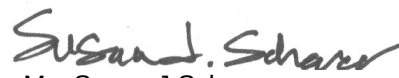
ANALYTICAL RESULTS

Workorder: 2211398 1ST QTR 2017 GWMP-FORM 19Q

Lab ID: **2211398005**
Sample ID: **TRIP BLANK**

Date Collected: 2/28/2017 16:49 Matrix: Ground Water
Date Received: 2/28/2017 16:49

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Benzene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
Toluene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			3/3/17 11:50	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			3/3/17 11:50	DD	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)	97.5		%	62 - 133	SW846 8260B			3/3/17 11:50	DD	A
4-Bromofluorobenzene (S)	85.5		%	79 - 114	SW846 8260B			3/3/17 11:50	DD	A
Dibromofluoromethane (S)	89.3		%	78 - 116	SW846 8260B			3/3/17 11:50	DD	A
Toluene-d8 (S)	89.5		%	76 - 127	SW846 8260B			3/3/17 11:50	DD	A


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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2211398001	1	FFMP028W	S4500HB-00	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.				
2211398001	2	FFMP028W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2211398002	1	FFMP025W	S4500HB-00	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.				
2211398002	2	FFMP025W	S2540C-11	Total Dissolved Solids
The RPD associated with this sample was recovered at 6%. The RPD is outside method acceptance limits of 0-5%. The results used to calculate the RPD were 253 and 239.				
2211398002	3	FFMP025W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2211398003	1	FFMP016W	S4500HB-00	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.				
2211398003	2	FFMP016W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2211398004	1	FIELD BLANK	S4500HB-00	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.				
2211398004	2	FIELD BLANK	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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CHAIN OF CUSTODY/

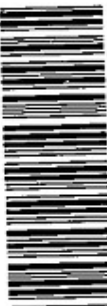
REQUEST FOR ANALYSIS

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

Generated by ALS

COC #:

ALS Quot



* 2 2 1 1 3 9 8 *

Client Name: Lancaster County Solid Waste MA		Container Type	AG	AN	CG	PL	PL	PL	PL	PL	PL	Recd
Address: 1299 Harrisburg Pike, P.O. Box 4424		Container Size	125 ml	500 ml	40 ml	500 ml	500 ml	500 ml	1 L	500 ml	500 ml	
Lancaster, PA 17604		Preservative	HCl	H2SO4	HCl	H2SO4	HNO3	None	None	None	None	
Contact: Brooks Norris												
Phone#: (717) 397-9968												
Project Name#: Frey Farm Quarry												
Bill To: Lancaster County Solid Waste MA												
☒ Normal-Standard TAT is 10-12 business days.												
☐ Rush-Subject to ALS approval and surcharges.												
TAT												
Date Required: _____ Approved By: _____												
Email? ☒ Y ☐ N Email: bnormis@lcswwma.com												
Fax? ☒ Y ☐ N No.: (717) 397-9973												
Sample Description/Location (as it will appear on the lab report)		Sample Date	Time	Enter Number of Containers Per Sample or Field Results Below.								
1. FFMP020W		2-28-17	1009	G	GW	1	1	1	1	1	1	1
2. FFMP02SW			1046									
3. FFMP06W			1110									
4. Field Blank			1513									
5. Trip Blank			1649									
6.												
7.												
8.												
9.												
10.												
Project Comments: FFMP020W - Dry - NO sample												
Relinquished By / Company Name		Date	Time	Received By / Company Name		Date	Time	LOGGED BY (signature):				
ALS		2-28-17	1649	ALS		2-28-17	1649	REVIEWED BY (signature):				
1. ALS								Data Deliverables				
3. ALS								Standard ☐ CLP-like ☐ USACE ☐				
5.								Special Processing USACE ☐ Navy ☐				
7.								State Samples Collected In NY ☐ NJ ☐ PA ☒ NC ☐				
9.								Reportable to PADEP? Yes ☐ No ☒ Lab ☒ Special ☐				
								PWSID # _____				
								EDDS: Format Type _____				

* G=Grab; C=Composite **Matrix: AL=Air; DW=Drinking Water; GW=Groundwater; OL=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 8/04

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