

July 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, 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 were consistent with historic data no significant deviations were observed.

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

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'm. reider', written in a cursive style.

Mark D. Reider
Director of Environmental Compliance

Enclosures:

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



Date Prepared/Revised
06/26/2017

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: 59.06 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.90 ft

Elevation of Water Level: 517.34 ft./MSL

Sampling Depth: 135 ft

Volume of Water Column: 131.94 gal

Total Well Depth: 148.9 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X 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): 5/15/2017

Sample Collection Time: 10:15

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): 2230125001 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	16	SM20-2320B
CALCIUM, TOTAL	8.5	SW846 6010B
CALCIUM, DISSOLVED	8.2	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	9	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	7.5	SW846 6010B
MAGNESIUM, DISSOLVED	6.8	SW846 6010B
MANGANESE, TOTAL (ug/l)	7.5	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	6	SW846 6010B
NITRATE-NITROGEN	6.9	EPA 300
pH-FIELD (SU)	5.01	FIELD
pH-LAB (SU)	6	SM20-4500B
POTASSIUM, TOTAL	1.2	SW846 6010B
POTASSIUM, DISSOLVED	1.2	SW846 6010B
SODIUM, TOTAL	11.8	SW846 6010B
SODIUM, DISSOLVED	11.2	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	194	FIELD
SPEC. COND., LAB (umhos/cm)	148	EPA 120.1
SULFATE	25	EPA 300
ALKALINITY	16	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	120	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM20- 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 5/15/2017

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.

I.D. No 101389

Monitoring Point No. FFMP015W

Sample Date 5/15/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	27	SW846 6010B
BARIUM, DISSOLVED	27	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	9.8	SW846 6010B
ZINC, DISSOLVED	9.5	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP015W

Sample Date 5/15/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP015W
Sample Date	5/15/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: FFMP023W

☒ Well ☐ Spring ☐ Stream ☐ Other

☒ Upgradient/Upstream ☐ Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 31.62 "

Longitude: 76° 27' 24.05"

Depth to Water Level: 61.32 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.50 ft

Elevation of Water Level: 550.48 ft./MSL

Sampling Depth: 79 ft

Volume of Water Column: 30.37 gal

Total Well Depth: 82 ft

Sampling Method: X 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): 5/15/2017

Sample Collection Time: 11:12

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2230125002 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	5	SM20-2320B
CALCIUM, TOTAL	10.5	SW846 6010B
CALCIUM, DISSOLVED	10.4	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	24.1	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	61	SW846 6010B
MAGNESIUM, TOTAL	8.2	SW846 6010B
MAGNESIUM, DISSOLVED	7.9	SW846 6010B
MANGANESE, TOTAL (ug/l)	160	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	160	SW846 6010B
NITRATE-NITROGEN	12.3	EPA 300
pH-FIELD (SU)	4.02	FIELD
pH-LAB (SU)	5.36	SM20-4500B
POTASSIUM, TOTAL	1	SW846 6010B
POTASSIUM, DISSOLVED	1	SW846 6010B
SODIUM, TOTAL	9.3	SW846 6010B
SODIUM, DISSOLVED	9	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	219	FIELD
SPEC. COND., LAB (umhos/cm)	171	EPA 120.1
SULFATE	2 ND	EPA 300
ALKALINITY	5	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	175	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.71	SM20- 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 5/15/2017

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.

I.D. No 101389

Monitoring Point No. FFMP023W

Sample Date 5/15/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	96	SW846 6010B
BARIUM, DISSOLVED	96	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	21	SW846 6010B
ZINC, DISSOLVED	22	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP023W

Sample Date 5/15/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP023W
Sample Date	5/15/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

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ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	7.9	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

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DEP USE ONLY

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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: FFMP024W

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

X	Upgradient/Upstream	Downgradient/Downstream
---	---------------------	-------------------------

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 31.52 "

Longitude: 76° 27' 24.75"

Depth to Water Level: 62.31 ft

Measured from: Land Surface X TOC

Casing Stickup: 0.82 ft

Elevation of Water Level: 549.11 ft./MSL

Sampling Depth: 180.78 ft

Volume of Water Column: 203.42 gal

Total Well Depth: 200.82 ft

Sampling Method: X 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): 5/15/2017

Sample Collection Time: 12:33

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): 2230125003 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP024W

Sample Date 5/15/2017

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	SM20-4500D
BICARBONATE ALKALINITY	120	SM20-2320B
CALCIUM, TOTAL	41.6	SW846 6010B
CALCIUM, DISSOLVED	40.6	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	15.6	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	89	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	5.5	SW846 6010B
MAGNESIUM, DISSOLVED	5.4	SW846 6010B
MANGANESE, TOTAL (ug/l)	29	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	29	SW846 6010B
NITRATE-NITROGEN	6.4	EPA 300
pH-FIELD (SU)	6.61	FIELD
pH-LAB (SU)	7.33	SM20-4500B
POTASSIUM, TOTAL	0.99	SW846 6010B
POTASSIUM, DISSOLVED	0.97	SW846 6010B
SODIUM, TOTAL	25	SW846 6010B
SODIUM, DISSOLVED	24.5	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	404	FIELD
SPEC. COND., LAB (umhos/cm)	324	EPA 120.1
SULFATE	26.5	EPA 300
ALKALINITY	120	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	246	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	2.12	SM20- 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 5/15/2017

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.

I.D. No 101389

Monitoring Point No. FFMP024W

Sample Date 5/15/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	24	SW846 6010B
BARIUM, DISSOLVED	22	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	5.6 ND	SW846 6010B
ZINC, DISSOLVED	5.6 ND	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP024W

Sample Date 5/15/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP024W
Sample Date	5/15/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: FFMP002W

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

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
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
70	1	1
71	1	1
72	1	1
73	1	1
74	1	1
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 ' 32.25 "

Longitude: 76° 27' 24.03"

Depth to Water Level: 56.83 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.60 ft

Elevation of Water Level: 556.37 ft./MSL

Sampling Depth: 85 ft

Volume of Water Column: 165.62 gal

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): 5/15/2017

Sample Collection Time: 13:12

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2230125004 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	5 ND	SM20-2320B
CALCIUM, TOTAL	19.6	SW846 6010B
CALCIUM, DISSOLVED	19	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	23	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	140	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	9.2	SW846 6010B
MAGNESIUM, DISSOLVED	8.6	SW846 6010B
MANGANESE, TOTAL (ug/l)	230	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	230	SW846 6010B
NITRATE-NITROGEN	22.5	EPA 300
pH-FIELD (SU)	4.5	FIELD
pH-LAB (SU)	5.34	SM20-4500B
POTASSIUM, TOTAL	1.2	SW846 6010B
POTASSIUM, DISSOLVED	1.2	SW846 6010B
SODIUM, TOTAL	14.8	SW846 6010B
SODIUM, DISSOLVED	14.1	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	329	FIELD
SPEC. COND., LAB (umhos/cm)	253	EPA 120.1
SULFATE	10.6	EPA 300
ALKALINITY	5 ND	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	245	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.54	SM20- 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 5/15/2017

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.

I.D. No 101389

Monitoring Point No. FFMP002W

Sample Date 5/15/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	55	SW846 6010B
BARIUM, DISSOLVED	55	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	29	SW846 6010B
COPPER, DISSOLVED	30	SW846 6010B
LEAD-FLAMELESS, TOTAL	14	SW846 6010B
LEAD, DISSOLVED	13	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	40	SW846 6010B
ZINC, DISSOLVED	42	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP002W

Sample Date 5/15/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP002W
Sample Date	5/15/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	25	SW846 6010B
NICKEL	50	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 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: 53 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.20 ft

Elevation of Water Level: 537.90 ft./MSL

Sampling Depth: 130 ft

Volume of Water Column: 138.35 gal

Total Well Depth: 147.2 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 1.0

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

Spring Flow Rate: _____gpm

Sample Date (mm/dd/yy): 5/15/2017

Sample Collection Time: 14:40

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): 2230125005 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	14	SM20-2320B
CALCIUM, TOTAL	16.8	SW846 6010B
CALCIUM, DISSOLVED	16.6	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	25.3	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	12.6	SW846 6010B
MAGNESIUM, DISSOLVED	12.9	SW846 6010B
MANGANESE, TOTAL (ug/l)	220	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	210	SW846 6010B
NITRATE-NITROGEN	20	EPA 300
pH-FIELD (SU)	4.94	FIELD
pH-LAB (SU)	5.57	SM20-4500B
POTASSIUM, TOTAL	1.3	SW846 6010B
POTASSIUM, DISSOLVED	1.3	SW846 6010B
SODIUM, TOTAL	12	SW846 6010B
SODIUM, DISSOLVED	12.3	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	316	FIELD
SPEC. COND., LAB (umhos/cm)	248	EPA 120.1
SULFATE	3.2	EPA 300
ALKALINITY	14	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	197	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM20- 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 5/15/2017

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.

I.D. No 101389

Monitoring Point No. FFMP03AW

Sample Date 5/15/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	42	SW846 6010B
BARIUM, DISSOLVED	42	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	7.1	SW846 6010B
COPPER, DISSOLVED	6.4	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	17	SW846 6010B
ZINC, DISSOLVED	17	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP03AW

Sample Date 5/15/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP03AW
Sample Date	5/15/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHANE)	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	9.6	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 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: 78.02 ft

Measured from: Land Surface X TOC

Casing Stickup: 3.30 ft

Elevation of Water Level: 469.38 ft./MSL

Sampling Depth: 105 ft

Volume of Water Column: 52.84 gal

Total Well Depth: 114 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 1.5

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

Spring Flow Rate: _____gpm

Sample Date (mm/dd/yy): 5/15/2017

Sample Collection Time: 15:34

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): 2230125006 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	39	SM20-2320B
CALCIUM, TOTAL	73.2	SW846 6010B
CALCIUM, DISSOLVED	73.8	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	218	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	210	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	22.7	SW846 6010B
MAGNESIUM, DISSOLVED	23.1	SW846 6010B
MANGANESE, TOTAL (ug/l)	470	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	470	SW846 6010B
NITRATE-NITROGEN	2.2	EPA 300
pH-FIELD (SU)	5.16	FIELD
pH-LAB (SU)	5.78	SM20-4500B
POTASSIUM, TOTAL	7.4	SW846 6010B
POTASSIUM, DISSOLVED	7.4	SW846 6010B
SODIUM, TOTAL	63	SW846 6010B
SODIUM, DISSOLVED	63.3	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1054	FIELD
SPEC. COND., LAB (umhos/cm)	932	EPA 120.1
SULFATE	69.2	EPA 300
ALKALINITY	39	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	536	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.1	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.18	SM20- 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 5/15/2017

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.

I.D. No 101389

Monitoring Point No. FFMP26RW

Sample Date 5/15/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	120	SW846 6010B
BARIUM, DISSOLVED	110	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	7.4	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.53	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	17	SW846 6010B
ZINC, DISSOLVED	16	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP26RW

Sample Date 5/15/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP26RW
Sample Date	5/15/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHANE)	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	23	SW846 6010B
NICKEL	7.7	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT**



Date Prepared/Revised
06/26/2017

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: 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: 6.64 ft

Measured from: ☐ Land Surface ☒ TOC

Casing Stickup: 2.50 ft

Elevation of Water Level: 458.36 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: 2.7

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 5/16/2017

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): 2230467001

Final Lab Analysis Completion Date: 5/25/2017

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

Comments: _____

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.112	SM20-4500D
BICARBONATE ALKALINITY	33	SM20-2320B
CALCIUM, TOTAL	39.8	SW846 6010B
CALCIUM, DISSOLVED	39.6	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	92.4	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	18.6	SW846 6010B
MAGNESIUM, DISSOLVED	18.7	SW846 6010B
MANGANESE, TOTAL (ug/l)	13	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	13	SW846 6010B
NITRATE-NITROGEN	19.1	EPA 300
pH-FIELD (SU)	5.19	FIELD
pH-LAB (SU)	6.05	SM20-4500B
POTASSIUM, TOTAL	2.1	SW846 6010B
POTASSIUM, DISSOLVED	2.1	SW846 6010B
SODIUM, TOTAL	29.3	SW846 6010B
SODIUM, DISSOLVED	29.4	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	364	FIELD
SPEC. COND., LAB (umhos/cm)	544	EPA 120.1
SULFATE	23.4	EPA 300
ALKALINITY	33	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	391	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.1	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM20- 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 5/16/2017

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.

I.D. No 101389

Monitoring Point No. FFMP028W

Sample Date 5/16/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	67	SW846 6010B
BARIUM, DISSOLVED	66	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	14	SW846 6010B
ZINC, DISSOLVED	13	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP028W

Sample Date 5/16/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP028W
Sample Date	5/16/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHANE)	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

SECTION A. APPLICANT IDENTIFIER

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

Comments:

I.D. No 101389

Monitoring Point No. FFMP025W

Sample Date 5/16/2017

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	SM20-4500D
BICARBONATE ALKALINITY	22	SM20-2320B
CALCIUM, TOTAL	20.3	SW846 6010B
CALCIUM, DISSOLVED	21.4	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	52.4	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	12.6	SW846 6010B
MAGNESIUM, DISSOLVED	13.2	SW846 6010B
MANGANESE, TOTAL (ug/l)	8.9	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	9.3	SW846 6010B
NITRATE-NITROGEN	7.9	EPA 300
pH-FIELD (SU)	5.46	FIELD
pH-LAB (SU)	6.07	SM20-4500B
POTASSIUM, TOTAL	1.8	SW846 6010B
POTASSIUM, DISSOLVED	1.8	SW846 6010B
SODIUM, TOTAL	17.7	SW846 6010B
SODIUM, DISSOLVED	18.5	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	434	FIELD
SPEC. COND., LAB (umhos/cm)	297	EPA 120.1
SULFATE	21.4	EPA 300
ALKALINITY	22	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	219	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.96	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.21	SM20- 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 5/16/2017

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.

I.D. No 101389

Monitoring Point No. FFMP025W

Sample Date 5/16/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	49	SW846 6010B
BARIUM, DISSOLVED	50	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	8	SW846 6010B
ZINC, DISSOLVED	8.8	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP025W

Sample Date 5/16/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP025W
Sample Date	5/16/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 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: 38.51 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.00 ft

Elevation of Water Level: 438.79 ft./MSL

Sampling Depth: 55 ft

Volume of Water Column: 29.36 gal

Total Well Depth: 58.5 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): 5/16/2017

Sample Collection Time: 13:50

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): 2230467003 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	10	SM20-2320B
CALCIUM, TOTAL	14.7	SW846 6010B
CALCIUM, DISSOLVED	14.2	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	70	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	10	SW846 6010B
MAGNESIUM, DISSOLVED	10	SW846 6010B
MANGANESE, TOTAL (ug/l)	32	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	30	SW846 6010B
NITRATE-NITROGEN	3.8	EPA 300
pH-FIELD (SU)	5.06	FIELD
pH-LAB (SU)	5.83	SM20-4500B
POTASSIUM, TOTAL	2	SW846 6010B
POTASSIUM, DISSOLVED	2	SW846 6010B
SODIUM, TOTAL	23.4	SW846 6010B
SODIUM, DISSOLVED	23.3	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	343	FIELD
SPEC. COND., LAB (umhos/cm)	273	EPA 120.1
SULFATE	8.4	EPA 300
ALKALINITY	10	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	187	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.54	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.19	SM20- 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 5/16/2017

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.

I.D. No 101389

Monitoring Point No. FFMP029W

Sample Date 5/16/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	61	SW846 6010B
BARIUM, DISSOLVED	58	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	6.7	SW846 6010B
ZINC, DISSOLVED	5.6 ND	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP029W

Sample Date 5/16/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP029W
Sample Date	5/16/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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 X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 10.67 "

Longitude: 76° 27' 21.3"

Depth to Water Level: 68.61 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.70 ft

Elevation of Water Level: 468.79 ft./MSL

Sampling Depth: 135 ft

Volume of Water Column: 119.53 gal

Total Well Depth: 150 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X 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): 5/16/2017

Sample Collection Time: 15:04

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): 2230467004 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	43	SM20-2320B
CALCIUM, TOTAL	79.5	SW846 6010B
CALCIUM, DISSOLVED	78.9	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	214	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	20.6	SW846 6010B
MAGNESIUM, DISSOLVED	20.9	SW846 6010B
MANGANESE, TOTAL (ug/l)	46	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	46	SW846 6010B
NITRATE-NITROGEN	3.8	EPA 300
pH-FIELD (SU)	5.19	FIELD
pH-LAB (SU)	5.96	SM20-4500B
POTASSIUM, TOTAL	2.2	SW846 6010B
POTASSIUM, DISSOLVED	2.3	SW846 6010B
SODIUM, TOTAL	47.1	SW846 6010B
SODIUM, DISSOLVED	47.6	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	958	FIELD
SPEC. COND., LAB (umhos/cm)	864	EPA 120.1
SULFATE	60.9	EPA 300
ALKALINITY	43	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	557	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.83	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM20- 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 5/16/2017

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.

I.D. No 101389

Monitoring Point No. FFMP005W

Sample Date 5/16/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	48	SW846 6010B
BARIUM, DISSOLVED	48	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	7	SW846 6010B
ZINC, DISSOLVED	6.9	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP005W

Sample Date 5/16/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP005W
Sample Date	5/16/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 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: 41.07 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.00 ft

Elevation of Water Level: 439.63 ft./MSL

Sampling Depth: 135 ft

Volume of Water Column: 160.71 gal

Total Well Depth: 150.5 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 1.0

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

Spring Flow Rate: _____gpm

Sample Date (mm/dd/yy): 5/17/2017

Sample Collection Time: 10:20

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): 2230897001 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	49	SM20-2320B
CALCIUM, TOTAL	108	SW846 6010B
CALCIUM, DISSOLVED	99.9	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	368	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	53.5	SW846 6010B
MAGNESIUM, DISSOLVED	50.1	SW846 6010B
MANGANESE, TOTAL (ug/l)	460	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	440	SW846 6010B
NITRATE-NITROGEN	3.1	EPA 300
pH-FIELD (SU)	5.45	FIELD
pH-LAB (SU)	6.2	SM20-4500B
POTASSIUM, TOTAL	4.1	SW846 6010B
POTASSIUM, DISSOLVED	4.8	SW846 6010B
SODIUM, TOTAL	86.8	SW846 6010B
SODIUM, DISSOLVED	79.7	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1525	FIELD
SPEC. COND., LAB (umhos/cm)	1370	EPA 120.1
SULFATE	57	EPA 300
ALKALINITY	49	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	1040	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.6	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.16	SM20- 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 5/17/2017

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.

I.D. No 101389

Monitoring Point No. FFMP017W

Sample Date 5/17/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	140	SW846 6010B
BARIUM, DISSOLVED	130	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	11	SW846 6010B
ZINC, DISSOLVED	11	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP017W

Sample Date 5/17/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP017W
Sample Date	5/17/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	11	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 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: 16.23 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.40 ft

Elevation of Water Level: 491.37 ft./MSL

Sampling Depth: 135 ft

Volume of Water Column: 197.93 gal

Total Well Depth: 151 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): 5/17/2017

Sample Collection Time: 11:50

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): 2230897002 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	162	SM20-2320B
CALCIUM, TOTAL	120	SW846 6010B
CALCIUM, DISSOLVED	126	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	194	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	1200	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	15.7	SW846 6010B
MAGNESIUM, DISSOLVED	13.8	SW846 6010B
MANGANESE, TOTAL (ug/l)	7.2	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	5.6 ND	SW846 6010B
NITRATE-NITROGEN	7.8	EPA 300
pH-FIELD (SU)	7	FIELD
pH-LAB (SU)	7.41	SM20-4500B
POTASSIUM, TOTAL	1.2	SW846 6010B
POTASSIUM, DISSOLVED	1.2	SW846 6010B
SODIUM, TOTAL	59.3	SW846 6010B
SODIUM, DISSOLVED	56.1	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1126	FIELD
SPEC. COND., LAB (umhos/cm)	1010	EPA 120.1
SULFATE	32.8	EPA 300
ALKALINITY	162	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	694	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	8.49	SM20- 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 5/17/2017

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.

I.D. No 101389

Monitoring Point No. FFMP013W

Sample Date 5/17/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	160	SW846 6010B
BARIUM, DISSOLVED	160	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	5.6 ND	SW846 6010B
ZINC, DISSOLVED	5.6 ND	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP013W

Sample Date 5/17/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP013W
Sample Date	5/17/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 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: 16.29 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.60 ft

Elevation of Water Level: 491.01 ft./MSL

Sampling Depth: 24.5 ft

Volume of Water Column: 8.69 gal

Total Well Depth: 29.6 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 6.1

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

Spring Flow Rate: _____gpm

Sample Date (mm/dd/yy): 5/17/2017

Sample Collection Time: 12:08

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): 2230897003 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	22	SM20-2320B
CALCIUM, TOTAL	21.7	SW846 6010B
CALCIUM, DISSOLVED	22.9	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	109	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	160	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	14.2	SW846 6010B
MAGNESIUM, DISSOLVED	12.3	SW846 6010B
MANGANESE, TOTAL (ug/l)	16	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	14	SW846 6010B
NITRATE-NITROGEN	6	EPA 300
pH-FIELD (SU)	5.16	FIELD
pH-LAB (SU)	5.85	SM20-4500B
POTASSIUM, TOTAL	1.9	SW846 6010B
POTASSIUM, DISSOLVED	1.8	SW846 6010B
SODIUM, TOTAL	55.6	SW846 6010B
SODIUM, DISSOLVED	51.9	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	560	FIELD
SPEC. COND., LAB (umhos/cm)	511	EPA 120.1
SULFATE	44.6	EPA 300
ALKALINITY	22	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	295	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.51	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	6.41	SM20- 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 5/17/2017

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.

I.D. No 101389

Monitoring Point No. FFMP014W

Sample Date 5/17/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	76	SW846 6010B
BARIUM, DISSOLVED	78	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	4.9	SW846 6010B
CHROMIUM, DISSOLVED	3.3	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	5.6 ND	SW846 6010B
ZINC, DISSOLVED	13	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP014W

Sample Date 5/17/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP014W
Sample Date	5/17/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHANE)	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 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: 34.82 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.52 ft

Elevation of Water Level: 525.9 ft./MSL

Sampling Depth: 146 ft

Volume of Water Column: 391.69 gal

Total Well Depth: 301.52 ft

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No

Well Volumes Purged: 0.3

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

Spring Flow Rate: _____gpm

Sample Date (mm/dd/yy): 5/17/2017

Sample Collection Time: 13:48

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): 2230897004 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	202	SM20-2320B
CALCIUM, TOTAL	155	SW846 6010B
CALCIUM, DISSOLVED	155	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	318	EPA 300
FLUORIDE	0.5 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	28.4	SW846 6010B
MAGNESIUM, DISSOLVED	25.2	SW846 6010B
MANGANESE, TOTAL (ug/l)	150	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	150	SW846 6010B
NITRATE-NITROGEN	0.5 ND	EPA 300
pH-FIELD (SU)	6.86	FIELD
pH-LAB (SU)	7.33	SM20-4500B
POTASSIUM, TOTAL	2.2	SW846 6010B
POTASSIUM, DISSOLVED	2	SW846 6010B
SODIUM, TOTAL	92.9	SW846 6010B
SODIUM, DISSOLVED	82.7	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1520	FIELD
SPEC. COND., LAB (umhos/cm)	1360	EPA 120.1
SULFATE	57.3	EPA 300
ALKALINITY	202	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	912	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.68	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.4	SM20- 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 101389

Monitoring Point No. FFMP04AW

Sample Date 5/17/2017

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.

I.D. No 101389

Monitoring Point No. FFMP04AW

Sample Date 5/17/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	200	SW846 6010B
BARIUM, DISSOLVED	200	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	5.6 ND	SW846 6010B
ZINC, DISSOLVED	5.6 ND	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP04AW

Sample Date 5/17/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP04AW
Sample Date	5/17/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHANE)	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	9	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 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: 35.09 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.20 ft

Elevation of Water Level: 527.21 ft./MSL

Sampling Depth: 85 ft

Volume of Water Column: 80.64 gal

Total Well Depth: 90 ft

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: X Yes No

Well Volumes Purged: 1.0

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

Spring Flow Rate: _____gpm

Sample Date (mm/dd/yy): 5/17/2017

Sample Collection Time: 15:01

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS Environmental

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2230897005 Final Lab Analysis CompletionDate: 5/25/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP30RW

Sample Date 5/17/2017

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	0.102	SM20-4500D
BICARBONATE ALKALINITY	36	SM20-2320B
CALCIUM, TOTAL	47.4	SW846 6010B
CALCIUM, DISSOLVED	50.9	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	272	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	150	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	19.6	SW846 6010B
MAGNESIUM, DISSOLVED	18.4	SW846 6010B
MANGANESE, TOTAL (ug/l)	3400	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	3500	SW846 6010B
NITRATE-NITROGEN	5.4	EPA 300
pH-FIELD (SU)	5.28	FIELD
pH-LAB (SU)	6.02	SM20-4500B
POTASSIUM, TOTAL	6.3	SW846 6010B
POTASSIUM, DISSOLVED	6.2	SW846 6010B
SODIUM, TOTAL	126	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	989	FIELD
SPEC. COND., LAB (umhos/cm)	1060	EPA 120.1
SULFATE	34.5	EPA 300
ALKALINITY	36	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	646	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.66	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	2.94	SM20- 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 5/17/2017

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.

I.D. No 101389

Monitoring Point No. FFMP30RW

Sample Date 5/17/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	94	SW846 6010B
BARIUM, DISSOLVED	97	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	6.3	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.8	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	14	SW846 6010B
ZINC, DISSOLVED	14	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP30RW

Sample Date 5/17/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP30RW
Sample Date	5/17/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHANE)	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	23	SW846 6010B
NICKEL	32	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 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: 27.21 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.46 ft

Elevation of Water Level: 444.99 ft./MSL

Sampling Depth: 40 ft

Volume of Water Column: 15.81 gal

Total Well Depth: 51.43 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 3.2

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 5/19/2017

Sample Collection Time: 9:05

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): 2231667001 Final Lab Analysis CompletionDate: 5/31/2017

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP018W

Sample Date 5/19/2017

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	SM20-4500D
BICARBONATE ALKALINITY	13	SM20-2320B
CALCIUM, TOTAL	32.6	SW846 6010B
CALCIUM, DISSOLVED	33.4	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	130	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	950	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	18.4	SW846 6010B
MAGNESIUM, DISSOLVED	17.7	SW846 6010B
MANGANESE, TOTAL (ug/l)	400	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	260	SW846 6010B
NITRATE-NITROGEN	5.8	EPA 300
pH-FIELD (SU)	4.52	FIELD
pH-LAB (SU)	6.04	SM20-4500B
POTASSIUM, TOTAL	4.2	SW846 6010B
POTASSIUM, DISSOLVED	4.1	SW846 6010B
SODIUM, TOTAL	43.6	SW846 6010B
SODIUM, DISSOLVED	44.1	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	631	FIELD
SPEC. COND., LAB (umhos/cm)	570	EPA 120.1
SULFATE	52.4	EPA 300
ALKALINITY	13	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	376	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.83	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM20- 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 5/19/2017

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.

I.D. No 101389

Monitoring Point No. FFMP018W

Sample Date 5/19/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	99	SW846 6010B
BARIUM, DISSOLVED	99	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	7	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	7.6	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	24	SW846 6010B
ZINC, DISSOLVED	21	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP018W

Sample Date 5/19/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP018W
Sample Date	5/19/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	19	SW846 6010B
NICKEL	5.9	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: 27.88 ft

Measured from: Land Surface X TOC

Casing Stickup: 1.79 ft

Elevation of Water Level: 444.07 ft./MSL

Sampling Depth: 49 ft

Volume of Water Column: 68.48 gal

Total Well Depth: 132.79 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 2.8

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

Spring Flow Rate: _____gpm

Sample Date (mm/dd/yy): 5/19/2017

Sample Collection Time: 9:50

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): 2231667002 Final Lab Analysis CompletionDate: 5/31/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	67	SM20-2320B
CALCIUM, TOTAL	57.8	SW846 6010B
CALCIUM, DISSOLVED	58.3	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	82.8	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	5.9	SW846 6010B
MAGNESIUM, DISSOLVED	5.7	SW846 6010B
MANGANESE, TOTAL (ug/l)	5.6 ND	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	5.6 ND	SW846 6010B
NITRATE-NITROGEN	0.58	EPA 300
pH-FIELD (SU)	5.28	FIELD
pH-LAB (SU)	7.08	SM20-4500B
POTASSIUM, TOTAL	0.91	SW846 6010B
POTASSIUM, DISSOLVED	0.9	SW846 6010B
SODIUM, TOTAL	10.5	SW846 6010B
SODIUM, DISSOLVED	10	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	469	FIELD
SPEC. COND., LAB (umhos/cm)	414	EPA 120.1
SULFATE	15.3	EPA 300
ALKALINITY	67	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	258	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM20- 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 5/19/2017

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.

I.D. No 101389

Monitoring Point No. FFMP019W

Sample Date 5/19/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	80	SW846 6010B
BARIUM, DISSOLVED	79	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	5.6 ND	SW846 6010B
ZINC, DISSOLVED	5.6 ND	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP019W

Sample Date 5/19/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP019W
Sample Date	5/19/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHAN	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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: FFMP027W X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 32.62 "

Longitude: 76° 27' 7.12"

Depth to Water Level: 21.37 ft

Measured from: Land Surface X TOC

Casing Stickup: 2.50 ft

Elevation of Water Level: 500.73 ft./MSL

Sampling Depth: 45 ft

Volume of Water Column: 43.52 gal

Total Well Depth: 51 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged: 5.0

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 5/19/2017

Sample Collection Time: 11:02

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): 2231667003 Final Lab Analysis CompletionDate: 5/31/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	10	SM20-2320B
CALCIUM, TOTAL	16	SW846 6010B
CALCIUM, DISSOLVED	16.4	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	37.9	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	11	SW846 6010B
MAGNESIUM, DISSOLVED	9.9	SW846 6010B
MANGANESE, TOTAL (ug/l)	24	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	24	SW846 6010B
NITRATE-NITROGEN	12	EPA 300
pH-FIELD (SU)	4.91	FIELD
pH-LAB (SU)	5.86	SM20-4500B
POTASSIUM, TOTAL	1.4	SW846 6010B
POTASSIUM, DISSOLVED	1.4	SW846 6010B
SODIUM, TOTAL	11.6	SW846 6010B
SODIUM, DISSOLVED	11.4	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	281	FIELD
SPEC. COND., LAB (umhos/cm)	227	EPA 120.1
SULFATE	8	EPA 300
ALKALINITY	10	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	203	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM20- 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 5/19/2017

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.

I.D. No 101389

Monitoring Point No. FFMP027W

Sample Date 5/19/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	42	SW846 6010B
BARIUM, DISSOLVED	42	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	8.4	SW846 6010B
ZINC, DISSOLVED	8.2	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP027W

Sample Date 5/19/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP027W
Sample Date	5/19/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHANE)	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]



Date Prepared/Revised
06/26/2017

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 X Well ___ Spring ___ Stream ___ Other

 Upgradient/Upstream X 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: ft

Measured from: Land Surface X TOC

Casing Stickup: 1.97 ft

Elevation of Water Level: #Error ft./MSL

Sampling Depth: 135 ft

Volume of Water Column:	#Error	gal
-------------------------	--------	-----

Total Well Depth: 149.8 ft

Sampling Method: X Pumped Bailed Grab

Well Purged: X Yes No

Well Volumes Purged:

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 5/19/2017

Sample Collection Time: 11:20

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): 2231667004 Final Lab Analysis CompletionDate: 5/31/2017

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

Comments:

FORM 19

QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	23	SM20-2320B
CALCIUM, TOTAL	26.6	SW846 6010B
CALCIUM, DISSOLVED	27.4	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	7 ND	EPA 410.4
CHLORIDE	63.2	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	56 ND	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	14.7	SW846 6010B
MAGNESIUM, DISSOLVED	13.4	SW846 6010B
MANGANESE, TOTAL (ug/l)	19	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	19	SW846 6010B
NITRATE-NITROGEN	11	EPA 300
pH-FIELD (SU)	5.46	FIELD
pH-LAB (SU)	6.17	SM20-4500B
POTASSIUM, TOTAL	1.9	SW846 6010B
POTASSIUM, DISSOLVED	1.9	SW846 6010B
SODIUM, TOTAL	21.8	SW846 6010B
SODIUM, DISSOLVED	21.5	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	434	FIELD
SPEC. COND., LAB (umhos/cm)	351	EPA 120.1
SULFATE	22.8	EPA 300
ALKALINITY	23	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	248	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.61	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.1 ND	SM20- 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 5/19/2017

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.

I.D. No 101389

Monitoring Point No. FFMP016W

Sample Date 5/19/2017

FORM 19**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

1-A. Metals (Enter all data in ug/l) If initial background analyses of four consecutive analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
ARSENIC, TOTAL	3.3 ND	SW846 6010B
ARSENIC, DISSOLVED	3 ND	SW846 6010B
BARIUM, TOTAL	51	SW846 6010B
BARIUM, DISSOLVED	53	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.2 ND	SW846 6010B
CHROMIUM, DISSOLVED	2.2 ND	SW846 6010B
COPPER, TOTAL	5.6 ND	SW846 6010B
COPPER, DISSOLVED	5.6 ND	SW846 6010B
LEAD-FLAMELESS, TOTAL	2.2 ND	SW846 6010B
LEAD, DISSOLVED	2.2 ND	SW846 6010B
MERCURY, TOTAL	0.5 ND	SW846 7470A
MERCURY, DISSOLVED	0.5 ND	SW846 7470A
SELENIUM, TOTAL	5.6 ND	SW846 6010B
SELENIUM, DISSOLVED	5.6 ND	SW846 6010B
SILVER, TOTAL	2.2 ND	SW846 6010B
SILVER, DISSOLVED	2.2 ND	SW846 6010B
ZINC, TOTAL	7.2	SW846 6010B
ZINC, DISSOLVED	7.7	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP016W

Sample Date 5/19/2017

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BROMOFORM	1 ND	SW846 8260B
BROMOMETHANE	1 ND	SW846 8260B
CARBON TETRACHLORIDE	1 ND	SW846 8260B
CHLOROBENZENE	1 ND	SW846 8260B
CHLOROETHANE	1 ND	SW846 8260B
DIBROMOCHLOROMETHANE	1 ND	SW846 8260B
CHLOROMETHANE	1 ND	SW846 8260B
3-CHLORO-1-PROPENE	1 ND	SW846 8260B
1,2-DICHLOROBENZENE	1 ND	SW846 8260B
1,3-DICHLOROBENZENE	1 ND	SW846 8260B
1,4-DICHLOROBENZENE	1 ND	SW846 8260B
DICHLORODIFLUOROMETHANE	1 ND	SW846 8260B
1,2-DICHLOROPROPANE	1 ND	SW846 8260B
CIS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
TRANS 1,3-DICHLOROPROPENE	1 ND	SW846 8260B
2-BUTANONE (MEK)	10 ND	SW846 8260B
4-METHYL-2-PENTANONE	5 ND	SW846 8260B
1,1,1,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2,2-TETRACHLOROETHANE	1 ND	SW846 8260B
1,1,2-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROFLUOROMETHANE	1 ND	SW846 8260B
1,2,3-TRICHLOROPROPANE	2 ND	SW846 8260B

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

I.D. No	101389
Monitoring Point No.	FFMP016W
Sample Date	5/19/2017

FORM 19

ANNUAL WATER QUALITY ANALYSES

SUBTITLE D - Detection Zone Add-On List - When the MCL of any VOC is exceeded in the detection zone Form 50 monitoring, the following analytes must be monitored annually in the groundwater monitoring wells.

ORGANICS AND METALS (Enter all data in ug/l)

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
ACETONE	10 ND	SW846 8260B
ACRYLONITRILE	5 ND	SW846 8260B
BROMOCHLOROMETHANE (CHLOROBROMOMETHANE)	1 ND	SW846 8260B
BROMODICHLOROMETHANE	1 ND	SW846 8260B
CARBON DISULFIDE	1 ND	SW846 8260B
CHLOROFORM	1 ND	SW846 8260B
1,2-DIBROMO-3-CHLOROPROPANE	7 ND	SW846 8260B
TRANS 1,4-DICHLORO-2-BUTENE	3 ND	SW846 8260B
2-HEXANONE	5 ND	SW846 8260B
DIBROMOMETHANE	1 ND	SW846 8260B
IODOMETHANE	1 ND	SW846 8260B
STYRENE	1 ND	SW846 8260B
VINYL ACETATE	5 ND	SW846 8260B
ANTIMONY	2.2 ND	SW846 6010B
BERYLLIUM	1.1 ND	SW846 6010B
COBALT	5.6 ND	SW846 6010B
NICKEL	5.6 ND	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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

Qualitatively Identified Organic Compounds

List at least ten volatile organic compounds not otherwise identified in this section. Their identification should be based upon those compounds showing the greatest apparent concentration from the peaks of a mass spectrum of each sample. These ten compounds shall be identified but the concentration of each is not required.

[illegible]

May 30, 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: 2230125
Purchase Order:	Workorder ID: 2ND QTR 2017 FFMP-FORM 19A

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Monday, May 15, 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.

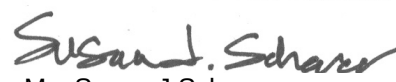
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications 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: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2230125001	FFMP015W	Ground Water	5/15/2017 10:15	5/15/2017 16:41	Mr. Brian G Shade
2230125002	FFMP023W	Ground Water	5/15/2017 11:12	5/15/2017 16:41	Mr. Brian G Shade
2230125003	FFMP024W	Ground Water	5/15/2017 12:33	5/15/2017 16:41	Mr. Brian G Shade
2230125004	FFMP002W	Ground Water	5/15/2017 13:12	5/15/2017 16:41	Mr. Brian G Shade
2230125005	FFMP03AW	Ground Water	5/15/2017 14:40	5/15/2017 16:41	Mr. Brian G Shade
2230125006	FFMP26RW	Ground Water	5/15/2017 15:34	5/15/2017 16:41	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

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: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125001**
Sample ID: **FFMP015W**

Date Collected: 5/15/2017 10:15 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/17/17 08:23	SYB	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/17/17 08:23	SYB	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/17/17 08:23	SYB	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/17/17 08:23	SYB	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/17/17 08:23	SYB	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/17/17 08:23	SYB	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/17/17 08:23	SYB	J

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125001**

Date Collected: 5/15/2017 10:15

Matrix: Ground Water

Sample ID: **FFMP015W**

Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/17/17 08:23	SYB	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/17/17 08:23	SYB	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/17/17 08:23	SYB	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 08:23	SYB	J
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	86.3		%	62 - 133	SW846 8260B			5/17/17 08:23	SYB	J
4-Bromofluorobenzene (S)	103		%	79 - 114	SW846 8260B			5/17/17 08:23	SYB	J
Dibromofluoromethane (S)	94.5		%	78 - 116	SW846 8260B			5/17/17 08:23	SYB	J
Toluene-d8 (S)	101		%	76 - 127	SW846 8260B			5/17/17 08:23	SYB	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/17/17 08:23	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	16		mg/L	5	S2320B-97			5/17/17 00:59	MSA	B
Alkalinity, Total	16	1	mg/L	5	S2320B-97			5/17/17 00:59	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/19/17 05:21	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/18/17 11:34	AK	C
Chloride	9.0		mg/L	2.0	EPA 300.0			5/16/17 09:17	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/16/17 09:17	CHW	B
Nitrate-N	6.9		mg/L	0.20	EPA 300.0			5/16/17 09:17	CHW	B
pH	6.00	2	pH_Units		S4500HB-11			5/17/17 00:59	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	148		umhos/cm	1	S2510B-97			5/17/17 00:59	MSA	B
Sulfate	25.0		mg/L	2.0	EPA 300.0			5/16/17 09:17	CHW	B
Total Dissolved Solids	120		mg/L	5	S2540C-11			5/17/17 16:55	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/22/17 09:52	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/17/17 02:42	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125001**
Sample ID: **FFMP015W**

Date Collected: 5/15/2017 10:15 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Barium, Total	0.027		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Barium, Dissolved	0.027		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Calcium, Total	8.5		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Calcium, Dissolved	8.2		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Magnesium, Total	7.5		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Magnesium, Dissolved	6.8		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Manganese, Total	0.0075		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Manganese, Dissolved	0.0060		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/17/17 02:10	AXC	5/17/17 05:56	AXC	E1
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:16	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Potassium, Total	1.2		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Potassium, Dissolved	1.2		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Sodium, Total	11.8		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Sodium, Dissolved	11.2		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2
Zinc, Total	0.0098		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:24	MO	E2

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125001**
Sample ID: **FFMP015W**

Date Collected: 5/15/2017 10:15 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0095		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:34	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	59.060		Feet		Field			5/15/17 10:15	CLT	F
Elev Top MW Casing above MSL	576.40		Feet		Field			5/15/17 10:15	CLT	F
Flow Rate	2.28		gal/min		Field			5/15/17 10:15	CLT	F
Ground Water Elevation	517.340		ft/MSL		Field			5/15/17 10:15	CLT	F
pH, Field (SM4500B)	5.010		pH_Units		Field			5/15/17 10:15	CLT	F
Sample Depth	135.000		Feet		Field			5/15/17 10:15	CLT	F
Specific Conductance, Field	194		umhos/cm	1	Field			5/15/17 10:15	CLT	F
Temperature	11.61		Deg. C		Field			5/15/17 10:15	CLT	F
Total Well Depth	149.900		Feet		Field			5/15/17 10:15	CLT	F
Volume in Water Column	133.535		Gallons		Field			5/15/17 10:15	CLT	F
Water Level After Purge	105.120		Feet		Field			5/15/17 10:15	CLT	F
Well Volumes Purged	1.19		Vol		Field			5/15/17 10:15	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125002**
Sample ID: **FFMP023W**

Date Collected: 5/15/2017 11:12 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/17/17 08:41	SYB	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/17/17 08:41	SYB	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/17/17 08:41	SYB	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/17/17 08:41	SYB	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/17/17 08:41	SYB	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/17/17 08:41	SYB	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/17/17 08:41	SYB	J

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125002**

Date Collected: 5/15/2017 11:12

Matrix: Ground Water

Sample ID: **FFMP023W**

Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/17/17 08:41	SYB	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/17/17 08:41	SYB	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/17/17 08:41	SYB	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 08:41	SYB	J
<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)	88.7		%	62 - 133	SW846 8260B			5/17/17 08:41	SYB	J
4-Bromofluorobenzene (S)	105		%	79 - 114	SW846 8260B			5/17/17 08:41	SYB	J
Dibromofluoromethane (S)	96.3		%	78 - 116	SW846 8260B			5/17/17 08:41	SYB	J
Toluene-d8 (S)	106		%	76 - 127	SW846 8260B			5/17/17 08:41	SYB	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/17/17 08:41 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	5		mg/L	5	S2320B-97			5/17/17 01:07	MSA	B
Alkalinity, Total	5	1	mg/L	5	S2320B-97			5/17/17 01:07	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/19/17 05:40	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/17/17 16:24	AK	C
Chloride	24.1		mg/L	2.0	EPA 300.0			5/16/17 09:30	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/16/17 09:30	CHW	B
Nitrate-N	12.3		mg/L	0.20	EPA 300.0			5/16/17 09:30	CHW	B
pH	5.36	2	pH_Units		S4500HB-11			5/17/17 01:07	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	171		umhos/cm	1	S2510B-97			5/17/17 01:07	MSA	B
Sulfate	ND		mg/L	2.0	EPA 300.0			5/16/17 09:30	CHW	B
Total Dissolved Solids	175		mg/L	5	S2540C-11			5/17/17 16:55	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/22/17 09:52	PAG	G
Turbidity	0.71		NTU	0.10	S2130B-01			5/17/17 02:42	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125002**
Sample ID: **FFMP023W**

Date Collected: 5/15/2017 11:12 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Barium, Total	0.096		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Barium, Dissolved	0.096		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Calcium, Total	10.5		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Calcium, Dissolved	10.4		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Iron, Dissolved	0.061		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Magnesium, Total	8.2		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Magnesium, Dissolved	7.9		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Manganese, Total	0.16		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Manganese, Dissolved	0.16		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/17/17 02:10	AXC	5/17/17 06:05	AXC	E1
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:17	AXC	D2
Nickel, Total	0.0079		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Potassium, Total	1.0		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Potassium, Dissolved	1.0		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Sodium, Total	9.3		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Sodium, Dissolved	9.0		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2
Zinc, Total	0.021		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:28	MO	E2

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125002**
Sample ID: **FFMP023W**

Date Collected: 5/15/2017 11:12 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.022		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:38	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	61.320		Feet		Field			5/15/17 11:12	CLT	F
Elev Top MW Casing above MSL	611.80		Feet		Field			5/15/17 11:12	CLT	F
Flow Rate	2.92		gal/min		Field			5/15/17 11:12	CLT	F
Ground Water Elevation	550.480		ft/MSL		Field			5/15/17 11:12	CLT	F
pH, Field (SM4500B)	4.020		pH_Units		Field			5/15/17 11:12	CLT	F
Sample Depth	79.000		Feet		Field			5/15/17 11:12	CLT	F
Specific Conductance, Field	219		umhos/cm	1	Field			5/15/17 11:12	CLT	F
Temperature	11.93		Deg. C		Field			5/15/17 11:12	CLT	F
Total Well Depth	81.500		Feet		Field			5/15/17 11:12	CLT	F
Volume in Water Column	29.665		Gallons		Field			5/15/17 11:12	CLT	F
Water Level After Purge	62.140		Feet		Field			5/15/17 11:12	CLT	F
Well Volumes Purged	3.94		Vol		Field			5/15/17 11:12	CLT	F



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125003**
Sample ID: **FFMP024W**

Date Collected: 5/15/2017 12:33 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/17/17 14:00	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/17/17 14:00	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/17/17 14:00	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/17/17 14:00	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/17/17 14:00	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,4-Dichlorobenzene	ND	3	ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/17/17 14:00	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/17/17 14:00	TMP	J

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125003**
Sample ID: **FFMP024W**

Date Collected: 5/15/2017 12:33 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/17/17 14:00	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/17/17 14:00	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/17/17 14:00	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:00	TMP	J
<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)	87.8		%	62 - 133	SW846 8260B			5/17/17 14:00	TMP	J
4-Bromofluorobenzene (S)	104		%	79 - 114	SW846 8260B			5/17/17 14:00	TMP	J
Dibromofluoromethane (S)	93.5		%	78 - 116	SW846 8260B			5/17/17 14:00	TMP	J
Toluene-d8 (S)	100		%	76 - 127	SW846 8260B			5/17/17 14:00	TMP	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/17/17 14:00	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	120		mg/L	5	S2320B-97			5/17/17 01:53	MSA	B
Alkalinity, Total	120	1	mg/L	5	S2320B-97			5/17/17 01:53	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/19/17 06:37	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/17/17 16:24	AK	C
Chloride	15.6		mg/L	2.0	EPA 300.0			5/16/17 09:43	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/16/17 09:43	CHW	B
Nitrate-N	6.4		mg/L	0.20	EPA 300.0			5/16/17 09:43	CHW	B
pH	7.33	2	pH_Units		S4500HB-11			5/17/17 01:53	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	324		umhos/cm	1	S2510B-97			5/17/17 01:53	MSA	B
Sulfate	26.5		mg/L	2.0	EPA 300.0			5/16/17 09:43	CHW	B
Total Dissolved Solids	246		mg/L	5	S2540C-11			5/17/17 16:55	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/22/17 09:52	PAG	G
Turbidity	2.12		NTU	0.10	S2130B-01			5/17/17 02:42	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125003**
Sample ID: **FFMP024W**

Date Collected: 5/15/2017 12:33 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Barium, Total	0.024		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Barium, Dissolved	0.022		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Calcium, Total	41.6		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Calcium, Dissolved	40.6		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Iron, Total	0.089		mg/L	0.056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Magnesium, Total	5.5		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Magnesium, Dissolved	5.4		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Manganese, Total	0.029		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Manganese, Dissolved	0.029		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/17/17 02:10	AXC	5/17/17 06:06	AXC	E1
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:19	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Potassium, Total	0.99		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Potassium, Dissolved	0.97		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Sodium, Total	25.0		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Sodium, Dissolved	24.5		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:32	MO	E2

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125003**
Sample ID: **FFMP024W**

Date Collected: 5/15/2017 12:33 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:42	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	62.310		Feet		Field			5/15/17 12:33	CLT	F
Elev Top MW Casing above MSL	611.42		Feet		Field			5/15/17 12:33	CLT	F
Flow Rate	2.34		gal/min		Field			5/15/17 12:33	CLT	F
Ground Water Elevation	549.110		ft/MSL		Field			5/15/17 12:33	CLT	F
pH, Field (SM4500B)	6.610		pH_Units		Field			5/15/17 12:33	CLT	F
Sample Depth	180.780		Feet		Field			5/15/17 12:33	CLT	F
Specific Conductance, Field	404		umhos/cm	1	Field			5/15/17 12:33	CLT	F
Temperature	12.73		Deg. C		Field			5/15/17 12:33	CLT	F
Total Well Depth	200.820		Feet		Field			5/15/17 12:33	CLT	F
Volume in Water Column	203.610		Gallons		Field			5/15/17 12:33	CLT	F
Water Level After Purge	123.220		Feet		Field			5/15/17 12:33	CLT	F
Well Volumes Purged	0.81		Vol		Field			5/15/17 12:33	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125004**
Sample ID: **FFMP002W**

Date Collected: 5/15/2017 13:12 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/17/17 14:18	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/17/17 14:18	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/17/17 14:18	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/17/17 14:18	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/17/17 14:18	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/17/17 14:18	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/17/17 14:18	TMP	J

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125004**
Sample ID: **FFMP002W**

Date Collected: 5/15/2017 13:12 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/17/17 14:18	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/17/17 14:18	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/17/17 14:18	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:18	TMP	J
<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)	90.7		%	62 - 133	SW846 8260B			5/17/17 14:18	TMP	J
4-Bromofluorobenzene (S)	95.9		%	79 - 114	SW846 8260B			5/17/17 14:18	TMP	J
Dibromofluoromethane (S)	97.2		%	78 - 116	SW846 8260B			5/17/17 14:18	TMP	J
Toluene-d8 (S)	106		%	76 - 127	SW846 8260B			5/17/17 14:18	TMP	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/17/17 14:18	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			5/17/17 02:02	MSA	B
Alkalinity, Total	ND	1	mg/L	5	S2320B-97			5/17/17 02:02	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/19/17 01:45	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/18/17 11:34	AK	C
Chloride	23.0		mg/L	2.0	EPA 300.0			5/16/17 09:56	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/16/17 09:56	CHW	B
Nitrate-N	22.5	3	mg/L	0.50	EPA 300.0			5/17/17 20:11	CHW	B
pH	5.34	2	pH_Units		S4500HB-11			5/17/17 02:02	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	253		umhos/cm	1	S2510B-97			5/17/17 02:02	MSA	B
Sulfate	10.6		mg/L	2.0	EPA 300.0			5/16/17 09:56	CHW	B
Total Dissolved Solids	245		mg/L	5	S2540C-11			5/17/17 16:55	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/22/17 09:52	PAG	G
Turbidity	0.54		NTU	0.10	S2130B-01			5/17/17 02:42	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125004**
Sample ID: **FFMP002W**

Date Collected: 5/15/2017 13:12 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Barium, Total	0.055		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Barium, Dissolved	0.055		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Calcium, Total	19.6		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Calcium, Dissolved	19.0		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Cobalt, Total	0.025		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Copper, Total	0.029		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Copper, Dissolved	0.030		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Iron, Total	0.14		mg/L	0.056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Lead, Total	0.014		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Lead, Dissolved	0.013		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Magnesium, Total	9.2		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Magnesium, Dissolved	8.6		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Manganese, Total	0.23		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Manganese, Dissolved	0.23		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/17/17 02:10	AXC	5/17/17 06:12	AXC	E1
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:24	AXC	D2
Nickel, Total	0.050		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Potassium, Total	1.2		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Potassium, Dissolved	1.2		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Sodium, Total	14.8		mg/L	0.11	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Sodium, Dissolved	14.1		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2
Zinc, Total	0.040		mg/L	0.0056	SW846 6020A	5/18/17 06:35	LXC	5/19/17 12:47	MO	E2

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125004**
Sample ID: **FFMP002W**

Date Collected: 5/15/2017 13:12 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.042		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 05:46	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	56.830		Feet		Field			5/15/17 13:12	CLT	F
Elev Top MW Casing above MSL	613.20		Feet		Field			5/15/17 13:12	CLT	F
Flow Rate	1.72		gal/min		Field			5/15/17 13:12	CLT	F
Ground Water Elevation	556.370		ft/MSL		Field			5/15/17 13:12	CLT	F
pH, Field (SM4500B)	4.500		pH_Units		Field			5/15/17 13:12	CLT	F
Sample Depth	85.000		Feet		Field			5/15/17 13:12	CLT	F
Specific Conductance, Field	329		umhos/cm	1	Field			5/15/17 13:12	CLT	F
Temperature	12.26		Deg. C		Field			5/15/17 13:12	CLT	F
Total Well Depth	90.020		Feet		Field			5/15/17 13:12	CLT	F
Volume in Water Column	48.789		Gallons		Field			5/15/17 13:12	CLT	F
Water Level After Purge	78.310		Feet		Field			5/15/17 13:12	CLT	F
Well Volumes Purged	0.92		Vol		Field			5/15/17 13:12	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125005**
Sample ID: **FFMP03AW**

Date Collected: 5/15/2017 14:40 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/17/17 14:37	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/17/17 14:37	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/17/17 14:37	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/17/17 14:37	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/17/17 14:37	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/17/17 14:37	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/17/17 14:37	TMP	J

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125005**
Sample ID: **FFMP03AW**

Date Collected: 5/15/2017 14:40 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/17/17 14:37	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/17/17 14:37	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/17/17 14:37	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:37	TMP	J
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	86.7		%	62 - 133	SW846 8260B			5/17/17 14:37	TMP	J
4-Bromofluorobenzene (S)	103		%	79 - 114	SW846 8260B			5/17/17 14:37	TMP	J
Dibromofluoromethane (S)	97.1		%	78 - 116	SW846 8260B			5/17/17 14:37	TMP	J
Toluene-d8 (S)	101		%	76 - 127	SW846 8260B			5/17/17 14:37	TMP	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/17/17 14:37	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	14		mg/L	5	S2320B-97			5/17/17 02:11	MSA	B
Alkalinity, Total	14	1	mg/L	5	S2320B-97			5/17/17 02:11	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/19/17 02:04	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/17/17 16:24	AK	C
Chloride	25.3		mg/L	2.0	EPA 300.0			5/16/17 11:27	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/16/17 11:27	CHW	B
Nitrate-N	20.0	3	mg/L	0.50	EPA 300.0			5/17/17 20:23	CHW	B
pH	5.57	2	pH_Units		S4500HB-11			5/17/17 02:11	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	248		umhos/cm	1	S2510B-97			5/17/17 02:11	MSA	B
Sulfate	3.2		mg/L	2.0	EPA 300.0			5/16/17 11:27	CHW	B
Total Dissolved Solids	197		mg/L	5	S2540C-11			5/17/17 16:55	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/22/17 09:52	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/17/17 02:42	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125005**

Date Collected: 5/15/2017 14:40

Matrix: Ground Water

Sample ID: **FFMP03AW**

Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Barium, Total	0.042		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Barium, Dissolved	0.042		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Calcium, Total	16.8		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Calcium, Dissolved	16.6		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Copper, Total	0.0071		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Copper, Dissolved	0.0064		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Magnesium, Total	12.6		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Magnesium, Dissolved	12.9		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Manganese, Total	0.22		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Manganese, Dissolved	0.21		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/17/17 02:10	AXC	5/17/17 06:13	AXC	E1
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:25	AXC	D2
Nickel, Total	0.0096		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Potassium, Total	1.3		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Potassium, Dissolved	1.3		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Sodium, Total	12.0		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Sodium, Dissolved	12.3		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2
Zinc, Total	0.017		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 05:49	ZMC	E2

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125005**
Sample ID: **FFMP03AW**

Date Collected: 5/15/2017 14:40 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.017		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:13	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	53.000		Feet		Field			5/15/17 14:40	CLT	F
Elev Top MW Casing above MSL	590.90		Feet		Field			5/15/17 14:40	CLT	F
Flow Rate	1.95		gal/min		Field			5/15/17 14:40	CLT	F
Ground Water Elevation	537.900		ft/MSL		Field			5/15/17 14:40	CLT	F
pH, Field (SM4500B)	4.940		pH_Units		Field			5/15/17 14:40	CLT	F
Sample Depth	130.000		Feet		Field			5/15/17 14:40	CLT	F
Specific Conductance, Field	316		umhos/cm	1	Field			5/15/17 14:40	CLT	F
Temperature	12.16		Deg. C		Field			5/15/17 14:40	CLT	F
Total Well Depth	148.400		Feet		Field			5/15/17 14:40	CLT	F
Volume in Water Column	140.238		Gallons		Field			5/15/17 14:40	CLT	F
Water Level After Purge	87.520		Feet		Field			5/15/17 14:40	CLT	F
Well Volumes Purged	1.04		Vol		Field			5/15/17 14:40	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125006**
Sample ID: **FFMP26RW**

Date Collected: 5/15/2017 15:34 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/17/17 14:55	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/17/17 14:55	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/17/17 14:55	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Carbon Tetrachloride	ND	10,9	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
3-Chloro-1-propene	ND	6	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/17/17 14:55	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/17/17 14:55	TMP	J
1,2-Dichlorobenzene	ND	19	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,3-Dichlorobenzene	ND	14	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,4-Dichlorobenzene	ND	16,1 7,18	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Dichlorodifluoromethane	ND	3	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,1-Dichloroethene	ND	5	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
trans-1,2-Dichloroethene	ND	7	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Ethylbenzene	ND	13	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/17/17 14:55	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125006**
Sample ID: **FFMP26RW**

Date Collected: 5/15/2017 15:34 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/17/17 14:55	TMP	J
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,1,1,2-Tetrachloroethane	ND	12	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Tetrachloroethene	ND	11	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Total Xylenes	ND	15	ug/L	3.0	SW846 8260B			5/17/17 14:55	TMP	J
1,1,1-Trichloroethane	ND	8	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
Trichlorofluoromethane	ND	4	ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/17/17 14:55	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/17/17 14:55	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/17/17 14:55	TMP	J
<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)	90.1		%	62 - 133	SW846 8260B			5/17/17 14:55	TMP	J
4-Bromofluorobenzene (S)	102		%	79 - 114	SW846 8260B			5/17/17 14:55	TMP	J
Dibromofluoromethane (S)	97.3		%	78 - 116	SW846 8260B			5/17/17 14:55	TMP	J
Toluene-d8 (S)	103		%	76 - 127	SW846 8260B			5/17/17 14:55	TMP	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/17/17 14:55	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	39		mg/L	5	S2320B-97			5/17/17 02:19	MSA	B
Alkalinity, Total	39	1	mg/L	5	S2320B-97			5/17/17 02:19	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/19/17 02:23	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/17/17 16:24	AK	C
Chloride	218		mg/L	5.0	EPA 300.0			5/17/17 20:35	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/16/17 11:40	CHW	B
Nitrate-N	2.2		mg/L	0.20	EPA 300.0			5/16/17 11:40	CHW	B
pH	5.78	2	pH_Units		S4500HB-11			5/17/17 02:19	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	932		umhos/cm	1	S2510B-97			5/17/17 02:19	MSA	B
Sulfate	69.2		mg/L	2.0	EPA 300.0			5/16/17 11:40	CHW	B
Total Dissolved Solids	536		mg/L	5	S2540C-11			5/17/17 16:55	JAS	B

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125006**

Date Collected: 5/15/2017 15:34

Matrix: Ground Water

Sample ID: **FFMP26RW**

Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Total Organic Carbon (TOC)	1.1		mg/L	0.50	S5310B-00			5/22/17 09:52	PAG	G
Turbidity	1.18		NTU	0.10	S2130B-01			5/17/17 02:42	MSA	B
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Barium, Total	0.12		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Barium, Dissolved	0.11		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Calcium, Total	73.2		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Calcium, Dissolved	73.8		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Chromium, Total	0.0074		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Cobalt, Total	0.023		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Iron, Total	0.21		mg/L	0.056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Magnesium, Total	22.7		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Magnesium, Dissolved	23.1		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Manganese, Total	0.47		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Manganese, Dissolved	0.47		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Mercury, Total	0.00053		mg/L	0.00050	SW846 7470A	5/17/17 02:10	AXC	5/17/17 06:14	AXC	E1
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:26	AXC	D2
Nickel, Total	0.0077		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Potassium, Total	7.4		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Potassium, Dissolved	7.4		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Sodium, Total	63.0		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Sodium, Dissolved	63.3		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230125006**
Sample ID: **FFMP26RW**

Date Collected: 5/15/2017 15:34 Matrix: Ground Water
Date Received: 5/15/2017 16:41

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Zinc, Total	0.017		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 06:17	ZMC	E2
Zinc, Dissolved	0.016		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 06:20	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	78.020		Feet		Field			5/15/17 15:34	CLT	F
Elev Top MW Casing above MSL	547.40		Feet		Field			5/15/17 15:34	CLT	F
Flow Rate	2.25		gal/min		Field			5/15/17 15:34	CLT	F
Ground Water Elevation	469.380		ft/MSL		Field			5/15/17 15:34	CLT	F
pH, Field (SM4500B)	5.160		pH_Units		Field			5/15/17 15:34	CLT	F
Sample Depth	105.000		Feet		Field			5/15/17 15:34	CLT	F
Specific Conductance, Field	1054		umhos/cm	1	Field			5/15/17 15:34	CLT	F
Temperature	12.17		Deg. C		Field			5/15/17 15:34	CLT	F
Total Well Depth	118.300		Feet		Field			5/15/17 15:34	CLT	F
Volume in Water Column	59.212		Gallons		Field			5/15/17 15:34	CLT	F
Water Level After Purge	96.620		Feet		Field			5/15/17 15:34	CLT	F
Well Volumes Purged	1.52		Vol		Field			5/15/17 15:34	CLT	F


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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2230125001	1	FFMP015W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230125001	2	FFMP015W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230125002	1	FFMP023W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230125002	2	FFMP023W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230125003	1	FFMP024W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230125003	2	FFMP024W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230125003	3	FFMP024W	SW846 8260B	1,4-Dichlorobenzene
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte 1,4-Dichlorobenzene. The % Recovery was reported as 126 and the control limits were 81 to 116.				
2230125004	1	FFMP002W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230125004	2	FFMP002W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230125004	3	FFMP002W	EPA 300.0	Nitrate-N
The sample was originally run within hold time, but required further analysis that exceeded hold time.				
2230125005	1	FFMP03AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230125005	2	FFMP03AW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230125005	3	FFMP03AW	EPA 300.0	Nitrate-N
The sample was originally run within hold time, but required further analysis that exceeded hold time.				
2230125006	1	FFMP26RW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230125006	2	FFMP26RW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230125006	3	FFMP26RW	SW846 8260B	Dichlorodifluoromethane
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte Dichlorodifluoromethane. The RPD was reported as 37.7 and the upper control limit is 24.				
2230125006	4	FFMP26RW	SW846 8260B	Trichlorofluoromethane
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte Trichlorofluoromethane. The RPD was reported as 28.3 and the upper control limit is 23.				
2230125006	5	FFMP26RW	SW846 8260B	1,1-Dichloroethene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte 1,1-Dichloroethene. The % Recovery was reported as 132 and the control limits were 63 to 128.				

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ANALYTICAL RESULTS

Workorder: 2230125 2ND QTR 2017 FFMP-FORM 19A

2230125006	6	FFMP26RW	SW846 8260B	3-Chloro-1-propene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte 3-Chloro-1-propene. The % Recovery was reported as 144 and the control limits were 59 to 135.				
2230125006	7	FFMP26RW	SW846 8260B	trans-1,2-Dichloroethene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 126 and the control limits were 71 to 122.				
2230125006	8	FFMP26RW	SW846 8260B	1,1,1-Trichloroethane
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte 1,1,1-Trichloroethane. The % Recovery was reported as 132 and the control limits were 66 to 130.				
2230125006	9	FFMP26RW	SW846 8260B	Carbon Tetrachloride
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte Carbon Tetrachloride. The % Recovery was reported as 136 and the control limits were 62 to 132.				
2230125006	10	FFMP26RW	SW846 8260B	Carbon Tetrachloride
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte Carbon Tetrachloride. The RPD was reported as 22.5 and the upper control limit is 17.				
2230125006	11	FFMP26RW	SW846 8260B	Tetrachloroethene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte Tetrachloroethene. The % Recovery was reported as 130 and the control limits were 72 to 124.				
2230125006	12	FFMP26RW	SW846 8260B	1,1,1,2-Tetrachloroethane
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte 1,1,1,2-Tetrachloroethane. The % Recovery was reported as 125 and the control limits were 78 to 121.				
2230125006	13	FFMP26RW	SW846 8260B	Ethylbenzene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte Ethylbenzene. The % Recovery was reported as 132 and the control limits were 80 to 124.				
2230125006	14	FFMP26RW	SW846 8260B	1,3-Dichlorobenzene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte 1,3-Dichlorobenzene. The RPD was reported as 17.8 and the upper control limit is 16.				
2230125006	15	FFMP26RW	SW846 8260B	Total Xylenes
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte Total Xylenes. The % Recovery was reported as 132 and the control limits were 79 to 125.				
2230125006	16	FFMP26RW	SW846 8260B	1,4-Dichlorobenzene
The QC sample type MS for method SW846 8260B was outside the control limits for the analyte 1,4-Dichlorobenzene. The % Recovery was reported as 119 and the control limits were 81 to 116.				
2230125006	17	FFMP26RW	SW846 8260B	1,4-Dichlorobenzene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte 1,4-Dichlorobenzene. The % Recovery was reported as 142 and the control limits were 81 to 116.				
2230125006	18	FFMP26RW	SW846 8260B	1,4-Dichlorobenzene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte 1,4-Dichlorobenzene. The RPD was reported as 17.7 and the upper control limit is 15.				
2230125006	19	FFMP26RW	SW846 8260B	1,2-Dichlorobenzene
The QC sample type MSD for method SW846 8260B was outside the control limits for the analyte 1,2-Dichlorobenzene. The % Recovery was reported as 134 and the control limits were 82 to 118.				

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May 30, 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:	2230467
Purchase Order:		Workorder ID:	2ND QTR 2017 FFMP-FORM 19A

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, May 16, 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.

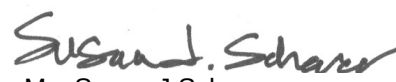
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications 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: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2230467001	FFMP028W	Ground Water	5/16/2017 11:10	5/16/2017 16:42	Mr. Brian G Shade
2230467002	FFMP025W	Ground Water	5/16/2017 12:46	5/16/2017 16:42	Mr. Brian G Shade
2230467003	FFMP029W	Ground Water	5/16/2017 13:50	5/16/2017 16:42	Mr. Brian G Shade
2230467004	FFMP005W	Ground Water	5/16/2017 15:04	5/16/2017 16:42	Mr. Brian G Shade
2230467005	Field Blank	Water	5/16/2017 15:37	5/16/2017 16:42	Mr. Brian G Shade
2230467006	Trip Blank	Water	5/16/2017 16:42	5/16/2017 16:42	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

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: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467001**
Sample ID: **FFMP028W**

Date Collected: 5/16/2017 11:10 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/18/17 14:53	DD	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/18/17 14:53	DD	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/18/17 14:53	DD	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/18/17 14:53	DD	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/18/17 14:53	DD	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/18/17 14:53	DD	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/18/17 14:53	DD	J

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467001**
Sample ID: **FFMP028W**

Date Collected: 5/16/2017 11:10 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/18/17 14:53	DD	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/18/17 14:53	DD	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/18/17 14:53	DD	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 14:53	DD	J
<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)	110		%	62 - 133	SW846 8260B			5/18/17 14:53	DD	J
4-Bromofluorobenzene (S)	88.4		%	79 - 114	SW846 8260B			5/18/17 14:53	DD	J
Dibromofluoromethane (S)	113		%	78 - 116	SW846 8260B			5/18/17 14:53	DD	J
Toluene-d8 (S)	93.6		%	76 - 127	SW846 8260B			5/18/17 14:53	DD	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/18/17 14:53 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	33		mg/L	5	S2320B-97			5/18/17 06:23	MSA	B
Alkalinity, Total	33	1	mg/L	5	S2320B-97			5/18/17 06:23	MSA	B
Ammonia-N	0.112		mg/L	0.100	D6919-09			5/19/17 15:51	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/17/17 16:24	AK	C
Chloride	92.4		mg/L	5.0	EPA 300.0			5/17/17 17:47	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			5/17/17 17:47	CHW	B
Nitrate-N	19.1		mg/L	0.50	EPA 300.0			5/17/17 17:47	CHW	B
pH	6.05	2	pH_Units		S4500HB-11			5/18/17 06:23	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	544		umhos/cm	1	S2510B-97			5/18/17 06:23	MSA	B
Sulfate	23.4		mg/L	5.0	EPA 300.0			5/17/17 17:47	CHW	B
Total Dissolved Solids	391		mg/L	5	S2540C-11			5/18/17 16:32	JAS	B
Total Organic Carbon (TOC)	1.1		mg/L	0.50	S5310B-00			5/23/17 13:44	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/17/17 23:51	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467001**

Date Collected: 5/16/2017 11:10

Matrix: Ground Water

Sample ID: **FFMP028W**

Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Barium, Total	0.067		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Barium, Dissolved	0.066		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Calcium, Total	39.8		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Calcium, Dissolved	39.6		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Magnesium, Total	18.6		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Magnesium, Dissolved	18.7		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Manganese, Total	0.013		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Manganese, Dissolved	0.013		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/23/17 01:50	AXC	5/23/17 05:44	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:36	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Potassium, Total	2.1		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Potassium, Dissolved	2.1		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Sodium, Total	29.3		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Sodium, Dissolved	29.4		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1
Zinc, Total	0.014		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:03	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467001**
Sample ID: **FFMP028W**

Date Collected: 5/16/2017 11:10 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.013		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:07	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	6.640		Feet		Field			5/16/17 11:10	CLT	F
Elev Top MW Casing above MSL	465.00		Feet		Field			5/16/17 11:10	CLT	F
Flow Rate	3.00		gal/min		Field			5/16/17 11:10	CLT	F
Ground Water Elevation	458.360		ft/MSL		Field			5/16/17 11:10	CLT	F
pH, Field (SM4500B)	5.190		pH_Units		Field			5/16/17 11:10	CLT	F
Sample Depth	50.000		Feet		Field			5/16/17 11:10	CLT	F
Specific Conductance, Field	364		umhos/cm	1	Field			5/16/17 11:10	CLT	F
Temperature	11.89		Deg. C		Field			5/16/17 11:10	CLT	F
Total Well Depth	60.000		Feet		Field			5/16/17 11:10	CLT	F
Volume in Water Column	78.439		Gallons		Field			5/16/17 11:10	CLT	F
Water Level After Purge	33.710		Feet		Field			5/16/17 11:10	CLT	F
Well Volumes Purged	2.68		Vol		Field			5/16/17 11:10	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467002**

Date Collected: 5/16/2017 12:46

Matrix: Ground Water

Sample ID: **FFMP025W**

Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/18/17 15:15	DD	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/18/17 15:15	DD	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/18/17 15:15	DD	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/18/17 15:15	DD	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/18/17 15:15	DD	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/18/17 15:15	DD	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/18/17 15:15	DD	J

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467002**
Sample ID: **FFMP025W**

Date Collected: 5/16/2017 12:46 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/18/17 15:15	DD	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/18/17 15:15	DD	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/18/17 15:15	DD	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 15:15	DD	J
<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)	108		%	62 - 133	SW846 8260B			5/18/17 15:15	DD	J
4-Bromofluorobenzene (S)	90.7		%	79 - 114	SW846 8260B			5/18/17 15:15	DD	J
Dibromofluoromethane (S)	110		%	78 - 116	SW846 8260B			5/18/17 15:15	DD	J
Toluene-d8 (S)	89.8		%	76 - 127	SW846 8260B			5/18/17 15:15	DD	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/18/17 15:15 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	22		mg/L	5	S2320B-97			5/18/17 06:32	MSA	B
Alkalinity, Total	22	1	mg/L	5	S2320B-97			5/18/17 06:32	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/19/17 16:10	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/17/17 16:24	AK	C
Chloride	52.4		mg/L	2.0	EPA 300.0			5/17/17 17:59	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/17/17 17:59	CHW	B
Nitrate-N	7.9		mg/L	0.20	EPA 300.0			5/17/17 17:59	CHW	B
pH	6.07	2	pH_Units		S4500HB-11			5/18/17 06:32	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	297		umhos/cm	1	S2510B-97			5/18/17 06:32	MSA	B
Sulfate	21.4		mg/L	2.0	EPA 300.0			5/17/17 17:59	CHW	B
Total Dissolved Solids	219		mg/L	5	S2540C-11			5/18/17 16:32	JAS	B
Total Organic Carbon (TOC)	0.96		mg/L	0.50	S5310B-00			5/23/17 13:44	PAG	G
Turbidity	0.21		NTU	0.10	S2130B-01			5/17/17 23:51	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467002**
Sample ID: **FFMP025W**

Date Collected: 5/16/2017 12:46 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Barium, Total	0.049		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Barium, Dissolved	0.050		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Calcium, Total	20.3		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Calcium, Dissolved	21.4		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Magnesium, Total	12.6		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Magnesium, Dissolved	13.2		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Manganese, Total	0.0089		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Manganese, Dissolved	0.0093		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/23/17 01:50	AXC	5/23/17 05:46	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:37	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Potassium, Total	1.8		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Potassium, Dissolved	1.8		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Sodium, Total	17.7		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Sodium, Dissolved	18.5		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1
Zinc, Total	0.0080		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:11	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467002**
Sample ID: **FFMP025W**

Date Collected: 5/16/2017 12:46 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0088		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:15	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	22.780		Feet		Field			5/16/17 14:46	CLT	F
Elev Top MW Casing above MSL	476.80		Feet		Field			5/16/17 14:46	CLT	F
Flow Rate	3.85		gal/min		Field			5/16/17 14:46	CLT	F
Ground Water Elevation	454.020		ft/MSL		Field			5/16/17 14:46	CLT	F
pH, Field (SM4500B)	5.460		pH_Units		Field			5/16/17 14:46	CLT	F
Sample Depth	39.000		Feet		Field			5/16/17 14:46	CLT	F
Specific Conductance, Field	434		umhos/cm	1	Field			5/16/17 14:46	CLT	F
Temperature	11.21		Deg. C		Field			5/16/17 14:46	CLT	F
Total Well Depth	41.500		Feet		Field			5/16/17 14:46	CLT	F
Volume in Water Column	27.518		Gallons		Field			5/16/17 14:46	CLT	F
Water Level After Purge	25.460		Feet		Field			5/16/17 14:46	CLT	F
Well Volumes Purged	5.59		Vol		Field			5/16/17 14:46	CLT	F



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467003**
Sample ID: **FFMP029W**

Date Collected: 5/16/2017 13:50 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/18/17 15:36	DD	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/18/17 15:36	DD	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/18/17 15:36	DD	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/18/17 15:36	DD	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/18/17 15:36	DD	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/18/17 15:36	DD	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/18/17 15:36	DD	J

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467003**

Date Collected: 5/16/2017 13:50

Matrix: Ground Water

Sample ID: **FFMP029W**

Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/18/17 15:36	DD	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/18/17 15:36	DD	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/18/17 15:36	DD	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 15:36	DD	J
<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)	108		%	62 - 133	SW846 8260B			5/18/17 15:36	DD	J
4-Bromofluorobenzene (S)	90.8		%	79 - 114	SW846 8260B			5/18/17 15:36	DD	J
Dibromofluoromethane (S)	112		%	78 - 116	SW846 8260B			5/18/17 15:36	DD	J
Toluene-d8 (S)	89.9		%	76 - 127	SW846 8260B			5/18/17 15:36	DD	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/18/17 15:36 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	10		mg/L	5	S2320B-97			5/18/17 07:17	MSA	B
Alkalinity, Total	10	1	mg/L	5	S2320B-97			5/18/17 07:17	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/19/17 16:29	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/17/17 16:24	AK	C
Chloride	70.0		mg/L	2.0	EPA 300.0			5/17/17 18:11	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/17/17 18:11	CHW	B
Nitrate-N	3.8		mg/L	0.20	EPA 300.0			5/17/17 18:11	CHW	B
pH	5.83	2	pH_Units		S4500HB-11			5/18/17 07:17	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	273		umhos/cm	1	S2510B-97			5/18/17 07:17	MSA	B
Sulfate	8.4		mg/L	2.0	EPA 300.0			5/17/17 18:11	CHW	B
Total Dissolved Solids	187		mg/L	5	S2540C-11			5/18/17 16:32	JAS	B
Total Organic Carbon (TOC)	0.54		mg/L	0.50	S5310B-00			5/23/17 13:44	PAG	G
Turbidity	0.19		NTU	0.10	S2130B-01			5/17/17 23:51	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467003**

Date Collected: 5/16/2017 13:50

Matrix: Ground Water

Sample ID: **FFMP029W**

Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Barium, Total	0.061		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Barium, Dissolved	0.058		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Calcium, Total	14.7		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Calcium, Dissolved	14.2		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Magnesium, Total	10.0		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Magnesium, Dissolved	10		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Manganese, Total	0.032		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Manganese, Dissolved	0.030		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/23/17 01:50	AXC	5/23/17 05:47	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:38	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Potassium, Total	2.0		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Potassium, Dissolved	2.0		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Sodium, Total	23.4		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Sodium, Dissolved	23.3		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1
Zinc, Total	0.0067		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:19	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467003**
Sample ID: **FFMP029W**

Date Collected: 5/16/2017 13:50 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:22	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	38.510		Feet		Field			5/16/17 13:50	CLT	F
Elev Top MW Casing above MSL	477.30		Feet		Field			5/16/17 13:50	CLT	F
Flow Rate	2.73		gal/min		Field			5/16/17 13:50	CLT	F
Ground Water Elevation	438.790		ft/MSL		Field			5/16/17 13:50	CLT	F
pH, Field (SM4500B)	5.060		pH_Units		Field			5/16/17 13:50	CLT	F
Sample Depth	55.000		Feet		Field			5/16/17 13:50	CLT	F
Specific Conductance, Field	343		umhos/cm	1	Field			5/16/17 13:50	CLT	F
Temperature	12.64		Deg. C		Field			5/16/17 13:50	CLT	F
Total Well Depth	60.500		Feet		Field			5/16/17 13:50	CLT	F
Volume in Water Column	32.325		Gallons		Field			5/16/17 13:50	CLT	F
Water Level After Purge	46.320		Feet		Field			5/16/17 13:50	CLT	F
Well Volumes Purged	4.23		Vol		Field			5/16/17 13:50	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467004**
Sample ID: **FFMP005W**

Date Collected: 5/16/2017 15:04 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/18/17 15:58	DD	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/18/17 15:58	DD	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/18/17 15:58	DD	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/18/17 15:58	DD	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/18/17 15:58	DD	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/18/17 15:58	DD	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/18/17 15:58	DD	J

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467004**
Sample ID: **FFMP005W**

Date Collected: 5/16/2017 15:04 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/18/17 15:58	DD	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/18/17 15:58	DD	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/18/17 15:58	DD	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 15:58	DD	J
<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)	111		%	62 - 133	SW846 8260B			5/18/17 15:58	DD	J
4-Bromofluorobenzene (S)	89.3		%	79 - 114	SW846 8260B			5/18/17 15:58	DD	J
Dibromofluoromethane (S)	113		%	78 - 116	SW846 8260B			5/18/17 15:58	DD	J
Toluene-d8 (S)	89.1		%	76 - 127	SW846 8260B			5/18/17 15:58	DD	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/18/17 15:58	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	43		mg/L	5	S2320B-97			5/18/17 07:26	MSA	B
Alkalinity, Total	43	1	mg/L	5	S2320B-97			5/18/17 07:26	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/19/17 16:48	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/17/17 16:24	AK	C
Chloride	214		mg/L	5.0	EPA 300.0			5/17/17 18:23	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			5/17/17 18:23	CHW	B
Nitrate-N	3.8		mg/L	0.50	EPA 300.0			5/17/17 18:23	CHW	B
pH	5.96	2	pH_Units		S4500HB-11			5/18/17 07:26	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/17/17 00:00	JLG	5/17/17 09:38	JLG	I
Specific Conductance	864		umhos/cm	1	S2510B-97			5/18/17 07:26	MSA	B
Sulfate	60.9		mg/L	5.0	EPA 300.0			5/17/17 18:23	CHW	B
Total Dissolved Solids	557		mg/L	5	S2540C-11			5/18/17 16:32	JAS	B
Total Organic Carbon (TOC)	0.83		mg/L	0.50	S5310B-00			5/23/17 13:44	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/17/17 23:51	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467004**
Sample ID: **FFMP005W**

Date Collected: 5/16/2017 15:04 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Barium, Total	0.048		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Barium, Dissolved	0.048		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Calcium, Total	79.5		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Calcium, Dissolved	78.9		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Magnesium, Total	20.6		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Magnesium, Dissolved	20.9		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Manganese, Total	0.046		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Manganese, Dissolved	0.046		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/23/17 01:50	AXC	5/23/17 05:48	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:39	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Potassium, Total	2.2		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Potassium, Dissolved	2.3		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Sodium, Total	47.1		mg/L	0.11	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Sodium, Dissolved	47.6		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1
Zinc, Total	0.0070		mg/L	0.0056	SW846 6020A	5/23/17 07:45	LXC	5/24/17 08:26	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467004**
Sample ID: **FFMP005W**

Date Collected: 5/16/2017 15:04 Matrix: Ground Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0069		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:30	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	68.610		Feet		Field			5/16/17 15:04	CLT	F
Elev Top MW Casing above MSL	537.40		Feet		Field			5/16/17 15:04	CLT	F
Flow Rate	2.41		gal/min		Field			5/16/17 15:04	CLT	F
Ground Water Elevation	468.790		ft/MSL		Field			5/16/17 15:04	CLT	F
pH, Field (SM4500B)	5.190		pH_Units		Field			5/16/17 15:04	CLT	F
Sample Depth	135.000		Feet		Field			5/16/17 15:04	CLT	F
Specific Conductance, Field	958		umhos/cm	1	Field			5/16/17 15:04	CLT	F
Temperature	11.48		Deg. C		Field			5/16/17 15:04	CLT	F
Total Well Depth	149.700		Feet		Field			5/16/17 15:04	CLT	F
Volume in Water Column	119.202		Gallons		Field			5/16/17 15:04	CLT	F
Water Level After Purge	98.080		Feet		Field			5/16/17 15:04	CLT	F
Well Volumes Purged	1.21		Vol		Field			5/16/17 15:04	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467005**
Sample ID: **Field Blank**

Date Collected: 5/16/2017 15:37 Matrix: Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/18/17 14:09	DD	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/18/17 14:09	DD	A
Benzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Bromoform	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/18/17 14:09	DD	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Chloroform	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/18/17 14:09	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/18/17 14:09	DD	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/18/17 14:09	DD	A
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/18/17 14:09	DD	A

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467005**

Date Collected: 5/16/2017 15:37

Matrix: Water

Sample ID: **Field Blank**

Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Styrene	ND	1	ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/18/17 14:09	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	DD	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/18/17 14:09	DD	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/18/17 14:09	DD	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 14:09	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)	108		%	62 - 133	SW846 8260B			5/18/17 14:09	DD	A
4-Bromofluorobenzene (S)	89.6		%	79 - 114	SW846 8260B			5/18/17 14:09	DD	A
Dibromofluoromethane (S)	109		%	78 - 116	SW846 8260B			5/18/17 14:09	DD	A
Toluene-d8 (S)	88.5		%	76 - 127	SW846 8260B			5/18/17 14:09	DD	A

LIBRARY SEARCH - VOLATILES

No TIC's Detected

Lib Search VOC

5/18/17 14:09 CPK A



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467006**
Sample ID: **Trip Blank**

Date Collected: 5/16/2017 16:42 Matrix: Water
Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/18/17 14:31	DD	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/18/17 14:31	DD	A
Benzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Bromoform	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/18/17 14:31	DD	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Chloroform	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/18/17 14:31	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/18/17 14:31	DD	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/18/17 14:31	DD	A
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/18/17 14:31	DD	A

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ANALYTICAL RESULTS

Workorder: 2230467 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230467006**

Date Collected: 5/16/2017 16:42

Matrix: Water

Sample ID: **Trip Blank**

Date Received: 5/16/2017 16:42

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Styrene	ND	1	ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/18/17 14:31	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	DD	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/18/17 14:31	DD	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/18/17 14:31	DD	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/18/17 14:31	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)	108		%	62 - 133	SW846 8260B			5/18/17 14:31	DD	A
4-Bromofluorobenzene (S)	88.7		%	79 - 114	SW846 8260B			5/18/17 14:31	DD	A
Dibromofluoromethane (S)	110		%	78 - 116	SW846 8260B			5/18/17 14:31	DD	A
Toluene-d8 (S)	89.4		%	76 - 127	SW846 8260B			5/18/17 14:31	DD	A

LIBRARY SEARCH - VOLATILES

No TIC's Detected

Lib Search VOC

5/18/17 14:31 CPK A



Ms. Susan J Scherer

Project Coordinator

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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2230467001	1	FFMP028W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230467001	2	FFMP028W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230467001	3	FFMP028W	SW846 8260B	Styrene
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Styrene. The % Recovery was reported as 73.8 and the control limits were 79 to 123.				
2230467002	1	FFMP025W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230467002	2	FFMP025W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230467002	3	FFMP025W	SW846 8260B	Styrene
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Styrene. The % Recovery was reported as 73.8 and the control limits were 79 to 123.				
2230467003	1	FFMP029W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230467003	2	FFMP029W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230467003	3	FFMP029W	SW846 8260B	Styrene
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Styrene. The % Recovery was reported as 73.8 and the control limits were 79 to 123.				
2230467004	1	FFMP005W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230467004	2	FFMP005W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230467004	3	FFMP005W	SW846 8260B	Styrene
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Styrene. The % Recovery was reported as 73.8 and the control limits were 79 to 123.				
2230467005	1	Field Blank	SW846 8260B	Styrene
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Styrene. The % Recovery was reported as 73.8 and the control limits were 79 to 123.				
2230467006	1	Trip Blank	SW846 8260B	Styrene
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Styrene. The % Recovery was reported as 73.8 and the control limits were 79 to 123.				

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

Environmental

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

Co. Name: LCSWMA

Contact (Report to): Mark Ruder

Address:

Phone:

PO#: Lancaster, PA

Bill to (if different than Report to):

Project Name#: Frey Farm - Annual Well - ALS Quote #:

TAT: ☐ Normal Standard TAT is 10-12 business days.

☐ Rush-Subject to ALS approval and surcharges.

Email? ☐ Y ☐ N

Fax? ☐ Y ☐ N

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

COC Comments

Sample Date

Military Time

5-16-17 1110

1246

1350

1404

1507

1642

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May 30, 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: 2230897
Purchase Order:	Workorder ID: 2ND QTR 2017 FFMP-FORM 19A

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, May 17, 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.

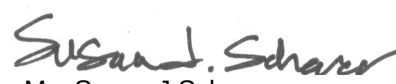
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications 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: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2230897001	FFMP017W	Ground Water	5/17/2017 10:20	5/17/2017 16:59	Mr. Brian G Shade
2230897002	FFMP013W	Ground Water	5/17/2017 11:50	5/17/2017 16:59	Mr. Brian G Shade
2230897003	FFMP014W	Ground Water	5/17/2017 12:08	5/17/2017 16:59	Mr. Brian G Shade
2230897004	FFMP04AW	Ground Water	5/17/2017 13:48	5/17/2017 16:59	Mr. Brian G Shade
2230897005	FFMP30RW	Ground Water	5/17/2017 15:01	5/17/2017 16:59	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

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: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897001**
Sample ID: **FFMP017W**

Date Collected: 5/17/2017 10:20 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/22/17 21:27	CJG	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/22/17 21:27	CJG	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/22/17 21:27	CJG	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/22/17 21:27	CJG	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/22/17 21:27	CJG	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/22/17 21:27	CJG	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/22/17 21:27	CJG	J

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897001**
Sample ID: **FFMP017W**

Date Collected: 5/17/2017 10:20 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/22/17 21:27	CJG	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/22/17 21:27	CJG	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/22/17 21:27	CJG	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 21:27	CJG	J
<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)	92.5		%	62 - 133	SW846 8260B			5/22/17 21:27	CJG	J
4-Bromofluorobenzene (S)	95.4		%	79 - 114	SW846 8260B			5/22/17 21:27	CJG	J
Dibromofluoromethane (S)	85.9		%	78 - 116	SW846 8260B			5/22/17 21:27	CJG	J
Toluene-d8 (S)	89.7		%	76 - 127	SW846 8260B			5/22/17 21:27	CJG	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/22/17 21:27	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	49		mg/L	5	S2320B-97			5/19/17 20:36	MSA	B
Alkalinity, Total	49	1	mg/L	5	S2320B-97			5/19/17 20:36	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/25/17 10:52	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/25/17 14:04	AK	C
Chloride	368		mg/L	5.0	EPA 300.0			5/19/17 11:29	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/18/17 16:56	CHW	B
Nitrate-N	3.1		mg/L	0.20	EPA 300.0			5/18/17 16:56	CHW	B
pH	6.20	2	pH_Units		S4500HB-11			5/19/17 20:36	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/23/17 09:23	JLG	I
Specific Conductance	1370		umhos/cm	1	S2510B-97			5/19/17 20:36	MSA	B
Sulfate	57.0		mg/L	2.0	EPA 300.0			5/18/17 16:56	CHW	B
Total Dissolved Solids	1040		mg/L	5	S2540C-11			5/22/17 20:32	JAS	B
Total Organic Carbon (TOC)	1.6		mg/L	0.50	S5310B-00			5/24/17 10:54	PAG	G
Turbidity	0.16		NTU	0.10	S2130B-01			5/18/17 01:35	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897001**
Sample ID: **FFMP017W**

Date Collected: 5/17/2017 10:20 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Barium, Total	0.14		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Barium, Dissolved	0.13		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Calcium, Total	108		mg/L	1.1	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:50	ZMC	E1
Calcium, Dissolved	99.9		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Magnesium, Total	53.5		mg/L	1.1	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:50	ZMC	E1
Magnesium, Dissolved	50.1		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Manganese, Total	0.46		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Manganese, Dissolved	0.44		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 05:59	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:42	AXC	D2
Nickel, Total	0.011		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Potassium, Total	4.1		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Potassium, Dissolved	4.8		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Sodium, Total	86.8		mg/L	1.1	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:50	ZMC	E1
Sodium, Dissolved	79.7		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1
Zinc, Total	0.011		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 08:57	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897001**
Sample ID: **FFMP017W**

Date Collected: 5/17/2017 10:20 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.011		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:09	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	41.070		Feet		Field			5/17/17 10:20	CLT	F
Elev Top MW Casing above MSL	480.70		Feet		Field			5/17/17 10:20	CLT	F
Flow Rate	2.30		gal/min		Field			5/17/17 10:20	CLT	F
Ground Water Elevation	439.630		ft/MSL		Field			5/17/17 10:20	CLT	F
pH, Field (SM4500B)	5.450		pH_Units		Field			5/17/17 10:20	CLT	F
Sample Depth	135.000		Feet		Field			5/17/17 10:20	CLT	F
Specific Conductance, Field	1525		umhos/cm	1	Field			5/17/17 10:20	CLT	F
Temperature	10.93		Deg. C		Field			5/17/17 10:20	CLT	F
Total Well Depth	150.500		Feet		Field			5/17/17 10:20	CLT	F
Volume in Water Column	160.862		Gallons		Field			5/17/17 10:20	CLT	F
Water Level After Purge	47.160		Feet		Field			5/17/17 10:20	CLT	F
Well Volumes Purged	1.00		Vol		Field			5/17/17 10:20	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897002**
Sample ID: **FFMP013W**

Date Collected: 5/17/2017 11:50 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/22/17 21:49	CJG	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/22/17 21:49	CJG	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/22/17 21:49	CJG	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/22/17 21:49	CJG	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/22/17 21:49	CJG	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/22/17 21:49	CJG	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/22/17 21:49	CJG	J

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897002**
Sample ID: **FFMP013W**

Date Collected: 5/17/2017 11:50 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/22/17 21:49	CJG	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/22/17 21:49	CJG	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/22/17 21:49	CJG	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 21:49	CJG	J
<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)	94.5		%	62 - 133	SW846 8260B			5/22/17 21:49	CJG	J
4-Bromofluorobenzene (S)	98.3		%	79 - 114	SW846 8260B			5/22/17 21:49	CJG	J
Dibromofluoromethane (S)	89.5		%	78 - 116	SW846 8260B			5/22/17 21:49	CJG	J
Toluene-d8 (S)	93.6		%	76 - 127	SW846 8260B			5/22/17 21:49	CJG	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/22/17 21:49 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	162		mg/L	5	S2320B-97			5/19/17 22:36	MSA	B
Alkalinity, Total	162	1	mg/L	5	S2320B-97			5/19/17 22:36	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/25/17 11:10	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/25/17 14:04	AK	C
Chloride	194		mg/L	5.0	EPA 300.0			5/19/17 11:41	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/18/17 17:08	CHW	B
Nitrate-N	7.8		mg/L	0.20	EPA 300.0			5/18/17 17:08	CHW	B
pH	7.41	2	pH_Units		S4500HB-11			5/19/17 22:36	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/23/17 09:23	JLG	I
Specific Conductance	1010		umhos/cm	1	S2510B-97			5/19/17 22:36	MSA	B
Sulfate	32.8		mg/L	2.0	EPA 300.0			5/18/17 17:08	CHW	B
Total Dissolved Solids	694		mg/L	5	S2540C-11			5/22/17 20:32	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/24/17 10:54	PAG	G
Turbidity	8.49		NTU	0.10	S2130B-01			5/18/17 01:35	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897002**
Sample ID: **FFMP013W**

Date Collected: 5/17/2017 11:50 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Barium, Total	0.16		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Barium, Dissolved	0.16		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Calcium, Total	120		mg/L	1.1	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:54	ZMC	E1
Calcium, Dissolved	126		mg/L	1.1	SW846 6020A	5/24/17 07:35	LXC	5/25/17 05:08	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Iron, Total	1.2		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Magnesium, Total	15.7		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Magnesium, Dissolved	13.8		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Manganese, Total	0.0072		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Manganese, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:00	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:43	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Potassium, Total	1.2		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Potassium, Dissolved	1.2		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Sodium, Total	59.3		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Sodium, Dissolved	56.1		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:13	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897002**
Sample ID: **FFMP013W**

Date Collected: 5/17/2017 11:50 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:22	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	16.230		Feet		Field			5/17/17 11:50	CLT	F
Elev Top MW Casing above MSL	507.60		Feet		Field			5/17/17 11:50	CLT	F
Flow Rate	2.52		gal/min		Field			5/17/17 11:50	CLT	F
Ground Water Elevation	491.370		ft/MSL		Field			5/17/17 11:50	CLT	F
pH, Field (SM4500B)	7.000		pH_Units		Field			5/17/17 11:50	CLT	F
Sample Depth	135.000		Feet		Field			5/17/17 11:50	CLT	F
Specific Conductance, Field	1126		umhos/cm	1	Field			5/17/17 11:50	CLT	F
Temperature	13.05		Deg. C		Field			5/17/17 11:50	CLT	F
Total Well Depth	150.500		Feet		Field			5/17/17 11:50	CLT	F
Volume in Water Column	197.377		Gallons		Field			5/17/17 11:50	CLT	F
Water Level After Purge	81.620		Feet		Field			5/17/17 11:50	CLT	F
Well Volumes Purged	0.90		Vol		Field			5/17/17 11:50	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897003**
Sample ID: **FFMP014W**

Date Collected: 5/17/2017 12:08 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/22/17 22:11	CJG	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/22/17 22:11	CJG	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/22/17 22:11	CJG	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/22/17 22:11	CJG	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/22/17 22:11	CJG	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/22/17 22:11	CJG	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/22/17 22:11	CJG	J

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897003**

Date Collected: 5/17/2017 12:08

Matrix: Ground Water

Sample ID: **FFMP014W**

Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/22/17 22:11	CJG	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/22/17 22:11	CJG	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/22/17 22:11	CJG	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 22:11	CJG	J
<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)	95.3		%	62 - 133	SW846 8260B			5/22/17 22:11	CJG	J
4-Bromofluorobenzene (S)	94		%	79 - 114	SW846 8260B			5/22/17 22:11	CJG	J
Dibromofluoromethane (S)	89		%	78 - 116	SW846 8260B			5/22/17 22:11	CJG	J
Toluene-d8 (S)	86.6		%	76 - 127	SW846 8260B			5/22/17 22:11	CJG	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/22/17 22:11 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	22		mg/L	5	S2320B-97			5/19/17 22:57	MSA	B
Alkalinity, Total	22	1	mg/L	5	S2320B-97			5/19/17 22:57	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/25/17 11:29	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/25/17 14:04	AK	C
Chloride	109		mg/L	2.0	EPA 300.0			5/18/17 17:20	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/18/17 17:20	CHW	B
Nitrate-N	6.0		mg/L	0.20	EPA 300.0			5/18/17 17:20	CHW	B
pH	5.85	2	pH_Units		S4500HB-11			5/19/17 22:57	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/23/17 09:23	JLG	I
Specific Conductance	511		umhos/cm	1	S2510B-97			5/19/17 22:57	MSA	B
Sulfate	44.6		mg/L	2.0	EPA 300.0			5/18/17 17:20	CHW	B
Total Dissolved Solids	295		mg/L	5	S2540C-11			5/22/17 20:32	JAS	B
Total Organic Carbon (TOC)	0.51		mg/L	0.50	S5310B-00			5/24/17 10:54	PAG	G
Turbidity	6.41		NTU	0.10	S2130B-01			5/18/17 01:35	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897003**

Date Collected: 5/17/2017 12:08

Matrix: Ground Water

Sample ID: **FFMP014W**

Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Barium, Total	0.076		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Barium, Dissolved	0.078		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Calcium, Total	21.7		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Calcium, Dissolved	22.9		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Chromium, Total	0.0049		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Chromium, Dissolved	0.0033		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Iron, Total	0.16		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Magnesium, Total	14.2		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Magnesium, Dissolved	12.3		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Manganese, Total	0.016		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Manganese, Dissolved	0.014		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:01	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:49	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Potassium, Total	1.9		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Potassium, Dissolved	1.8		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Sodium, Total	55.6		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Sodium, Dissolved	51.9		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:17	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897003**
Sample ID: **FFMP014W**

Date Collected: 5/17/2017 12:08 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.013		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:26	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	16.290		Feet		Field			5/17/17 12:08	CLT	F
Elev Top MW Casing above MSL	507.30		Feet		Field			5/17/17 12:08	CLT	F
Flow Rate	5.28		gal/min		Field			5/17/17 12:08	CLT	F
Ground Water Elevation	491.010		ft/MSL		Field			5/17/17 12:08	CLT	F
pH, Field (SM4500B)	5.160		pH_Units		Field			5/17/17 12:08	CLT	F
Sample Depth	24.500		Feet		Field			5/17/17 12:08	CLT	F
Specific Conductance, Field	560		umhos/cm	1	Field			5/17/17 12:08	CLT	F
Temperature	10.70		Deg. C		Field			5/17/17 12:08	CLT	F
Total Well Depth	29.600		Feet		Field			5/17/17 12:08	CLT	F
Volume in Water Column	8.652		Gallons		Field			5/17/17 12:08	CLT	F
Water Level After Purge	18.710		Feet		Field			5/17/17 12:08	CLT	F
Well Volumes Purged	6.10		Vol		Field			5/17/17 12:08	CLT	F



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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897004**
Sample ID: **FFMP04AW**

Date Collected: 5/17/2017 13:48 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/22/17 22:33	CJG	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/22/17 22:33	CJG	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/22/17 22:33	CJG	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/22/17 22:33	CJG	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/22/17 22:33	CJG	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/22/17 22:33	CJG	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/22/17 22:33	CJG	J

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897004**
Sample ID: **FFMP04AW**

Date Collected: 5/17/2017 13:48 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/22/17 22:33	CJG	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/22/17 22:33	CJG	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/22/17 22:33	CJG	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 22:33	CJG	J
<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)	95.9		%	62 - 133	SW846 8260B			5/22/17 22:33	CJG	J
4-Bromofluorobenzene (S)	95.7		%	79 - 114	SW846 8260B			5/22/17 22:33	CJG	J
Dibromofluoromethane (S)	88.6		%	78 - 116	SW846 8260B			5/22/17 22:33	CJG	J
Toluene-d8 (S)	93.6		%	76 - 127	SW846 8260B			5/22/17 22:33	CJG	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/22/17 22:33 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	202		mg/L	5	S2320B-97			5/19/17 23:07	MSA	B
Alkalinity, Total	202	1	mg/L	5	S2320B-97			5/19/17 23:07	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/25/17 11:48	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/25/17 14:04	AK	C
Chloride	318		mg/L	5.0	EPA 300.0			5/18/17 17:32	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			5/18/17 17:32	CHW	B
Nitrate-N	ND		mg/L	0.50	EPA 300.0			5/18/17 17:32	CHW	B
pH	7.33	2	pH_Units		S4500HB-11			5/19/17 23:07	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/23/17 09:23	JLG	I
Specific Conductance	1360		umhos/cm	1	S2510B-97			5/19/17 23:07	MSA	B
Sulfate	57.3		mg/L	5.0	EPA 300.0			5/18/17 17:32	CHW	B
Total Dissolved Solids	912		mg/L	5	S2540C-11			5/22/17 20:32	JAS	B
Total Organic Carbon (TOC)	0.68		mg/L	0.50	S5310B-00			5/24/17 10:54	PAG	G
Turbidity	0.40		NTU	0.10	S2130B-01			5/18/17 01:35	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897004**
Sample ID: **FFMP04AW**

Date Collected: 5/17/2017 13:48 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Barium, Total	0.20		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Barium, Dissolved	0.20		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Calcium, Total	155		mg/L	1.1	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:58	ZMC	E1
Calcium, Dissolved	155		mg/L	1.1	SW846 6020A	5/24/17 07:35	LXC	5/25/17 05:16	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Magnesium, Total	28.4		mg/L	1.1	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:58	ZMC	E1
Magnesium, Dissolved	25.2		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Manganese, Total	0.15		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Manganese, Dissolved	0.15		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:02	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:50	AXC	D2
Nickel, Total	0.0090		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Potassium, Total	2.2		mg/L	1.1	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:58	ZMC	E1
Potassium, Dissolved	2.0		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Sodium, Total	92.9		mg/L	1.1	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:58	ZMC	E1
Sodium, Dissolved	82.7		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:20	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897004**
Sample ID: **FFMP04AW**

Date Collected: 5/17/2017 13:48 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:29	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	34.820		Feet		Field			5/17/17 13:48	CLT	F
Elev Top MW Casing above MSL	560.72		Feet		Field			5/17/17 13:48	CLT	F
Flow Rate	1.97		gal/min		Field			5/17/17 13:48	CLT	F
Ground Water Elevation	525.900		ft/MSL		Field			5/17/17 13:48	CLT	F
pH, Field (SM4500B)	6.860		pH_Units		Field			5/17/17 13:48	CLT	F
Sample Depth	146.000		Feet		Field			5/17/17 13:48	CLT	F
Specific Conductance, Field	1520		umhos/cm	1	Field			5/17/17 13:48	CLT	F
Temperature	12.78		Deg. C		Field			5/17/17 13:48	CLT	F
Total Well Depth	299.000		Feet		Field			5/17/17 13:48	CLT	F
Volume in Water Column	388.340		Gallons		Field			5/17/17 13:48	CLT	F
Water Level After Purge	82.540		Feet		Field			5/17/17 13:48	CLT	F
Well Volumes Purged	0.30		Vol		Field			5/17/17 13:48	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897005**
Sample ID: **FFMP30RW**

Date Collected: 5/17/2017 15:01 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/22/17 22:55	CJG	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/22/17 22:55	CJG	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/22/17 22:55	CJG	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/22/17 22:55	CJG	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/22/17 22:55	CJG	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/22/17 22:55	CJG	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/22/17 22:55	CJG	J

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897005**
Sample ID: **FFMP30RW**

Date Collected: 5/17/2017 15:01 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/22/17 22:55	CJG	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/22/17 22:55	CJG	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/22/17 22:55	CJG	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/22/17 22:55	CJG	J
<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			5/22/17 22:55	CJG	J
4-Bromofluorobenzene (S)	93.1		%	79 - 114	SW846 8260B			5/22/17 22:55	CJG	J
Dibromofluoromethane (S)	87.7		%	78 - 116	SW846 8260B			5/22/17 22:55	CJG	J
Toluene-d8 (S)	88.8		%	76 - 127	SW846 8260B			5/22/17 22:55	CJG	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/22/17 22:55	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	36		mg/L	5	S2320B-97			5/19/17 23:16	MSA	B
Alkalinity, Total	36	1	mg/L	5	S2320B-97			5/19/17 23:16	MSA	B
Ammonia-N	0.102		mg/L	0.100	D6919-09			5/25/17 12:07	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/25/17 14:04	AK	C
Chloride	272		mg/L	5.0	EPA 300.0			5/19/17 11:53	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/18/17 17:44	CHW	B
Nitrate-N	5.4		mg/L	0.20	EPA 300.0			5/18/17 17:44	CHW	B
pH	6.02	2	pH_Units		S4500HB-11			5/19/17 23:16	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/23/17 09:23	JLG	I
Specific Conductance	1060		umhos/cm	1	S2510B-97			5/19/17 23:16	MSA	B
Sulfate	34.5		mg/L	2.0	EPA 300.0			5/18/17 17:44	CHW	B
Total Dissolved Solids	646		mg/L	5	S2540C-11			5/22/17 20:32	JAS	B
Total Organic Carbon (TOC)	0.66		mg/L	0.50	S5310B-00			5/24/17 10:54	PAG	G
Turbidity	2.94		NTU	0.10	S2130B-01			5/18/17 01:35	MSA	B

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897005**
Sample ID: **FFMP30RW**

Date Collected: 5/17/2017 15:01 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Barium, Total	0.094		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Barium, Dissolved	0.097		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Calcium, Total	47.4		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Calcium, Dissolved	50.9		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Cobalt, Total	0.023		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Copper, Total	0.0063		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Iron, Total	0.15		mg/L	0.056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Magnesium, Total	19.6		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Magnesium, Dissolved	18.4		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Manganese, Total	3.4		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Manganese, Dissolved	3.5		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Mercury, Total	0.00080		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:04	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/17 02:45	AXC	5/25/17 06:51	AXC	D2
Nickel, Total	0.032		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Potassium, Total	6.3		mg/L	0.11	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Potassium, Dissolved	6.2		mg/L	0.11	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1
Sodium, Total	126		mg/L	1.1	SW846 6020A	5/23/17 21:55	LXC	5/24/17 10:02	ZMC	E1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Zinc, Total	0.014		mg/L	0.0056	SW846 6020A	5/23/17 21:55	LXC	5/24/17 09:24	ZMC	E1
Zinc, Dissolved	0.014		mg/L	0.0056	SW846 6020A	5/24/17 07:35	LXC	5/25/17 04:33	ZMC	D1

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ANALYTICAL RESULTS

Workorder: 2230897 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2230897005**
Sample ID: **FFMP30RW**

Date Collected: 5/17/2017 15:01 Matrix: Ground Water
Date Received: 5/17/2017 16:59

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
FIELD PARAMETERS										
Depth to Water Level	35.090		Feet		Field			5/17/17 15:05	CLT	F
Elev Top MW Casing above MSL	562.30		Feet		Field			5/17/17 15:05	CLT	F
Flow Rate	2.00		gal/min		Field			5/17/17 15:05	CLT	F
Ground Water Elevation	527.210		ft/MSL		Field			5/17/17 15:05	CLT	F
pH, Field (SM4500B)	5.280		pH_Units		Field			5/17/17 15:05	CLT	F
Sample Depth	85.000		Feet		Field			5/17/17 15:05	CLT	F
Specific Conductance, Field	989		umhos/cm	1	Field			5/17/17 15:05	CLT	F
Temperature	11.66		Deg. C		Field			5/17/17 15:05	CLT	F
Total Well Depth	94.200		Feet		Field			5/17/17 15:05	CLT	F
Volume in Water Column	86.892		Gallons		Field			5/17/17 15:05	CLT	F
Water Level After Purge	62.110		Feet		Field			5/17/17 15:05	CLT	F
Well Volumes Purged	0.99		Vol		Field			5/17/17 15:05	CLT	F



Ms. Susan J Scherer
Project Coordinator

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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2230897001	1	FFMP017W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230897001	2	FFMP017W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230897002	1	FFMP013W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230897002	2	FFMP013W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230897003	1	FFMP014W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230897003	2	FFMP014W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230897004	1	FFMP04AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230897004	2	FFMP04AW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2230897005	1	FFMP30RW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2230897005	2	FFMP30RW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				

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June 6, 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: 2231667
Purchase Order:	Workorder ID: 2ND QTR 2017 FFMP-FORM 19A

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Friday, May 19, 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.

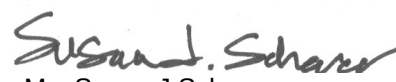
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications 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: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2231667001	FFMP018W	Ground Water	5/19/2017 09:05	5/19/2017 16:51	Mr. Brian G Shade
2231667002	FFMP019W	Ground Water	5/19/2017 09:50	5/19/2017 16:51	Mr. Brian G Shade
2231667003	FFMP027W	Ground Water	5/19/2017 11:02	5/19/2017 16:51	Mr. Brian G Shade
2231667004	FFMP016W	Ground Water	5/19/2017 11:20	5/19/2017 16:51	Mr. Brian G Shade
2231667005	FIELD BLANK	Water	5/19/2017 15:05	5/19/2017 16:51	Mr. Brian G Shade
2231667006	TRIP BLANK	Water	5/19/2017 16:51	5/19/2017 16:51	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

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: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667001**
Sample ID: **FFMP018W**

Date Collected: 5/19/2017 09:05 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/24/17 14:57	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/24/17 14:57	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/24/17 14:57	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/24/17 14:57	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/24/17 14:57	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/24/17 14:57	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/24/17 14:57	TMP	J

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667001**
Sample ID: **FFMP018W**

Date Collected: 5/19/2017 09:05 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/24/17 14:57	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/24/17 14:57	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/24/17 14:57	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 14:57	TMP	J
<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)	85.3		%	62 - 133	SW846 8260B			5/24/17 14:57	TMP	J
4-Bromofluorobenzene (S)	102		%	79 - 114	SW846 8260B			5/24/17 14:57	TMP	J
Dibromofluoromethane (S)	101		%	78 - 116	SW846 8260B			5/24/17 14:57	TMP	J
Toluene-d8 (S)	107		%	76 - 127	SW846 8260B			5/24/17 14:57	TMP	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/24/17 14:57	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	13		mg/L	5	S2320B-97			5/21/17 17:12	MSA	B
Alkalinity, Total	13	1	mg/L	5	S2320B-97			5/21/17 17:12	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/26/17 04:02	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/26/17 16:46	AK	C
Chloride	130		mg/L	2.0	EPA 300.0			5/20/17 15:41	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/20/17 15:41	CHW	B
Nitrate-N	5.8		mg/L	0.20	EPA 300.0			5/20/17 15:41	CHW	B
pH	6.04	2	pH_Units		S4500HB-11			5/21/17 17:12	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/31/17 11:54	JLG	I
Specific Conductance	570		umhos/cm	1	S2510B-97			5/21/17 17:12	MSA	B
Sulfate	52.4		mg/L	2.0	EPA 300.0			5/20/17 15:41	CHW	B
Total Dissolved Solids	376		mg/L	5	S2540C-11			5/24/17 16:58	JAS	B
Total Organic Carbon (TOC)	0.83		mg/L	0.50	S5310B-00			5/25/17 14:38	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/20/17 04:50	MBW	B

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667001**
Sample ID: **FFMP018W**

Date Collected: 5/19/2017 09:05 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Barium, Total	0.099		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Barium, Dissolved	0.099		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Calcium, Total	32.6		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Calcium, Dissolved	33.4		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Chromium, Total	0.0070		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Cobalt, Total	0.019		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Copper, Total	0.0076		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Iron, Total	0.95		mg/L	0.056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Magnesium, Total	18.4		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Magnesium, Dissolved	17.7		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Manganese, Total	0.40		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Manganese, Dissolved	0.26		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/30/17 00:40	AXC	5/30/17 04:02	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/31/17 01:30	AXC	5/31/17 06:00	AXC	D2
Nickel, Total	0.0059		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Potassium, Total	4.2		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Potassium, Dissolved	4.1		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Sodium, Total	43.6		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Sodium, Dissolved	44.1		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1
Zinc, Total	0.024		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:17	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667001**
Sample ID: **FFMP018W**

Date Collected: 5/19/2017 09:05 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.021		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:10	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	27.210		Feet		Field			5/19/17 09:05	CLT	F
Elev Top MW Casing above MSL	472.20		Feet		Field			5/19/17 09:05	CLT	F
Flow Rate	5.05		gal/min		Field			5/19/17 09:05	CLT	F
Ground Water Elevation	444.990		ft/MSL		Field			5/19/17 09:05	CLT	F
pH, Field (SM4500B)	4.520		pH_Units		Field			5/19/17 09:05	CLT	F
Sample Depth	40.000		Feet		Field			5/19/17 09:05	CLT	F
Specific Conductance, Field	631		umhos/cm	1	Field			5/19/17 09:05	CLT	F
Temperature	13.43		Deg. C		Field			5/19/17 09:05	CLT	F
Total Well Depth	51.460		Feet		Field			5/19/17 09:05	CLT	F
Volume in Water Column	15.763		Gallons		Field			5/19/17 09:05	CLT	F
Water Level After Purge	29.720		Feet		Field			5/19/17 09:05	CLT	F
Well Volumes Purged	3.20		Vol		Field			5/19/17 09:05	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667002**
Sample ID: **FFMP019W**

Date Collected: 5/19/2017 09:50 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/24/17 15:16	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/24/17 15:16	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/24/17 15:16	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/24/17 15:16	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/24/17 15:16	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/24/17 15:16	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/24/17 15:16	TMP	J

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667002**
Sample ID: **FFMP019W**

Date Collected: 5/19/2017 09:50 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/24/17 15:16	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/24/17 15:16	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/24/17 15:16	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 15:16	TMP	J
<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)	84		%	62 - 133	SW846 8260B			5/24/17 15:16	TMP	J
4-Bromofluorobenzene (S)	102		%	79 - 114	SW846 8260B			5/24/17 15:16	TMP	J
Dibromofluoromethane (S)	97.5		%	78 - 116	SW846 8260B			5/24/17 15:16	TMP	J
Toluene-d8 (S)	106		%	76 - 127	SW846 8260B			5/24/17 15:16	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/24/17 15:16 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	67		mg/L	5	S2320B-97			5/21/17 17:58	MSA	B
Alkalinity, Total	67	1	mg/L	5	S2320B-97			5/21/17 17:58	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/26/17 04:21	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/30/17 10:42	AK	C
Chloride	82.8		mg/L	2.0	EPA 300.0			5/20/17 15:54	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/20/17 15:54	CHW	B
Nitrate-N	0.58		mg/L	0.20	EPA 300.0			5/20/17 15:54	CHW	B
pH	7.08	2	pH_Units		S4500HB-11			5/21/17 17:58	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/31/17 11:54	JLG	I
Specific Conductance	414		umhos/cm	1	S2510B-97			5/21/17 17:58	MSA	B
Sulfate	15.3		mg/L	2.0	EPA 300.0			5/20/17 15:54	CHW	B
Total Dissolved Solids	258		mg/L	5	S2540C-11			5/24/17 16:58	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/25/17 14:38	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/20/17 04:50	MBW	B

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667002**

Date Collected: 5/19/2017 09:50

Matrix: Ground Water

Sample ID: **FFMP019W**

Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Barium, Total	0.080		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Barium, Dissolved	0.079		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Calcium, Total	57.8		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Calcium, Dissolved	58.3		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Magnesium, Total	5.9		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Magnesium, Dissolved	5.7		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Manganese, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Manganese, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/30/17 00:40	AXC	5/30/17 04:03	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/31/17 01:30	AXC	5/31/17 06:01	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Potassium, Total	0.91		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Potassium, Dissolved	0.90		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Sodium, Total	10.5		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Sodium, Dissolved	10.0		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:21	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667002**
Sample ID: **FFMP019W**

Date Collected: 5/19/2017 09:50 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:14	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	27.880		Feet		Field			5/19/17 09:50	CLT	F
Elev Top MW Casing above MSL	471.95		Feet		Field			5/19/17 09:50	CLT	F
Flow Rate	4.82		gal/min		Field			5/19/17 09:50	CLT	F
Ground Water Elevation	444.070		ft/MSL		Field			5/19/17 09:50	CLT	F
pH, Field (SM4500B)	5.280		pH_Units		Field			5/19/17 09:50	CLT	F
Sample Depth	49.000		Feet		Field			5/19/17 09:50	CLT	F
Specific Conductance, Field	469		umhos/cm	1	Field			5/19/17 09:50	CLT	F
Temperature	12.09		Deg. C		Field			5/19/17 09:50	CLT	F
Total Well Depth	132.790		Feet		Field			5/19/17 09:50	CLT	F
Volume in Water Column	68.192		Gallons		Field			5/19/17 09:50	CLT	F
Water Level After Purge	36.720		Feet		Field			5/19/17 09:50	CLT	F
Well Volumes Purged	2.82		Vol		Field			5/19/17 09:50	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667003**
Sample ID: **FFMP027W**

Date Collected: 5/19/2017 11:02 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/24/17 15:34	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/24/17 15:34	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/24/17 15:34	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/24/17 15:34	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/24/17 15:34	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/24/17 15:34	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/24/17 15:34	TMP	J

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667003**
Sample ID: **FFMP027W**

Date Collected: 5/19/2017 11:02 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/24/17 15:34	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/24/17 15:34	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/24/17 15:34	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 15:34	TMP	J
<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)	84.8		%	62 - 133	SW846 8260B			5/24/17 15:34	TMP	J
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			5/24/17 15:34	TMP	J
Dibromofluoromethane (S)	101		%	78 - 116	SW846 8260B			5/24/17 15:34	TMP	J
Toluene-d8 (S)	105		%	76 - 127	SW846 8260B			5/24/17 15:34	TMP	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/24/17 15:34	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	10		mg/L	5	S2320B-97			5/21/17 18:07	MSA	B
Alkalinity, Total	10	1	mg/L	5	S2320B-97			5/21/17 18:07	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/26/17 04:40	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/30/17 10:42	AK	C
Chloride	37.9		mg/L	2.0	EPA 300.0			5/20/17 16:07	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/20/17 16:07	CHW	B
Nitrate-N	12.0		mg/L	0.20	EPA 300.0			5/20/17 16:07	CHW	B
pH	5.86	2	pH_Units		S4500HB-11			5/21/17 18:07	MSA	B
Phenolics	ND	4	mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/31/17 11:54	JLG	I
Specific Conductance	227		umhos/cm	1	S2510B-97			5/21/17 18:07	MSA	B
Sulfate	8.0		mg/L	2.0	EPA 300.0			5/20/17 16:07	CHW	B
Total Dissolved Solids	203	3	mg/L	5	S2540C-11			5/24/17 16:58	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/25/17 14:38	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/20/17 04:50	MBW	B

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667003**

Date Collected: 5/19/2017 11:02

Matrix: Ground Water

Sample ID: **FFMP027W**

Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Barium, Total	0.042		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Barium, Dissolved	0.042		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Calcium, Total	16.0		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Calcium, Dissolved	16.4		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Magnesium, Total	11.0		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Magnesium, Dissolved	9.9		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Manganese, Total	0.024		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Manganese, Dissolved	0.024		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/30/17 00:40	AXC	5/30/17 04:08	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/31/17 01:30	AXC	5/31/17 06:03	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Potassium, Total	1.4		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Potassium, Dissolved	1.4		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Sodium, Total	11.6		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Sodium, Dissolved	11.4		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1
Zinc, Total	0.0084		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:25	ZMC	E1

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667003**
Sample ID: **FFMP027W**

Date Collected: 5/19/2017 11:02 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0082		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:18	ZMC	D1
FIELD PARAMETERS										
Depth to Water Level	21.370		Feet		Field			5/19/17 11:02	CLT	F
Elev Top MW Casing above MSL	522.10		Feet		Field			5/19/17 11:02	CLT	F
Flow Rate	5.92		gal/min		Field			5/19/17 11:02	CLT	F
Ground Water Elevation	500.730		ft/MSL		Field			5/19/17 11:02	CLT	F
pH, Field (SM4500B)	4.910		pH_Units		Field			5/19/17 11:02	CLT	F
Sample Depth	45.000		Feet		Field			5/19/17 11:02	CLT	F
Specific Conductance, Field	281		umhos/cm	1	Field			5/19/17 11:02	CLT	F
Temperature	14.21		Deg. C		Field			5/19/17 11:02	CLT	F
Total Well Depth	53.500		Feet		Field			5/19/17 11:02	CLT	F
Volume in Water Column	47.231		Gallons		Field			5/19/17 11:02	CLT	F
Water Level After Purge	22.320		Feet		Field			5/19/17 11:02	CLT	F
Well Volumes Purged	5.02		Vol		Field			5/19/17 11:02	CLT	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667004**
Sample ID: **FFMP016W**

Date Collected: 5/19/2017 11:20 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/24/17 15:52	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/24/17 15:52	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/24/17 15:52	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/24/17 15:52	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/24/17 15:52	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/24/17 15:52	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/24/17 15:52	TMP	J

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667004**
Sample ID: **FFMP016W**

Date Collected: 5/19/2017 11:20 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/24/17 15:52	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/24/17 15:52	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/24/17 15:52	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 15:52	TMP	J
<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)	83		%	62 - 133	SW846 8260B			5/24/17 15:52	TMP	J
4-Bromofluorobenzene (S)	107		%	79 - 114	SW846 8260B			5/24/17 15:52	TMP	J
Dibromofluoromethane (S)	98.1		%	78 - 116	SW846 8260B			5/24/17 15:52	TMP	J
Toluene-d8 (S)	103		%	76 - 127	SW846 8260B			5/24/17 15:52	TMP	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/24/17 15:52	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	23		mg/L	5	S2320B-97			5/21/17 18:16	MSA	B
Alkalinity, Total	23	1	mg/L	5	S2320B-97			5/21/17 18:16	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/26/17 04:59	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/26/17 16:46	AK	C
Chloride	63.2		mg/L	2.0	EPA 300.0			5/20/17 16:20	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/20/17 16:20	CHW	B
Nitrate-N	11.0		mg/L	0.20	EPA 300.0			5/20/17 16:20	CHW	B
pH	6.17	2	pH_Units		S4500HB-11			5/21/17 18:16	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/23/17 09:23	JLG	I
Specific Conductance	351		umhos/cm	1	S2510B-97			5/21/17 18:16	MSA	B
Sulfate	22.8		mg/L	2.0	EPA 300.0			5/20/17 16:20	CHW	B
Total Dissolved Solids	248		mg/L	5	S2540C-11			5/24/17 16:58	JAS	B
Total Organic Carbon (TOC)	0.61		mg/L	0.50	S5310B-00			5/25/17 14:38	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/20/17 04:50	MBW	B

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667004**
Sample ID: **FFMP016W**

Date Collected: 5/19/2017 11:20 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Barium, Total	0.051		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Barium, Dissolved	0.053		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Calcium, Total	26.6		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Calcium, Dissolved	27.4		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Magnesium, Total	14.7		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Magnesium, Dissolved	13.4		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Manganese, Total	0.019		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Manganese, Dissolved	0.019		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/31/17 01:30	AXC	5/31/17 05:31	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/31/17 01:30	AXC	5/31/17 06:08	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Potassium, Total	1.9		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Potassium, Dissolved	1.9		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Sodium, Total	21.8		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Sodium, Dissolved	21.5		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1
Zinc, Total	0.0072		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:28	ZMC	E1

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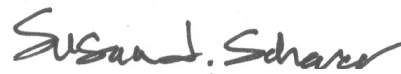
ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667004**
Sample ID: **FFMP016W**

Date Collected: 5/19/2017 11:20 Matrix: Ground Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0077		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:22	ZMC	D1
FIELD PARAMETERS										
Elev Top MW Casing above MSL	474.60		Feet		Field			5/19/17 11:20	CLT	F
Ground Water Elevation	474.600		ft/MSL		Field			5/19/17 11:20	CLT	F
pH, Field (SM4500B)	5.460		pH_Units		Field			5/19/17 11:20	CLT	F
Sample Depth	135.000		Feet		Field			5/19/17 11:20	CLT	F
Specific Conductance, Field	434		umhos/cm	1	Field			5/19/17 11:20	CLT	F
Temperature	11.21		Deg. C		Field			5/19/17 11:20	CLT	F
Total Well Depth	149.800		Feet		Field			5/19/17 11:20	CLT	F
Volume in Water Column	390.978		Gallons		Field			5/19/17 11:20	CLT	F
Water Level After Purge	22.530		Feet		Field			5/19/17 11:20	CLT	F


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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667005**
Sample ID: **FIELD BLANK**

Date Collected: 5/19/2017 15:05 Matrix: Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/24/17 14:21	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/24/17 14:21	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/24/17 14:21	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/24/17 14:21	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/24/17 14:21	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/24/17 14:21	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/24/17 14:21	TMP	J

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667005**
Sample ID: **FIELD BLANK**

Date Collected: 5/19/2017 15:05 Matrix: Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/24/17 14:21	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/24/17 14:21	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/24/17 14:21	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 14:21	TMP	J
<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)	84.8		%	62 - 133	SW846 8260B			5/24/17 14:21	TMP	J
4-Bromofluorobenzene (S)	104		%	79 - 114	SW846 8260B			5/24/17 14:21	TMP	J
Dibromofluoromethane (S)	99.7		%	78 - 116	SW846 8260B			5/24/17 14:21	TMP	J
Toluene-d8 (S)	103		%	76 - 127	SW846 8260B			5/24/17 14:21	TMP	J
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/24/17 14:21	CPK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			5/21/17 18:24	MSA	B
Alkalinity, Total	ND	1	mg/L	5	S2320B-97			5/21/17 18:24	MSA	B
Ammonia-N	ND		mg/L	0.010	D6919-09			6/1/17 16:28	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	7	EPA 410.4			5/26/17 16:46	AK	C
Chloride	ND		mg/L	1.0	EPA 300.0			5/20/17 16:33	CHW	B
Fluoride	ND		mg/L	0.10	EPA 300.0			5/20/17 16:33	CHW	B
Nitrate-N	ND		mg/L	0.10	EPA 300.0			5/20/17 16:33	CHW	B
pH	6.00	2	pH_Units		S4500HB-11			5/21/17 18:24	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/23/17 00:00	JLG	5/23/17 09:23	JLG	I
Specific Conductance	ND		umhos/cm	1	S2510B-97			5/21/17 18:24	MSA	B
Sulfate	ND		mg/L	1.0	EPA 300.0			5/20/17 16:33	CHW	B
Total Dissolved Solids	8	3	mg/L	5	S2540C-11			5/24/17 16:58	JAS	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/25/17 14:38	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/20/17 04:50	MBW	B

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667005**
Sample ID: **FIELD BLANK**

Date Collected: 5/19/2017 15:05 Matrix: Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Barium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Barium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Calcium, Total	ND		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Calcium, Dissolved	ND		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Magnesium, Total	ND		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Magnesium, Dissolved	ND		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Manganese, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Manganese, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/31/17 01:30	AXC	5/31/17 05:32	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/31/17 01:30	AXC	5/31/17 06:09	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Potassium, Total	ND		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Potassium, Dissolved	ND		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Sodium, Total	ND		mg/L	0.11	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Sodium, Dissolved	ND		mg/L	0.11	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/26/17 07:40	LXC	5/30/17 06:32	ZMC	E1

ALS Environmental Laboratory Locations Across North America

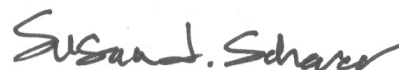
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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667005**
Sample ID: **FIELD BLANK**Date Collected: 5/19/2017 15:05 Matrix: Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/25/17 05:55	LXC	5/26/17 06:26	ZMC	D1

Ms. Susan J Scherer
Project Coordinator**ALS Environmental Laboratory Locations Across North America**Canada: Burlington · Calgary · Centre of Excellence · Edmonton · Fort McMurray · Fort St. John · Grande Prairie · London · Mississauga · Richmond Hill · Saskatoon · Thunder Bay
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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

Lab ID: **2231667006**
Sample ID: **TRIP BLANK**

Date Collected: 5/19/2017 16:51 Matrix: Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/24/17 14:39	TMP	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/24/17 14:39	TMP	A
Benzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Bromoform	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/24/17 14:39	TMP	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Chloroform	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/24/17 14:39	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/24/17 14:39	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/24/17 14:39	TMP	A
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/24/17 14:39	TMP	A

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ANALYTICAL RESULTS

Workorder: 2231667 2ND QTR 2017 FFMP-FORM 19A

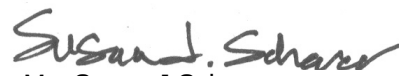
Lab ID: **2231667006**
Sample ID: **TRIP BLANK**

Date Collected: 5/19/2017 16:51 Matrix: Water
Date Received: 5/19/2017 16:51

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Styrene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/24/17 14:39	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/24/17 14:39	TMP	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/24/17 14:39	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/24/17 14:39	TMP	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	81.3		%	62 - 133	SW846 8260B			5/24/17 14:39	TMP	A
4-Bromofluorobenzene (S)	104		%	79 - 114	SW846 8260B			5/24/17 14:39	TMP	A
Dibromofluoromethane (S)	97.8		%	78 - 116	SW846 8260B			5/24/17 14:39	TMP	A
Toluene-d8 (S)	108		%	76 - 127	SW846 8260B			5/24/17 14:39	TMP	A

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/24/17 14:39 CPK A


Ms. Susan J Scherer
Project Coordinator

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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2231667001	1	FFMP018W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2231667001	2	FFMP018W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2231667002	1	FFMP019W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2231667002	2	FFMP019W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2231667003	1	FFMP027W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2231667003	2	FFMP027W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2231667003	3	FFMP027W	S2540C-11	Total Dissolved Solids
The method blank associated with this analyte had a result of 21 mg/L. Criteria states that the method blank should be less than 5 mg/L.				
2231667003	4	FFMP027W	SW846 9066	Phenolics
The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.				
2231667004	1	FFMP016W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2231667004	2	FFMP016W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2231667005	1	FIELD BLANK	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2231667005	2	FIELD BLANK	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2231667005	3	FIELD BLANK	S2540C-11	Total Dissolved Solids
The method blank associated with this analyte had a result of 21 mg/L. Criteria states that the method blank should be less than 5 mg/L.				

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